101ST

KOREANESTHESIA 2024

The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

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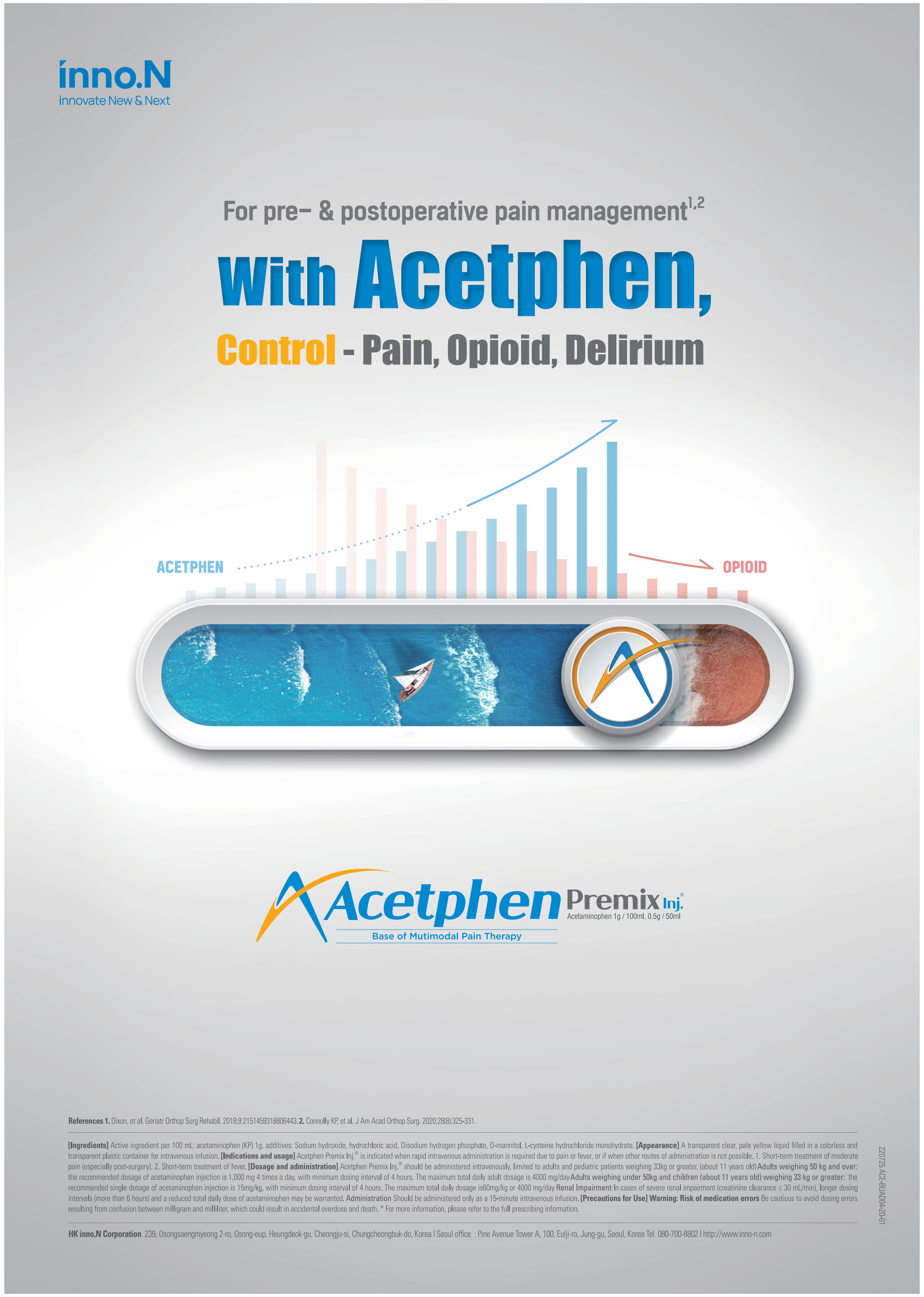

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Acetaminophen 1g / 100ml, 0.5g / 50ml
Base of Mutimodal Pain Therapy

References 1. Dixon, et al. Geriatr Orthop Surg Rehabil. 2018;9:2151459318806443. **2.** Connolly KP, et al. J Am Acad Orthop Surg. 2020;28(8):325-331.

[Ingredients] Active ingredient per 100 mL: acetaminophen (KP) 1g, additives: Sodium hydroxide, hydrochloric acid, Disodium hydrogen phosphate, D-mannitol, L-cysteine hydrochloride monohydrate. **[Appearance]** A transparent clear, pale yellow liquid filled in a colorless and transparent plastic container for intravenous infusion. **[Indications and usage]** Acetphen Premix Inj.® is indicated when rapid intravenous administration is required due to pain or fever, or if when other routes of administration is not possible. 1. Short-term treatment of moderate pain (especially post-surgery). 2. Short-term treatment of fever. **[Dosage and administration]** Acetphen Premix Inj.® should be administered intravenously, limited to adults and pediatric patients weighing 33kg or greater. (about 11 years old) **Adults weighing 50 kg and over:** the recommended dosage of acetaminophen injection is 1,000 mg 4 times a day, with minimum dosing interval of 4 hours. The maximum total daily adult dosage is 4000 mg/day **Adults weighing under 50kg and children (about 11 years old) weighing 33 kg or greater:** the recommended single dosage of acetaminophen injection is 15mg/kg, with minimum dosing interval of 4 hours. The maximum total daily dosage is60mg/kg or 4000 mg/day **Renal Impairment** In cases of severe renal impairment (creatinine clearance ≤ 30 mL/min), longer dosing intervals (more than 6 hours) and a reduced total daily dose of acetaminophen may be warranted. **Administration** Should be administered only as a 15-minute intravenous infusion. **[Precautions for Use] Warning: Risk of medication errors** Be cautious to avoid dosing errors resulting from confusion between milligram and milliliter, which could result in accidental overdose and death. * For more information, please refer to the full prescribing information.

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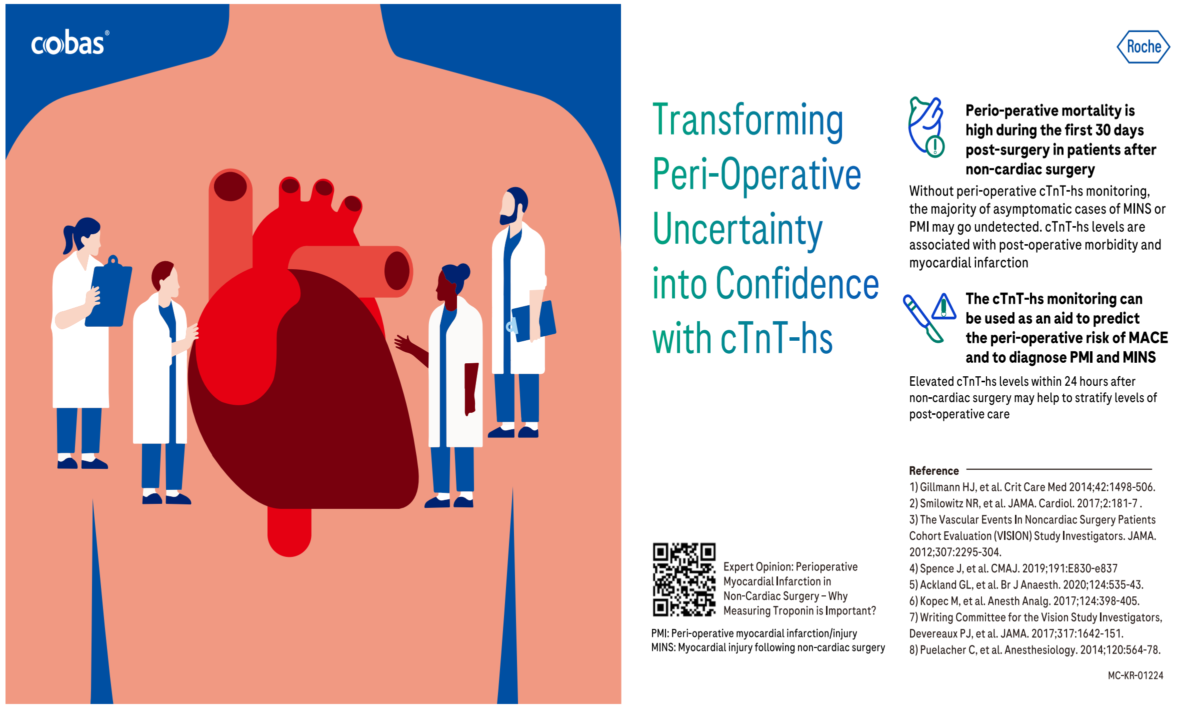

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Elevated cTnT-hs levels within 24 hours after non-cardiac surgery may help to stratify levels of post-operative care

Expert Opinion: Perioperative Myocardial Infarction in Non-Cardiac Surgery – Why Measuring Troponin is Important?

PMI: Peri-operative myocardial infarction/injury
MINS: Myocardial injury following non-cardiac surgery

Reference

1) Gillmann HJ, et al. Crit Care Med 2014;42:1498-506.
2) Smilowitz NR, et al. JAMA. Cardiol. 2017;2:181-7 .
3) The Vascular Events In Noncardiac Surgery Patients Cohort Evaluation (VISION) Study Investigators. JAMA. 2012;307:2295-304.
4) Spence J, et al. CMAJ. 2019;191:E830-e837
5) Ackland GL, et al. Br J Anaesth. 2020;124:535-43.
6) Kopec M, et al. Anesth Analg. 2017;124:398-405.
7) Writing Committee for the Vision Study Investigators, Devereaux PJ, et al. JAMA. 2017;317:1642-151.
8) Puelacher C, et al. Anesthesiology. 2014;120:564-78.

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Baxter

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슈프레인은
환자 회복이 빠릅니다![1]
”

슈프레인은 신속하고 안정적인 신체 기능 회복으로
효율적인 환자 관리가 가능합니다.[1]

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desflurane

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BRISTURN PREFILLED INJ.
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VIAL | 100 mg, 200 mg, 400 mg, 500 mg
PREFILLED SYRINGE | 100 mg, 200 mg

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Reversal from any level of Neuromuscular blockade

BRITURN INJ. 1ML, 2ML, 4ML, 5ML / BRISTURN INJ. 1ML, 2ML

[INDICATIONS AND USAGE] Indicated for the reversal of neuromuscular blockade induced by rocuronium bromide and vecuronium bromide in adults undergoing surgery. [DOSAGE AND ADMINISTRATION] For rocuronium and vecuronium: 4 mg/kg is recommended if spontaneous recovery of the twitch response has reached 1 to 2 post-tetanic counts (PTC) and there are no twitch responses to train-of-four (TOF) stimulation. 2 mg/kg is recommended if spontaneous recovery has reached the reappearance of the second twitch in response to TOF stimulation. For rocuronium only: 16 mg/kg is recommended if there is a clinical need to reverse neuromuscular blockade soon (approximately 3 minutes) after administration of a single dose of 1.2 mg/kg of rocuronium. [WARNINGS AND PRECAUTIONS] Anaphylaxis, Marked Bradycardia: Cases of marked bradycardia, some of which have resulted in cardiac arrest, have been observed within minutes after administration. Respiratory Function Monitoring: Ventilatory support is mandatory for patients until adequate spontaneous respiration is restored and the ability to maintain a patent airway is assured. Waiting Times for Re-Administration of Neuromuscular Blocking Agent: If re-administration of a neuromuscular blocking agent is required after reversal, waiting times should be based on the dose and the renal function of the patient. Consider use of a nonsteroidal neuromuscular blocking agent. Protect from light, store at 25°C

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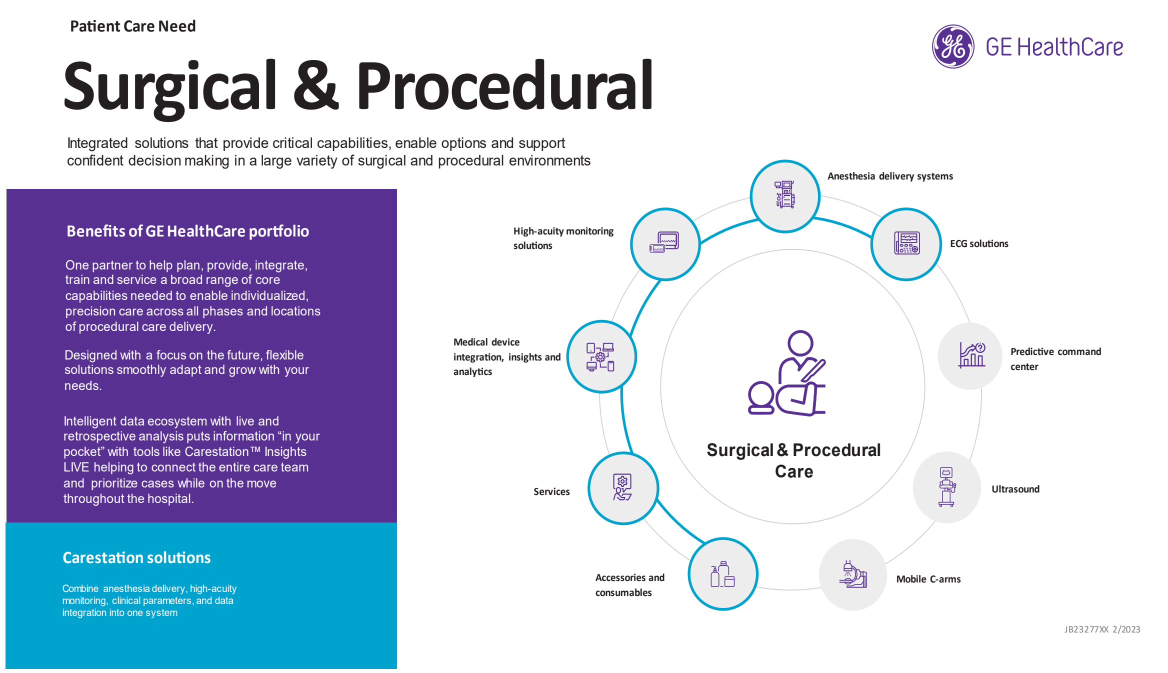

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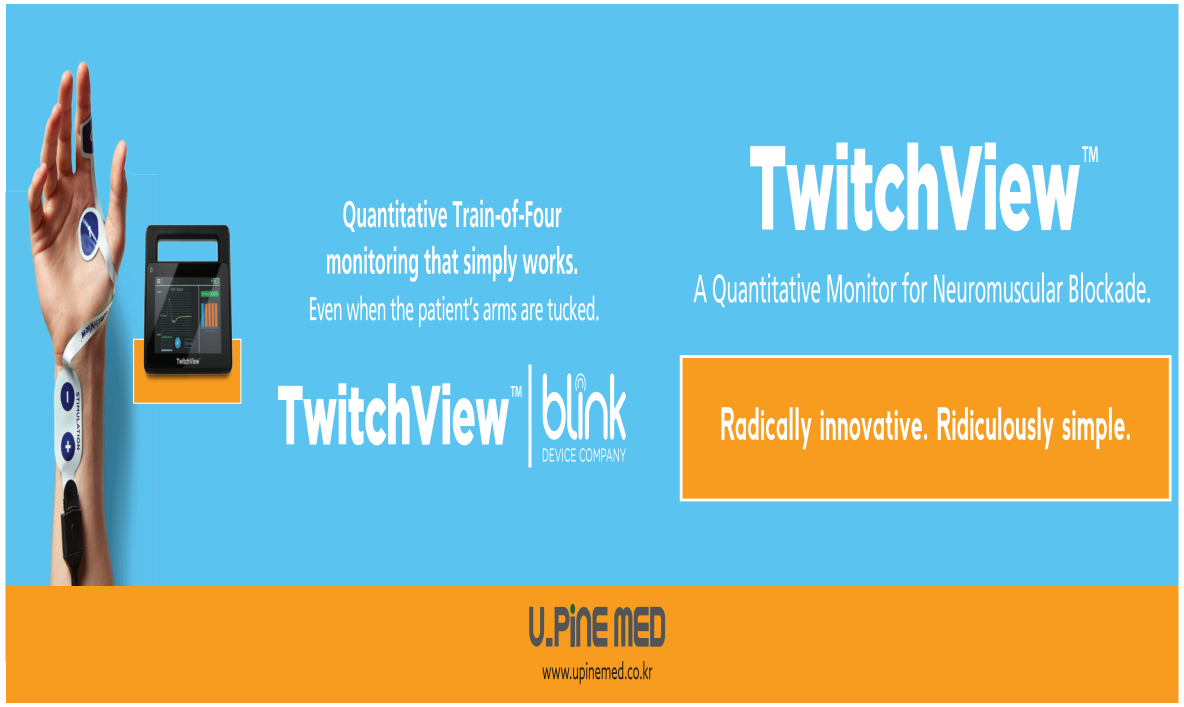
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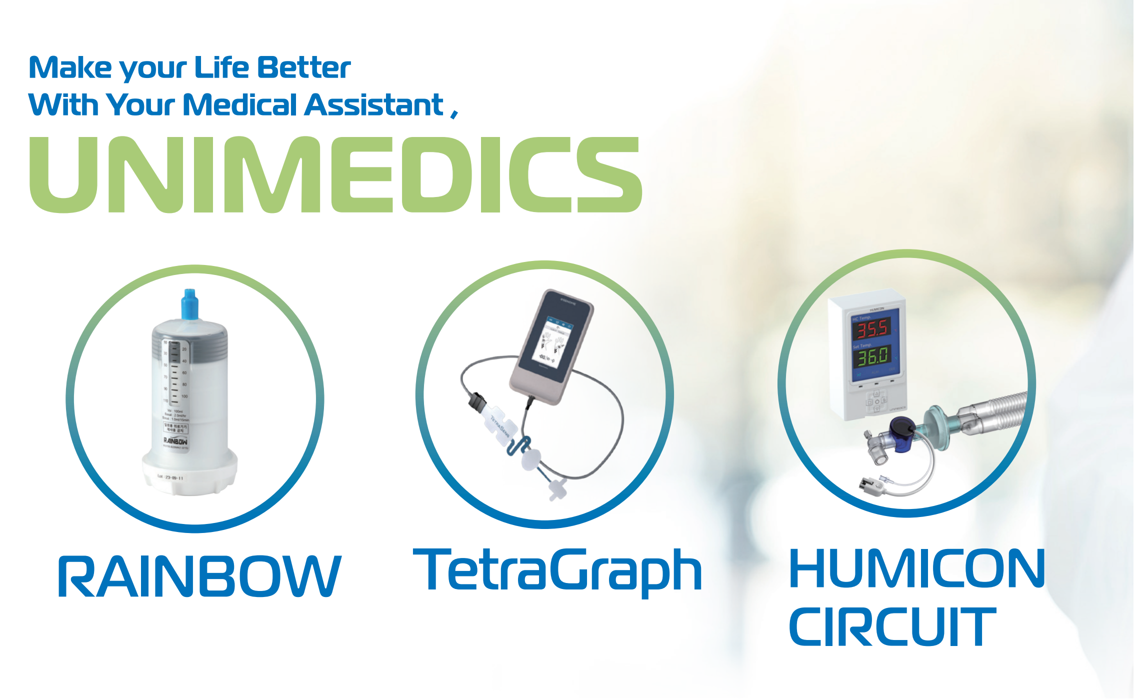

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WELCOME MESSAGE

Dear esteemed members of the Korean Society of Anesthesiologists (KSA) and esteemed colleagues from around the globe.

It is with great pleasure and anticipation that we extend our warmest welcome to you for the upcoming KoreAnesthesia 2024, our 101st Scientific Meeting, to be held from November 7th to 9th at the picturesque Inspire Entertainment Resort in Inchon, Korea.

As we gather to commemorate this significant milestone in our journey of excellence in anesthesiology, we reflect on the remarkable progress and achievements that have shaped our profession over the years. KoreAnesthesia 2024 represents not only a celebration of our rich heritage but also a testament to our unwavering commitment to innovation, education, and patient care.

KoreAnesthesia 2024 promises to be a beacon of inspiration and collaboration, offering a dynamic platform for the exchange of knowledge, insights, and best practices in anesthesia and pain management. From insightful keynote addresses to interactive workshops and networking opportunities, our program is designed to stimulate intellectual curiosity and foster meaningful connections.

Amidst the captivating backdrop of Inspire Entertainment Resort, we will come together as a global community united by our shared passion for advancing patient care. As we embark on this transformative journey, let us embrace the spirit of innovation and collaboration that defines our profession.

We invite you to join us on this momentous occasion as we celebrate a century of excellence in anesthesiology and embark on the next chapter of our journey together. Your participation and contributions will undoubtedly enrich the fabric of KoreAnesthesia 2024, shaping the future of our field for generations to come.

Thank you for your continued dedication to advancing the science and practice of anesthesiology. We eagerly anticipate welcoming you to KoreAnesthesia 2024 and embarking on this extraordinary journey together.

J. H. Yon

Jun-Heum Yon, M.D., Ph.D.
The President of KSA

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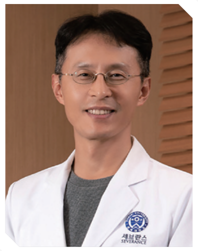

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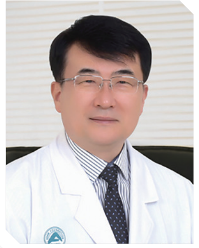

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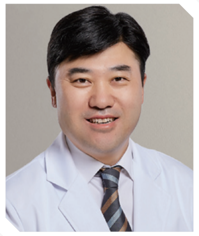

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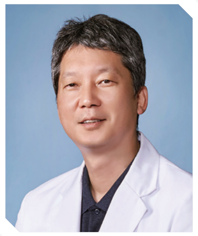

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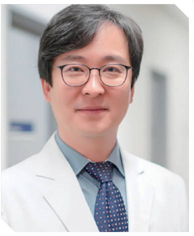

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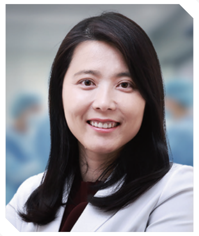

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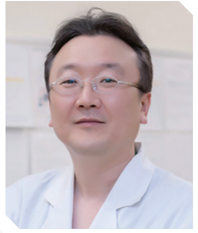

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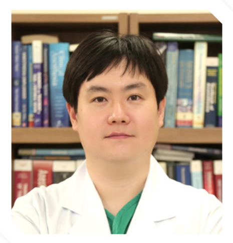

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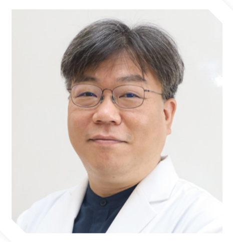

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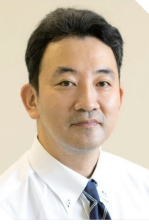

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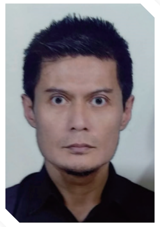

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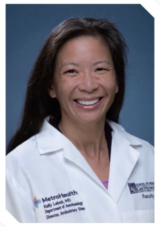

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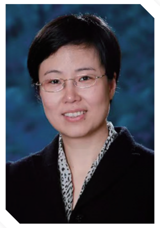

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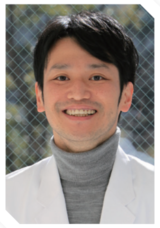

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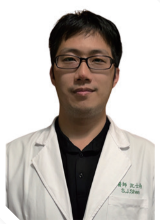

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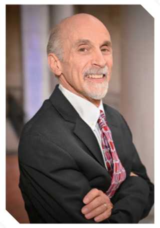

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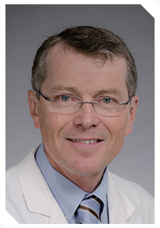

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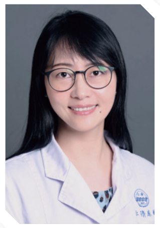

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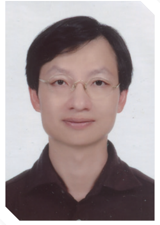

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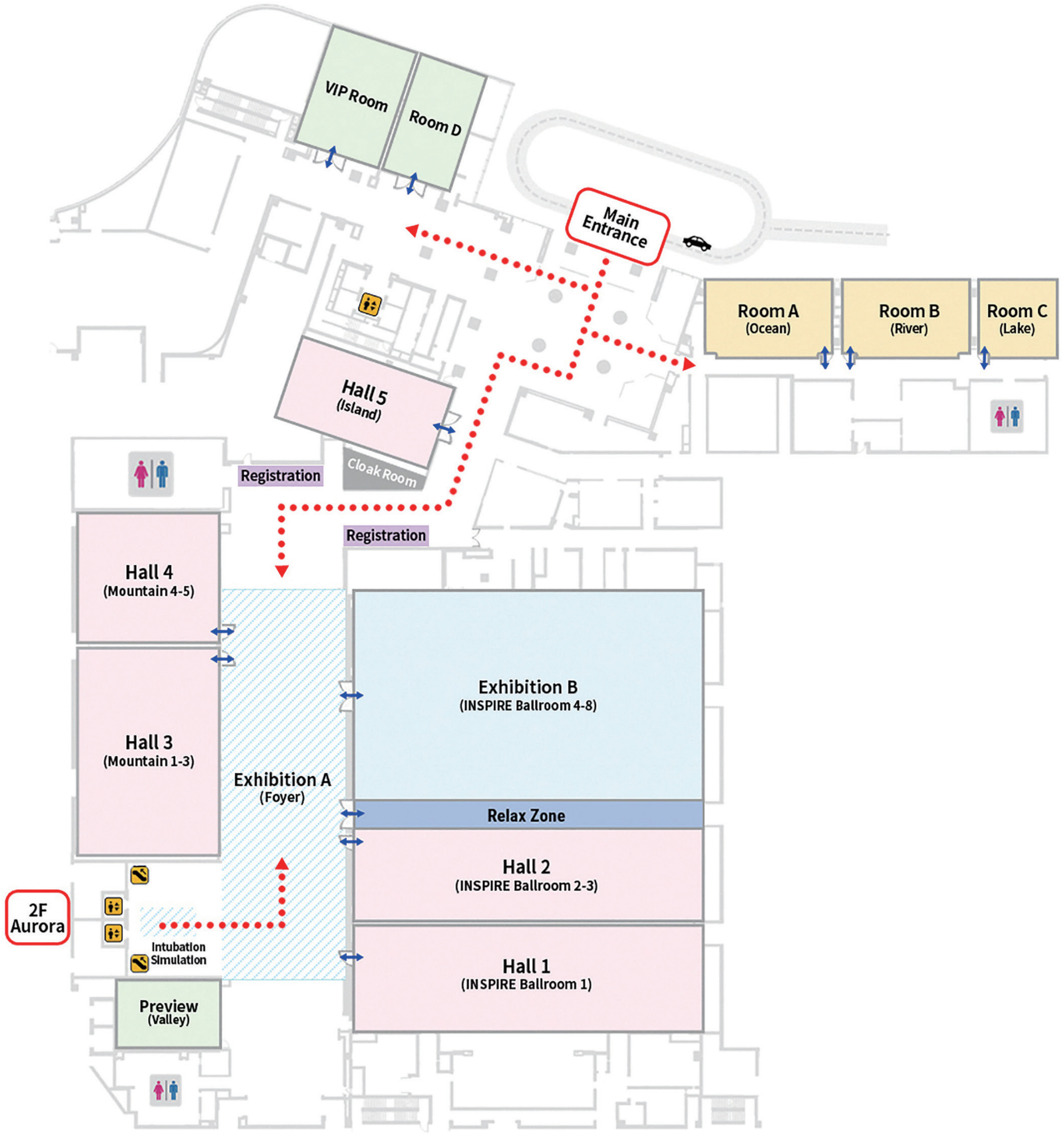

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GENERAL INFORMATION

REGISTRATION

- **Date:** November 7(Thu) - 9(Sat)
- **Time:** 08:00 - 17:00
- **Location:** INSPIRE Ballroom Foyer
  Ocean Tower (1F)

PREVIEW

- **Date:** November 7(Thu) - 9(Sat)
- **Time:** 07:00 - 17:30
- **Location:** Valley

EXHIBITION

- **Date:** November 7(Thu) - 9(Sat)
- **Time:** 09:00 - 17:00
- **Location:** Exhibition A - INSPIRE Ballroom Foyer
  Exhibition B - INSPIRE Ballroom 4-8

REGISTRATION PROCESS

Go To Registration Zone
(INSPIRE Ballroom Foyer)

↓

Check your email and
scan your QR code on the kiosk

↓

Get your name tag!

You can get your own QR code via email!
(*Domestic participants will get the QR code both email and text message.)

If you scan your QR code on the registration kiosk, it will be much easier to get your name tag!

LUNCH

	Hall 1	Hall 2	Hall 3	Hall 4	Hall 5	Room A	Room B	Room C
11/7 (Thu)	12:30-13:30	12:30-13:30	12:30-13:30	12:30-13:30	12:30-13:30 (Sponsorship only 13:30-15:00)	12:30-13:30 (Sponsorship only 13:30-15:00)	12:30-13:30	12:30-13:30
11/8 (Fri)								
11/9 (Sat)			11:30-13:30					

* Luncheon Sessions: Hall 1-5 12:30 - 13:30, Hall 3 11:30 - 13:30(Sat only)
* Sponsorship Luncheon: Hall 5 13:30 - 15:00, Room A 13:30 - 15:00(Thu only)
* Special Dietary (Vegetarian, Halal Food)
- Faculty: VIP Room
- Participant: Room B, C

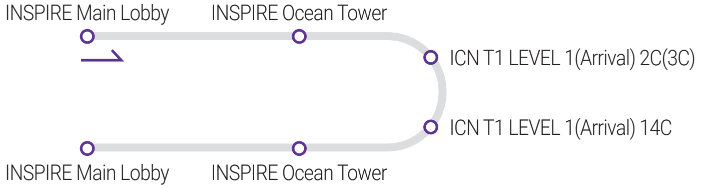
COFFEE BREAK

- **Date:** November 7(Thu) - 9(Sat)
- **Time:** 10:30, 15:00
- **Location:** Exhibition A(Foyer)
  Exhibition B
  In front of Hall 5

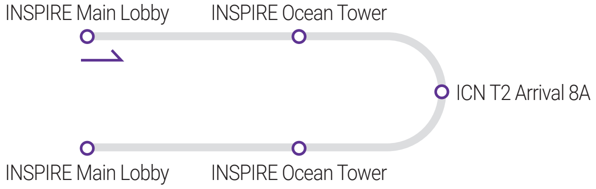
Go to Floor Plan

TRANSPORTATION

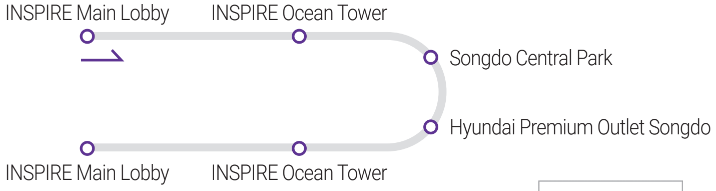
❖ **INSPIRE Entertainment Resort Free Shuttle Bus** – From Incheon International Airport Terminal 1
- **Date:** Nov 6(Wed) - 10(Sun)
- **Departure:** 2C(3C) / 14C
- **First Bus:** 07:40 AM / 07:45 AM
- **Last Bus:** 22:15 PM / 22:20 PM
- **Interval:** About 30M



❖ **INSPIRE Entertainment Resort Free Shuttle Bus** – From Incheon International Airport Terminal 2
- **Date:** Nov 6(Wed) - 10(Sun)
- **Departure:** 8A
- **First Bus:** 07:50 AM
- **Last Bus:** 22:50 PM
- **Interval:** 1H

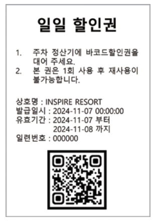


❖ **INSPIRE Entertainment Resort Free Shuttle Bus** – Special Course(Songdo)
- **Date:** Nov 8(Fri)
- **Departure:** Songdo Central Park / Hyundai Premium Outlet Songdo
- **First Bus:** 13:05 PM / 13:15 PM
- **Last Bus:** 19:55 PM / 20:15 PM
- **Interval:** 2H - 3H



❖ **Parking**

Parking is free for KoreAnesthesia 2024 participants.
Please receive the parking voucher at the registration desk.
(*Parking voucher can be used once and cannot be reused.)



일일 할인권

1. 주차 정산기에 바코드할인권을 대어 주세요.
2. 본 권은 1회 사용 후 재사용이 불가능합니다.

상호명 : INSPIRE RESORT
발급일시 : 2024-11-07 00:00:00
유효기간 : 2024-11-07 부터
2024-11-08 까지
일련번호 : 000000

Go to Detailed Information

101ST KOREANESTHESIA 2024

The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

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The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

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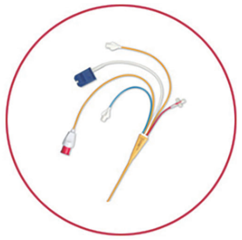
Flow-directed pulmonary artery catheter
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Check Masimo homepage to know product details & clinical resources.

Website www.masimo.com
product brochure koreanesthesia.org/download/Masimo%20Brochure.pdf

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PROGRAM AT A GLANCE

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PROGRAM AT A GLANCE

Nov 7 (Thu) | Nov 8 (Fri) | Nov 9 (Sat)

🇰🇷 Korean Session

	Hall 1	Hall 2	Hall 3 🇰🇷	Hall 4	Hall 5
9:00-10:30		AARS Session I	추계연수강좌1 (Refresher Course)	EACA I (East Asian Congress of Anesthesia)	
10:30-11:00	Coffee Break				
11:00-12:30	Cardiothoracic & Vascular Anesthesia	AARS Session II	추계연수강좌2 (Refresher Course)	EACA II (East Asian Congress of Anesthesia)	
12:30-13:30	🇰🇷 Masimo Luncheon	🇰🇷 BORYUNG Luncheon	Roche Luncheon	🇰🇷 HANLIM PHARM Luncheon	🇰🇷 Hana Pharm Co., Ltd. Luncheon
13:30-15:00	Anesthetic Pharmacology	Regional Anesthesia I	추계연수강좌3 (Refresher Course)	Patient Safety & Well-Being	
15:00-15:30	Coffee Break				
15:30-17:00			추계연수강좌4 (Refresher Course)	🇰🇷 KSA Board Meeting (평의원회)	

12:30-13:30 / Lunch / Room A, B, C

PROGRAM AT A GLANCE
Nov 7 (Thu)
Nov 8 (Fri)
Nov 9 (Sat)

PROGRAM AT A GLANCE

🇰🇷 Korean Session

	Hall 1	Hall 2	Hall 3	Hall 4	Hall 5
9:00-10:30	Grand Opening & Keynote Lecture	Critical Care	Thoracic Anesthesia	AAF I (Asia Anesthesia Forum) (9:30 – 10:30)	
10:30-11:00	Coffee Break				
11:00-12:30	Plenary Session	Geriatric Anesthesia	Patient Blood Management	AAF II (Asia Anesthesia Forum)	
12:30-13:30	🇰🇷 Hana Pharm Co., Ltd. Luncheon	🇰🇷 Edwards Luncheon	🇰🇷 VIVOZON Luncheon	🇰🇷 Medtronic Luncheon	🇰🇷 Masimo Luncheon
13:30-15:00	Regional Anesthesia II	Pediatric Anesthesia	Pain Medicine	AAF III (Asia Anesthesia Forum)	
15:00-15:30	Coffee Break				
15:30-17:00	🇰🇷 Neuromuscular Research	Neuroanesthesia	🇰🇷 General Assembly & Special Lecture (총회)	AAF IV (Asia Anesthesia Forum)	

🇰🇷 Korean Session

	Room A 🇰🇷	Room B	Room C
9:00-10:30	Workshop 1 (9:00 – 12:00) US-guided Peripheral Nerve Block	Abstract Competition (AC-01)	Abstract Presentation (AP-01)
10:30-11:00		Coffee Break	
11:00-12:30		Abstract Competition (AC-02)	Abstract Presentation (AP-02)
12:30-13:30		Lunch	
13:30-15:00	Workshop 2 (14:00 – 17:00) Pain Medicine: Ultrasound Advance Course	Abstract Presentation (AP-03)	Abstract Presentation (AP-04)
15:00-15:30		Coffee Break	
15:30-17:00		Abstract Presentation (AP-05)	Abstract Presentation (AP-06)

PROGRAM AT A GLANCE

Nov 7 (Thu) | Nov 8 (Fri) | Nov 9 (Sat)

🇰🇷 Korean Session

	Hall 1	Hall 2	Hall 3	Hall 4	Hall 5
9:00-10:30	AI & Research	🇰🇷 Pain Medicine	🇰🇷 KMA 필수교육 (09:30 – 11:30)	Ambulatory Anesthesia	
10:30-11:00	Coffee Break			Coffee Break	
11:00-12:30	Neuromuscular Research	Obstetrics Anesthesia	🇰🇷 U.PiNE MED Luncheon	🇰🇷 KJA Session	
12:30-13:30	🇰🇷 Medtronic Luncheon	🇰🇷 inno.N Luncheon	🇰🇷 ACE MEDICAL Luncheon	🇰🇷 GE HealthCare Luncheon	🇰🇷 Edwards Luncheon
13:30-15:00	Hemodynamic Management & Cardiothoracic Vascular Anesthesia	🇰🇷 지도전문의 교육 (13:30 – 17:30)	ERAS	🇰🇷 KSPAN (회복마취간호사회)	
15:00-15:30	Coffee Break		Coffee Break		
15:30-17:00	Transplant Anesthesia [KSTA-SATA Symposium]			🇰🇷 KSPAN (회복마취간호사회)	

Nov 7 (Thu) | Nov 8 (Fri) | Nov 9 (Sat)

🇰🇷 Korean Session

	Room A 🇰🇷	Room B	Room C
9:00-10:30	Workshop 3 (9:00 – 12:00) ERAS	Abstract Presentation (AP-07)	Abstract Presentation (AP-08)
10:30-11:00		Coffee Break	
11:00-12:30		Abstract Presentation (AP-09)	Abstract Presentation (AP-10)
12:30-13:30		Lunch	
13:30-15:00	Workshop 4 (14:00 – 17:00) Pharmacology	Abstract Presentation (AP-11)	Abstract Presentation (AP-12)
15:00-15:30		Coffee Break	
15:30-17:00		Abstract Presentation (AP-13)	

PROGRAM AT A GLANCE | Nov 7 (Thu) | Nov 8 (Fri) | Nov 9 (Sat)

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FULL PROGRAM

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AARS Session I

Hall 2

Nov 7(Thu) 09:00–10:30

Moderator

- **Christopher Bowden** (Gold Coast University Hospital, Australia)
- **Jahizah Hassan** (Sultan Idris Shah Hospital, Serdang, Malaysia)
- **Justin Sangwook Ko** (Sungkyunkwan University, Republic of Korea)

09:00-09:20	**Anaesthesia capacity building in the pacific region – Where are we now?** Christopher Bowden (Gold Coast University Hospital, Australia) 1. Highlight anaesthesia workforce challenges in our AARS region 2. Outline the anaesthesia capacity building strategy in the Pacific 3. Address future challenges and solutions through developing strong leadership pathways
09:20-09:40	**Second victim and the impact on our well-being** Chow Yen Yong (Lam Wah Ee Hospital, Malaysia) 1. Define the second victim phenomenon 2. Recognize the impacts of the second victim phenomenon on anaesthesia healthcare professionals' well-being 3. Identify risk factors and triggers 4. Explore support mechanisms and strategies
09:40-10:00	**Leadership in anaesthesia: Challenges and opportunities** Balavenkat Subramanian (Ganga Medical Centre & Hospitals, India) 1. The unique Challenges faced by Anaesthesiologists 2. How to create visibility of Anaesthesiologists in our hospital setting 3. Pathways to take Leadership roles in our institution and in our community 4. Clinican and Industry Collaboration 5. Mentoring the young Anaesthesiologists to take up Leadership roles
10:00-10:20	**Chinese research progress in anesthesia mechanism** Qianzi Yang (Shanghai Jiao Tong University, China) I will introduce what we Chinese researchers have done in the field of general anesthesia mechanism. In specific, I will introduce the improvements in understanding how our brain gets into unconsciousness and then how it wakes up after anesthesia.
10:20-10:30	**Q&A**

추계연수강좌 1 (Refresher Course 1)

Hall 3

Nov 7(Thu) 09:00–10:30

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)
- **Tae Hun An** (Chosun University, Republic of Korea)

09:00-09:20	**Prehabilitation, making patients fit for surgery** Susie Yoon (Seoul National University, Republic of Korea) 1. Understand the Concept and Significance of Pre-surgical Prehabilitation. 2. Learn about the multi-dimensional approaches towards prehabilitation, which involves physical, nutritional, and psychosocial aspects. 3. Apply Knowledge in Practical Scenarios and Evaluate the Efficacy of Prehabilitation Programs.
09:20-09:40	**Multimodal opioid-sparing analgesia in ERAS** Boohwi Hong (Chungnam National University, Republic of Korea) 1. Understanding the concept of multimodal analgesia 2. Learning the guidelines on the management of postoperative pain 3. Learning the recent evidence of several strategy of multimodal analgesia
09:40-10:00	**Key elements of an ERAS pathway & its implementation** Seung Woo Song (Wonju College of Medicine, Yonsei University, Republic of Korea) 1. ERAS pathway에서 핵심적이고 중요한 요소들을 이해한다. 2. ERAS 요소들의 실질적 시행에 필요한 구체적인 사항들을 인지한다.
10:00-10:20	**Development of the Korean ERAS audit program: The importance of data collection and monitoring in ERAS** Jae-Woo Ju (Seoul National University, Republic of Korea) 1. ERAS 프로그램 준수가 수술 결과에 미치는 중요성을 이해한다. 2. 객관적이고 전향적으로 수집된 데이터를 기반으로 한 audit의 역할을 이해한다. 3. ERAS 프로그램 준수 향상을 위한 feedback의 역할을 이해한다. 4. 한국 대장암 수술 환자에서 ERAS 프로그램의 시행 현황을 파악한다.
10:20-10:30	**Q&A**

Nov 7 (Thu) Nov 8 (Fri) Nov 9 (Sat)

FULL PROGRAM
Nov 7 (Thu)
Nov 8 (Fri)
Nov 9 (Sat)

EACA I (Patient Safety)

Nov 7(Thu) 09:00–10:30

Hall 4

Moderator

- **Liqun Yang** (Shanghai Jiao Tong University, China)
- **Yoshiki Sento** (Institute of Science Tokyo (ISCT), Japan)
- **Ilok Lee** (Korea University, Republic of Korea)

09:00-09:20 **Patient safety**

Jie Tian (Shanghai Jiao Tong University, China)

1. Obese patients should be managed by experienced anesthesiologists and surgeons.
2. Central obesity and metabolic syndrome should be regarded as risk factors.
3. A detailed airway strategy must be established prior to the surgery.
4. Drug dosing should generally be based upon lean body weight and adjusted body weight, rather than dosed to total body weight.
5. Early postoperative exercises and application of anticoagulants are recommended.

09:20-09:40 **Blood pressure and perioperative blood pressure management**

Yasuko Nagasaka (Tokyo Women's Medical University, Japan)

1. Hypotension during anesthesia increases postoperative vital organ damage and mortality, however, target blood pressure management alone does not improve patient outcome
2. Identify the contributing factors for blood pressure control
3. Biomarkers for end-organ damage and microcirculation

09:40-10:00 **Patient safety & quality research**

Kwon Hui Seo (The Catholic University of Korea, Republic of Korea)

1. Understand the Common Anesthesia-Related Injury Mechanisms: Identify the most frequent complications in anesthesia-related injuries, particularly respiratory system-related complications, as seen in studies from the USA and Korea.
2. Highlight the importance of establishing patient safety standards specific to the needs of each country and the need for continuous revision based on research feedback.
3. Understand the need for increased monitoring and vigilance in anesthesia care.

10:00-10:30 **Q&A**

Nov 7 (Thu) Nov 8 (Fri) Nov 9 (Sat)

Cardiothoracic & Vascular Anesthesia

Nov 7(Thu) 11:00–12:30

Hall 1

Moderator

- **Yunseok Jeon** (Seoul National University, Republic of Korea)
- **Alina Nicoara** (Duke University, USA)

11:00-11:20 **Perioperative pulmonary hypertension**

Stanton Shernan (Harvard Medical School, USA)

1. Diagnosis and definition of pulmonary hypertension
2. Etiologies and mechanisms of pulmonary hypertension
3. Perioperative management of perioperative hypertension

11:20-11:40 **Perioperative care of children with congenital heart disease**

Jim Fehr (Stanford University School of Medicine, USA)

1. Consider the spectrum and perioperative management of congenital heart disease in children
2. Discuss the care of pediatric cardiac patients undergoing noncardiac surgery
3. Contemplate the future care of children with congenital heart disease

11:40-12:00 **Improving outcomes after cardiac surgery**

Sophia Chew (Singapore General Hospital, Singapore)

Despite advances in cardiac surgery, postoperative complications including cardiac surgery associated acute kidney injury (CSA-AKI) and atrial fibrillation (AF) remain significant clinical problems. This is especially important with cardiac surgical patients presenting at an advanced age with more comorbidities and advanced disease. Furthermore, these perioperative complications are often a harbinger of ominous sequelae in the longer term.

The short term and midterm outcomes of our local cohort of more than three thousand patients undergoing cardiac surgery will be presented. The incidence of CSA-AKI and postoperative AF was 29.1% and 17.3% respectively. During a mean follow-up of 4.4±2.8 years, 0.9% of the cardiac surgical cohort developed end stage renal disease (ESRD) requiring dialysis. Stroke occurred in 7.8% of patients in this cohort during the mean postoperative follow-up period of six ± two years. Patients with postoperative AF (including patients with pre-existing AF and those who developed new onset AF postoperatively) had a higher incidence of stroke compared to those without. Of interest is new-onset atrial fibrillation which was identified as an independent risk factor for postoperative stroke and associated with shorter survival.

Apart from current perioperative management strategies, the use of newer therapies and technology and their role in perioperative care will be discussed.

12:00-12:20 **Patient blood management in cardiac surgical patients**

Chahyun Oh (Chungnam National University, Republic of Korea)

1. What is patient blood management (PBM)?
2. What elements of PBM apply to cardiac surgical patients?
3. What should we consider in daily practice for successful PBM?

12:20-12:30 **Q&A**

AARS Session II

Hall 2

Nov 7(Thu) 11:00–12:30

Moderator

- **Lian Kah Ti** (National University Health System, Singapore)
- **Balavenkat Subramanian** (Ganga Medical Centre & Hospitals, India)
- **Yee-eot Chee** (President of the Society of Anaesthetists of Hong Kong, Hong Kong, China)
- **Diansan Su** (The First Affiliated Hospital Zhejiang University, School of Medicine, China)

11:00-11:20 **Artificial intelligence in healthcare - Role of anesthesiology**

Davy Cheng (The Chinese University of Hong Kong (Shenzhen), Hong Kong, China)

1. Introduction of AI in Healthcare
2. To discuss the promises and applications of AI in Anesthesiology & Perioperative Medicine
3. To discuss the Perils of AI in Healthcare

11:20-11:40 **Hot topics in global anesthesia**

Wayne Morriss (Immediate Past-President of World Federation of Societies of Anesthesiologists (WFSA), New Zealand)

1. Define global anaesthesia.
2. Describe the mission of the World Federation of Societies of Anaesthesiologists (WFSA).
3. Give examples of current important global anaesthesia topics, such as updated workforce data and the global capnography project.

11:40-12:00 **From scalpel to scars: The financial impact of post-surgical complications**

Laurence Weinberg (Austin Health, Australia)

1. This lecture will provide an in-depth understand of the financial consequences of post-surgical complications.
2. By the end of this session, participants will be able to identify and explain the direct and indirect financial costs associated with post-surgical complications at both the individual and healthcare system levels.
3. Attendees will be able to evaluate how surgical outcomes, specifically complications, impact hospital revenue streams, including extended length of stay, readmissions, and resource utilization.
4. Participants will understand the potential long-term mortality associations for patients experiencing post-surgical complications.

12:00-12:20 **Medication error in the intensive care unit**

Raveenthiran Rasiah (AVISENA Women's & Children's Specialist Hospital, Malaysia)

1. Delegates will learn the common medication errors occurring in the ICU.
2. How to prevent these medication errors from occurring.
3. Reporting system for these medication errors.
4. Use of smart pumps to prevent medication errors.

12:20-12:30 **Q&A**

추계연수강좌 2 (Refresher Course 2) 🇰🇷

Hall 3

Nov 7(Thu) 11:00–12:30

Moderator

- **Young-Tae Jeon** (Seoul National University, Republic of Korea)
- **Hoon Jung** (Kyungpook National University Republic of Korea)

11:00-11:20 **Principles of hemodynamic monitoring in the ICU**

Christine Kang (Seoul National University, Republic of Korea)

1. Understand the Key Hemodynamic Parameters in ICU Monitoring
   Learners will be able to identify and explain the significance of core cardiovascular parameters such as heart rate, blood pressure, central venous pressure, pulmonary artery pressure, and cardiac output in assessing circulatory status.
2. Evaluate the Different Hemodynamic Monitoring Devices and Their Uses
   Learners will compare the advantages, limitations, and clinical indications for various hemodynamic monitoring devices, including non-invasive blood pressure monitoring, invasive arterial pressure monitoring, central venous catheters, pulmonary artery catheters, and echocardiography.
3. Determine the Appropriate Hemodynamic Monitoring Strategy for Critically Ill Patients
   Learners will assess how to select the most appropriate monitoring method based on a patient's condition, such as stable versus shock patients, and evaluate the risks and benefits of invasive versus non-invasive monitoring techniques.

11:20-11:40 **Implementation and impact of rapid response teams**

Kwan Hyung Kim (Yonsei University, Republic of Korea)

A Rapid Response System (RRS) is designed to provide immediate medical intervention for unexpected emergencies and to prevent serious adverse events during hospitalization. Although initial studies suggest positive outcomes, large-scale research has produced mixed results, highlighting the need for further investigation. Future improvements in the RRS will depend on advancing technology, enhancing organizational culture, and ensuring adequate resources for effective patient monitoring.

11:40-12:00 **Adult CPR**

Won Young Kim (University of Ulsan, Republic of Korea)

1. Adult Basic and Advanced Life Support
2. IOCA (Intraoperative cardiac arrest)
3. PCAS (Post-cardiac arrest syndrome) care

12:00-12:20 **Neonate CPR**

Jeong Eun Shin (Yonsei University, Republic of Korea)

1. 신생아의 출생 후 시간에 따른 정상 vital sign을 이해한다.
2. 신생아에서 resuscitation 이 필요한 상황을 이해한다.
3. 신생아의 올바른 양압환기요법을 이해한다.
4. Neonatal resuscitation algorithm을 이해한다.

12:20-12:30 **Q&A**

EACA II (New Trends in Anesthesia)

Hall 4

Nov 7(Thu) 11:00–12:30

Moderator

- **Weifeng Yu** (Shanghai Jiao Tong University, China)
- **Michiaki Yamakage** (Sapporo Medical University Hospital, Japan)
- **Jun-Heum Yon** (Inje University, Republic of Korea)

11:00-11:20 **Postoperative delirium: How to prevent**

Moritoki Egi (Kyoto University Hospital, Japan)

1. Postoperative delirium (POD) is one of the most common complications in postoperative patients; POD is considered an acute brain injury caused by anesthesia or surgery.
2. Routine screening for POD using CAM-ICU or ICDSC is important to develop prevention strategies in one's own hospital.
3. Nonpharmacologic therapies should be used to prevent POD.
4. There are still just a few strategies for preventing POD; the use of dexmedetomidine, multicomponent interventions, and antipsychotics.

11:20-11:40 **New trends in Anesthesia**

Fengxian Li (Zhujiang Hospital, Southern Medical University, China)

1. Tailored to individual patient needs, preferences, and medical conditions.
2. Re-consider complications for patients with diabetes, hypertension, etc.
3. Improved patient safety and outcomes.
4. AI based techniques and big database for perioperative patient care.

11:40-12:00 **Postoperative pain management in abdominal surgeries**

Hojin Lee (Seoul National University, Republic of Korea)

1. Understand the importance of postoperative pain management in the Enhanced Recovery After Surgery (ERAS) protocol.
2. Explore analgesic options applicable to abdominal surgery within the ERAS program.
3. Understand the key considerations in developing pain management strategies for abdominal surgery within the ERAS program.

12:00-12:30 **Q&A**

Masimo Luncheon

Hall 1

Nov 7(Thu) 12:30–13:30

Moderator

- **Dong Won Kim** (Hanyang University, Republic of Korea)

12:30-13:30 **The clinical applications of cerebral oximetry**

Kyu Nam Kim (Hanyang University, Republic of Korea)

1. Leaning the measurement principles of cerebral oximetry.
2. Leaning the clinical usefulness of cerebral oximetry.
3. Understand how to interpret cerebral oximetry data.

BORYUNG Luncheon

Hall 2

Nov 7(Thu) 12:30–13:30

Moderator

- **Dong Woo Han** (Yonsei University, Republic of Korea)

12:30-13:30 **Efficient anesthesia to reduce workload in the current medical crisis**

Seok Kyeong Oh (Korea University, Republic of Korea)

1. Think about workforce well-being in the current healthcare system crisis in South Korea.
2. For efficient anesthesia and to reduce workload, consider target-controlled administration of relatively short agents, such as desflurane and remifentanil, and the recommended dose of sugammadex administered through appropriate monitoring.
3. In addition, learn about the environmental impact of desflurane.

Roche Diagnostics Korea Luncheon

Hall 3

Nov 7(Thu) 12:30–13:30

Moderator

- **Jae-Kwang Shim** (Yonsei University, Republic of Korea)

12:30-13:30 **Perioperative troponin monitoring for detecting myocardial injury after non-cardiac surgery**

Myung Il Bae (Yonsei University, Republic of Korea)

1. Learn about the concepts and diagnostic criteria of MINS (Myocardial Injury after Non-Cardiac Surgery) and PMI (Perioperative Myocardial Injury).
2. Understand the clinical significance of MINS and PMI for anesthesiologists.
3. Explore perioperative troponin monitoring strategies for detecting MINS/PMI.

Nov 7 (Thu) Nov 8 (Fri) Nov 9 (Sat)

HANLIM PHARM Luncheon

Nov 7(Thu) 12:30–13:30

Hall 4

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)

12:30-13:30 **The use of sugammadex in special population**

In Kyong Yi (Ajou University, Republic of Korea)

1. Sugammadex use in ESRD patients
2. Sugammadex use in pediatrics
3. Sugammadex use in trauma patients (relation to auto-insurance)

Hana Pharm Co., Ltd. Luncheon

Nov 7(Thu) 12:30–13:30

Hall 5

Moderator

- **Byung Gun Lim** (Korea University, Republic of Korea)

12:30-13:30 **Remimazolam as an anesthetic agent for intraoperative neurophysiological monitoring**

Yong Seok Park (University of Ulsan, Republic of Korea)

1. Discuss anesthesia management to perform intraoperative neurophysiological monitoring effectively and safely.
2. Discuss whether Remimazolam is an appropriate anesthetic agent to perform intraoperative neurophysiological monitoring.

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Anesthetic Pharmacology

Nov 7(Thu) 13:30–15:00

Hall 1

Moderator

- **Gyu-Jeong Noh** (University of Ulsan, Republic of Korea)
- **Dong Woo Han** (Yonsei University, Republic of Korea)

13:30-14:10 **How pharmacology becomes a guide for my anesthetic management?: The use of Smart Pilot View(R) as an anesthesia GPS**

Hugo Vereecke (University of Groningen, Belgium)

1. The audience will be able to describe several pharmacology concepts that assist in clinical decision making for anaesthetic drug titration towards more predictable and reproducible results for different types of patients.
2. The audience will be introduced to Smart Pilot View (TM), which is a commercially available advisory screen, based on the previously demonstrated laws of pharmacology, and assisting in the decision making of optimal maintenance of anesthesia.
3. The audience will be able to sum up limitations of this technology.
4. The audience will learn about the level of validation based on prospective randomized controlled trials.
5. The audience will learn about future perspectives for this technology, both for educational as well as clinical purposes.

14:10-14:30 **The drug titration paradox: Something obvious finally understood**

Talmage Egan (University of Utah School of Medicine, USA)

1. Review the most important clinical pharmacology concepts in anesthesia from an historical perspective.
2. Explain why titration is the primary method for getting the dose right in anesthesia.
3. Explain the drug titration paradox concept.
4. Understand the evidence supporting the drug titration paradox.
5. Understand the research implications of the drug titration paradox.

14:30-15:00 **Q&A**

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Regional Anesthesia I

Hall 2

Nov 7(Thu) 13:30–15:00

Moderator

- **Jin-Tae Kim** (Seoul National University, Republic of Korea)
- **Suwimon Tangwiwat** (Royal College of Anesthesiologists of Thailand, Thailand)

13:30-13:50 **Regional nerve block for hip fracture pain control: What are the options?**

Aumjit Wittayapairoj (Khon Kaen University, Thailand)

This session will discuss the severity and causes of pain following a hip fracture, related anatomy, as well as common regional nerve block techniques for pain management, including femoral nerve block (FNB), fascia iliaca block (FICB), and pericapsular nerve group (PENG) block.

13:50-14:10 **Regional analgesia options for cesarian section**

Penafrancia Catangui Cano (University of the Philippines, Philippines)

1. To give a brief review of the anatomy of the abdominal wall
2. To enumerate and explain the mechanism of action of the different options for abdominal wall blocks
3. To discuss the advantages and disadvantages of the different types of abdominal wall blocks
4. To compare the different types of regional anesthesia wall blocks
5. To discuss the advantages and disadvantages of intrathecal Morphine

14:10-14:30 **Update on regional anesthesia in Japan**

Katsuo Terui (Saitama Medical Center, Saitama Medical University, Japan)

1. Understand the growth of Japanese Society of Regional Anesthesia.
2. Understand the value of J-RACE (Japan Regional Anesthesia Certification Examination) for disseminating knowledge of regional anesthesia throughout Japan.
3. Understand the common regional anesthesia techniques in the OR, L&D, and in Pain clinics.
4. Share the value of communication and collaboration between the professional societies between Korea and Japan.

14:30-14:50 **Local anesthetic and adjuvants**

Suwimon Tangwiwat (Royal College of Anesthesiologists of Thailand, Thailand)

1. Mechanism of Local Anesthetics
2. Types of Adjuvants Used to Prolong LA Duration
3. Clinical Applications and Considerations

14:50-15:00 **Q&A**

추계연수강좌 3 (Refresher Course 3)

Hall 3

Nov 7(Thu) 13:30–15:00

Moderator

- **Daehyun Kim** (National Cancer Center, Korea, Republic of Korea)
- **Pyung-Bok Lee** (Seoul National University, Republic of Korea)

13:30-13:50 **Update of NSAIDs**

Haesun Jung (Chung-Ang University, Republic of Korea)

1. Understand the mechanism of action of NSAIDs and the differences between the COX-1 and COX-2 pathways.
2. Learn about the latest guidelines related to the use of NSAIDs in patients with osteoarthritis.
3. Understand the side effects associated with NSAIDs and strategies for minimizing these risks.

13:50-14:10 **Update of anti-convulsant**

Jung Hyun Park (The Catholic University of Korea, Republic of Korea)

1. Understand the concept of Neuropathic pain
2. To be familiar with the latest guidelines on Neuropathic pain
3. Understand the basic principles of anticonvulsants
4. Learn about the types of anticonvulsants, including the latest drugs

14:10-14:30 **Update of opioid use & opiod used disorder (OUD)**

Hyeon Tae Kim (Chungbuk National University, Republic of Korea)

1. Opioid의 약리학적 특징을 확인한다.
2. Opioid의 최근 권고사항에 대해 확인한다.
3. Opioid use disorder의 개념과 치료법을 확인한다.
4. 2024 대한통증학회 아편유사제의 처방지침을 확인한다.

14:30-14:50 **Update of anticoagulant: How long should it be discontinued for pain procedures?**

Kyeonghwan Seo (Keimyung University, Republic of Korea)

1. Understand the types and characteristics of commonly used anticoagulants.
2. Identify the appropriate discontinuation periods for each anticoagulant as recommended by major guidelines.
3. Explore the types of coagulation function tests that can be referenced to minimize the discontinuation period of anticoagulants.

14:50-15:00 **Q&A**

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Patient Safety & Well-Being

Hall 4

Nov 7(Thu) 13:30–15:00

Moderator

- **Hye-Min Sohn** (Ajou University, Republic of Korea)
- **Mohd Azizan Ghazali** (Hospital Putrajaya, Malaysia)

13:30-13:50 **The APSF newsletter: 40 years of innovating safety education for perioperative care**

Steven Greenberg (Endeavor Health, USA)

1. Describe the creation of the APSF Newsletter
2. Highlight key patient safety contributions via Newsletter
3. Describe reporting importance of technology & patient safety
4. Highlight Newsletter global reach
5. Discuss Newsletter role in COVID response
6. Discuss APSF Newsletter future: Enhance partnerships

13:50-14:10 **Why implementation of patient safety initiatives fail**

Adrian Gelb (Past-President of World Federation of Societies of Anesthesiologists (WFSA); UCSF, USA)

1. Understand the Cynefin framework for problem-solving
2. Know the importance of national standards
3. Understand that change is context-dependent

14:10-14:30 **Developing a systems approach to physician well-being**

Jina Sinskey (University of California, San Francisco, USA)

1. Explore the relationship between burnout, well-being, moral injury and resilience
2. Summarize individual strategies for well-being
3. Propose systems-level strategies for well-being

14:30-15:00 **Q&A**

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추계연수강좌 4 (Refresher Course 4)

Hall 3

Nov 7(Thu) 15:30–17:00

Moderator

- **Jae Hyung Kim** (Hallym University, Republic of Korea)
- **Hojin Lee** (Seoul National University, Republic of Korea)

15:30-15:50 **Acute pain management after cesarean delivery**

Yu Jeong Bang (Sungkyunkwan University, Republic of Korea)

1. Understand the importance of adequate pain management after cesarean delivery for both maternal and neonatal well-being.
2. Explore the use of intrathecal morphine and non-opioid medications in multimodal analgesia.
3. Learn about programmed intermittent epidural bolus (PIEB) administration.

15:50-16:10 **Enhancing pain control in pediatric orthopedic surgeries: Exploring regional anesthesia technique**

Ha-Jung Kim (University of Ulsan, Republic of Korea)

Recently, there has been growing interest in the application of regional anesthesia in pediatric patients. This lecture will explore the characteristics of children that should be considered when using regional anesthesia, as well as some regional anesthesia techniques that can be applied in pediatric orthopedic surgeries.

16:10-16:30 **Empowering anesthesia residents: The vital role of POCUS education**

Young-Eun Jang (Seoul National University, Republic of Korea)

1. POCUS 의 개념과 목적에 대해서 이해한다.
2. POCUS 가 Perioperative-care 에 매우 유용함을 이해한다.
3. 전공의 교육을 위해 전문의를 대상으로 한 체계적인 POCUS 교육이 중요함을 이해한다.

16:30-16:50 **Why not intraoperative POCUS?**

Hye-Min Sohn (Ajou University, Republic of Korea)

1. Review the most common POCUS-based diagnoses relevant to perioperative patients, such as volume status, cardiac function, and pulmonary pathology.
2. Examine the latest evidence supporting the use of POCUS in optimizing patient management through timely diagnosis and treatment during the perioperative period.
3. Explore the paradigm shift driven by POCUS towards safer, more efficient care, with a focus on how it empowers anesthesiologists to elevate intraoperative and postoperative outcomes.

16:50-17:00 **Q&A**

KSA Board Meeting (평의원회)

Hall 4

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Grand Opening [Keynote Lecture]

Hall 1

Nov 8(Fri) 09:00–10:30

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)
- **Justin Sangwook Ko** (Sungkyunkwan University, Republic of Korea)

09:00-09:10 **Grand opening ceremony**

09:10-09:30 **Diversity, Equity, Inclusion (DEI): A WFSA perspective**

Wayne Morriss (Immediate Past-President of World Federation of Societies of Anesthesiologists (WFSA), New Zealand)

1. Define diversity, equity and inclusion (DEI).
2. Outline WFSA's position on DEI.
3. Give examples of how WFSA is addressing DEI issues.

09:30-09:50 **Perio-operative medicine in 2030: The role of the anaesthesiologist**

Wolfgang Buhre (President of European Society of Anaesthesiology and Intensive Care (ESAIC), Netherlands)

The role of the anaesthesiologist in 2030 is defined by responsibilities in the operating theatre but also in the preoperative assessment but also postoperative care in patients with increased risk. It can be expected that monitoring technology improves and that analysis of data by using artificial intelligence will change our practice significantly.
The ageing population will result in a relevant increase of patients with increased co-morbidities requiring personalised, tailor made medicine.
Besides this, more and more procedures will be performed in the intervention areas requiring specific skills. This will change the role of the anaesthesia department and require special skills and knowledge.
Learning objectives:
1. Monitoring in 2030
2. The use of Artificial intelligence in Anaesthesia and peri-operative Medicine

09:50-10:10 **ASA update**

Donald Arnold (President of the American Society of Anesthesiologists (ASA), USA)

The audience will learn about how ASA is working in the United States to address current challenges; the key trends facing the specialty; ASA's strategic plan and increased focus on delivering value for members; and its international collaborations with specific consideration of the Korean Society of Anesthesiologists.

10:10-10:30 **Q&A**

Critical Care

Hall 2

Nov 8(Fri) 09:00–10:30

Moderator

- **Sung Jin Hong** (The Catholic University of Korea, Republic of Korea)
- **Sang-Hyun Kwak** (Chonnam National University, Republic of Korea)

09:00-09:20 **Optimizing patient safety: Strategies and innovations in rapid response systems**

Kwan Hyung Kim (Yonsei University, Republic of Korea)

1. It is undeniable that the Rapid Response System (RRS) shows significant positive outcomes in patient care.
2. For the rapid response team system to continue evolving, the development of the human elements operating this system must also progress. This means that not only must there be a well-organized team of high-quality rapid response members, but the hospital's organizational culture must also change in tandem.
3. Furthermore, advancements in monitoring technologies, such as machine-learning-based early warning scores, should also be pursued to alleviate the workload on human members and improve patient outcomes.
4. Lastly, the ways to prevent patient adverse events depend on resources. This implies a financial cost. Unfortunately, no matter how efficient AI and other technologies are developed to enhance efficiency and patient safety, there will always be clear limitations. Fundamentally, having quality resources—such as real-time monitoring in ICUs or step-down units—along with technological advancements is the most effective way to reduce cardiac arrest rates and mortality.

09:20-09:40 **Biocontainment and critical care**

Mark Romig (Johns Hopkins University, USA)

1. Describe the necessary elements of a biocontainment unit (BDU).
2. Understand the physical and ethical constraints on surgical critical care in a biocontainment setting.

09:40-10:00 **Current evidence in AKI and CKRT in critically ill patients**

Christine Kang (Seoul National University, Republic of Korea)

1. Understand the pathophysiology, risk factors, and evidence-based prevention strategies for AKI in critically ill patients
   Explore the mechanisms leading to AKI, focusing on perioperative factors relevant to anesthesia practice, and review the latest evidence on preventive strategies (e.g., use of balanced crystalloids, avoidance of nephrotoxic agents) that reduce the incidence of AKI in surgical and ICU settings.
2. Analze Evidence-Based Indications and Timing for CKRT Initiation in Critically ill patients with AKI
   Review current evidence regarding the clinical indications for CKRT initiation, including refractory hyperkalemia, fluid overload, and hemodynamic instability. Discuss how early initiation, supported by evidence, can improve outcomes and explore the ongoing debate over optimal timing.
3. Evaluate Evidence-Based Criteria for CKRT Discontinuation and Strategies for Supporting Renal Recovery
   Examine the most up-to-date clinical and laboratory parameters guiding CKRT cessation, including urine output, electrolyte stabilization, and hemodynamic stability, while integrating evidence-based practices to optimize renal recovery and prevent recurrence of dysfunction.

10:00-10:30 **Q&A**

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Thoracic Anesthesia

Nov 8(Fri) 09:00–10:30

Hall 3

Moderator

- **Jae-Hyon Bahk** (Seoul National University, Republic of Korea)
- **Young Jun Oh** (Yonsei University, Republic of Korea)

09:00-09:20 **The past and future of thoracic anesthesia: The past**

Alessia Pedoto (Memorial Sloan Kettering Cancer Center, USA)

This session will focus on the past thoracic anesthesia milestones, to be able to understand the future developments in the field.

09:20-09:40 **The past and future of thoracic anesthesia: The future**

Wanda Popescu (Yale School of Medicine, USA)

1. Current and future concepts of robotic bronchoscopy
2. The clinical value of precision onco-analgesia

09:40-10:00 **ERAS for esophagectomy**

Yee-eot Chee (President of the Society of Anaesthetists of Hong Kong, Hong Kong, China)

A brief overview on the core principles, preoperative interventions, intraoperative strategies, postoperative management, and potential challenges to implementing ERAS protocol in patients undergo esophagectomy in Hong Kong.

10:00-10:20 **Anesthetic management for robotic assisted thoracic surgery**

Izumi Kawagoe (Juntendo University, Japan)

Robot-assisted thoracic surgery (RATS) has been developed over the past few decades and has unique characteristics that require special care and precautions. Patient positioning, surgical equipment, and procedures differ from VATS and open thoracotomy, which may affect anesthesia management. I would like to share some tips and tricks in this regard.

10:20-10:30 **Q&A**

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AAF (Asia Anesthesia Forum) I

Nov 8(Fri) 09:30–10:20

Hall 4

Moderator

- **Tae-Yop Kim** (Konkuk University, Republic of Korea)
- **Dong-Xin Wang** (Peking University First Hospital, China)

09:30-09:40 **Introduction : Need for band-specific concepts in processed-EEG monitoring**

Tae-Yop Kim (Konkuk University, Republic of Korea)

1. To understand the band-specific composition of EEG signals.
2. To understand the role of density spectral analysis of processed EEG signals.
3. To understand the importance of alpha-band in sufficient Intraoperative analgesia and postoperative delirium.

09:40-10:00 **NIRS can be for regional anesthesia and beyond**

Suraphong Lorsomradee (Chiang Mai University Hospital, Thailand)

1. Understand the role of NIRS in monitoring both cerebral and somatic oxygen saturation during regional anesthesia and surgeries.
2. Discuss the early detection of changes in perfusion and how NIRS can be utilized beyond brain monitoring to optimize patient outcomes.
3. Explore the potential for NIRS to assess microcirculation, aiding in managing conditions such as vasoplegic syndrome and compartment syndrome.

10:00-10:20 **Cerebral oximetry: IJN experience**

Suhaini Kadiman (Institut Jantung Negara, Malaysia)

1. To understand that the incidence of brain injuries is higher in cardiac surgeries.
2. To understand that cerebral oximetry can determine indirectly the LL and UL of cerebral auto regulation and hence capable to tailor the individual intra operative patient management.
3. To understand that the cerebral oximetry can reduce the risk of brain injuries, renal failure and mortality after cardiac surgeries.
4. To understand that there are other non modifiable risk factors affecting the outcomes of cardiac surgeries.

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Workshop 1

US-guided peripheral Nerve Block 🇰🇷

Room A

Nov 8(Fri) 09:00–12:00

Instructor

- **Boohwi Hong** (Chungnam National University, Republic of Korea)
- **Hyungtae Kim** (University of Ulsan, Republic of Korea)
- **Seunguk Bang** (The Catholic University of Korea, Republic of Korea)

Abstract Competition (AC-01)

Room B

Nov 8(Fri) 09:00–10:30

Moderator

- **Wangseok Do** (Pusan National University, Republic of Korea)
- **Ha Yeon Kim** (Ajou University, Republic of Korea)
- **Jae Hee Woo** (Ewha Womans University, Republic of Korea)
- **Seok Kyeong Oh** (Korea University, Republic of Korea)

Abstract Presentation (AP-01)

Room C

Nov 8(Fri) 09:00–10:30

Moderator

- **Ji-Hye Kwon** (Sungkyunkwan University, Republic of Korea)
- **Seokyung Shin** (Yonsei University, Republic of Korea)

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Plenary Session

Hall 1

Nov 8(Fri) 11:00–12:30

Moderator

- **Young-Tae Jeon** (Seoul National University, Republic of Korea)
- **Donald Arnold** (President of the American Society of Anesthesiologists (ASA), USA)

11:00-11:20 **Leadership in academic anesthesiology: Secrets of success (SOS)**

Davy Cheng (The Chinese University of Hong Kong (Shenzhen), Hong Kong, China)

1. My Anesthesiology Leadership Journey
2. Vital Directions and Value Proposition in Anesthesiology and Healthcare
3. Academic Leadership: Secrets of Success

11:20-11:40 **APSF: Focusing on safety as the top priority**

Steven Greenberg (Endeavor Health, USA)

1. Identify the increasing problem with safety during/after COVID
2. Discuss special case study for improving mortality
3. Identify & discuss patient safety initiatives
4. Discuss education, research and awareness created by initiatives

11:40-12:00 **Lessons in leadership**

Randall Flick (Mayo Clinic, USA)

Physicians are leaders, whether in the operating room or the boardroom, and benefit not only themselves but more importantly, those they serve and their patients by recognizing their role as leaders and pursuing leadership skills with the same rigor as they have pursued clinical knowledge and skill. A long career in leadership that has included many successes and a few failures teaches many lessons. This lecture provides an opportunity for the audience to benefit from those successes and failures.

12:00-12:30 **Q&A**

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Geriatrics Anesthesia

Hall 2

Nov 8(Fri) 11:00–12:30

Moderator

- **Won-Seok Chae** (Soonchunhyang University, Republic of Korea)
- **Toshiya Koitabashi** (Tokyo Dental College Ichikawa General Hospital, Japan)
- **Yoshiki Nakajima** (Hamamatsu University School of Medicine, Japan)

11:00-11:20 **Anesthetic management for a hip surgery in an elderly patient**

Atsushi Kotera (Kumamoto Medical Center, Japan)

1. A hip fracture is increasing in Japan due to aging society.
2. Aortic valve stenosis is not a rare comorbidity in an elderly patient.
3. In Japan, the aging is progressing in Hemodialysis patients as well.
4. PENG block for a hip fracture surgery may be recommended for an elderly patient with Aortic valve stenosis and hemodialysis.

11:20-11:40 **Geroprotectors and anesthesiology**

Sophia Chew (Singapore General Hospital, Singapore)

The United Nations reported that every country in the world is experiencing growth in both the size and proportion of older persons in the population. It is estimated that the population of persons aged 65 years and above will double from 703 million in 2019 to 1.5 billion in 2050, when one in six person in the world will be aged 65 years or older.

Older patients presenting for major surgery have a higher incidence of mortality and morbidity. However, distinction must be made between expected healthy ageing and patients with dysfunctional or accelerated ageing. Chronological age does not always correlate with biological age.

Biological ageing demonstrates plasticity and is potentially modifiable. Therapies that target biological ageing have been shown to improve healthspan and prolong lifespan. Of particular interest to perioperative care is that these measures have been shown to slow or even reverse cognitive decline, preserve muscle strength and improve frailty.

Geroscience is a multidisciplinary research field that connects the biology of ageing with the biology of age-related diseases. By establishing the hallmarks of ageing, the biology underpinning ageing-related chronic diseases is rapidly evolving. More recent data suggests that these hallmarks are also relevant for acute diseases including infections and the inflammatory response related to surgery. The lecture will explore how geroprotection in healthy ageing may be utilised to improve resilience in the older patients presenting for surgery and promote faster recovery.

11:40-12:00 **Aging society**

Hiroe Hamaguchi (Saitama Seki Shinkai Hospital, Japan)

1. Aging patients receiving surgery
2. Efforts to recruite anesthesiologists
3. New system to perform task sharing of physicians' work

12:00-12:20 **Preoperative frailty and optimization in geriatric patients**

Soohyuk Yoon (Seoul National University, Republic of Korea)

1. Gain insight into the concept and clinical implications of preoperative frailty, which is prevalent among elderly patients.
2. Recognize the significance of preoperative assessments and identify key factors that should be evaluated in these patients.
3. Explore the components of preoperative optimization and understand their benefits for enhancing postoperative outcomes.

12:20-12:30 **Q&A**

Patient Blood Management

Hall 3

Nov 8(Fri) 11:00–12:30

Moderator

- **Tae-Yop Kim** (Konkuk University, Republic of Korea)
- **Seah Keh Seng** (Director of Finance & Property Management, Malaysian Society of Anaesthesiologists, Malaysia)

11:00-11:20 **Thromboelastometry-guided PBM in cardiovascular surgery**

Klaus Görlinger (University Hospital Essen, Germany)

1. The reasons for bleeding in cardiovascular surgery.
2. The adverse effects of allogeneic blood product transfusion in cardiovascular surgery.
3. The implementation of thromboelastometry-guided bleeding management algorithms as an essential part of the second pillar of PBM.
4. The impact of thromboelastometry-guided bleeding management on patients' outcomes in cardiovascular surgery.
5. International guidelines on bleeding management in cardiovascular surgery.

11:20-11:40 **The world healths organization's guidance to implement patient blood management**

Axel Hofmann (University of Western Australia, Australia)

1. Understand the fundamental difference between Patient Blood Management and the concept of 'Optimal Blood Use'
2. Become aware of the emerging concept of Blood Health
3. Understand the WHO's rationale for the urgency to implement PBM as a standard of care

11:40-12:00 **IV iron in cardiovascular surgery**

Jae-Sik Nam (University of Ulsan, Republic of Korea)

1. Understand the prevalence and clinical significance of iron deficiency in patients undergoing cardiovascular surgery.
2. Review current guidelines and evidence supporting the use of intravenous iron supplementation for improving outcomes in cardiac surgery patients.
3. Explore the impact of iron supplementation on postoperative recovery, including reduced transfusion requirements and improved cardiac function.

12:00-12:30 **Q&A**

AAF(Asia Anesthesia Forum) II

Hall 4

Nov 8(Fri) 11:00–12:30

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)
- **Harumasa Nakazawa** (Kyorin University School of Medicine, Japan)

11:00-11:20	**Dialectical thinking of the difficult airway management** Yan Luo (Shanghai Jiao Tong University, China) How to fully understand and handle difficult airway, especially unexpected situations. How to deeply understand the steps mentioned in the difficult airway management guidelines and use them in different patients to ensure the safety and improve the patients' outcome.
11:20-11:40	**Opioid-induced respiratory depression and respiratory monitor** Shigeki Yamaguchi (Dokkyo Medical University, Japan) 1. The first important step in preventing opioid-induced respiratory depression must be preoperative assessment of risk factors. 2. The next important step must be early detection of opioid-induced respiratory depression with knowing about what and when to monitor. 3. The combination of respiratory rate with oximetry and capnography, and appropriate monitoring with oxygenation must be important for at least the first 24 hours for all postoperative patients under administration of opioid analgesics. 4. It must be important to understand that opioid-induced respiratory depression can occur within 15 minutes after nurse leaving from the bedside.
11:40-12:00	**Airway management during procedure sedation in non-operating room: Japanese perspectives** Harumasa Nakazawa (Kyorin University School of Medicine, Japan) 1. Examine the current status of procedure sedation in non-operating room in Japan. Who is in charge of the procedure sedation management, and what are the problems in the management system. 2. Identify safety airway management techniques used in non-operating rooms, including supraglottic device, noninvasive positive pressure ventilation, high-flow nasal cannula and tracheal intubation. 3. Emphasize the importance of education for co-medical staff in non-operating room.
12:20-12:30	**Q&A**

Abstract Competition (AC–02)

Room B

Nov 8(Fri) 11:00–12:30

Moderator

- **Woosuk Chung** (Chungnam National University, Republic of Korea)
- **Young Eun Moon** (The Catholic University of Korea, Republic of Korea)
- **Geunjoo Choi** (Chung-Ang University, Republic of Korea)
- **Eun Joo Choi** (Seoul National University, Republic of Korea)

Abstract Presentation (AP–02)

Room C

Nov 8(Fri) 11:00–12:30

Moderator

- **Jae Hee Woo** (Ewha Womans University, Republic of Korea)
- **Ji Won Choi** (Sungkyunkwan University, Republic of Korea)

Hana Pharm Co., Ltd. Luncheon 🇰🇷

Hall 1

Nov 8(Fri) 12:30–13:30

Moderator

- **Jin-Tae Kim** (Seoul National University, Republic of Korea)

12:30-13:30	**How to utilize remimazolam for optimal sedation in patients undergoing surgery under regional anesthesia** Hyungtae Kim (University of Ulsan, Republic of Korea) 1. Briefly know about remimazolam. 2. Know the recommended dose of remimazolam. 3. Know the loading dose and maintenance dose of remimazolam for sedation in patients undergoing surgery under regional anesthesia.

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Edwards Lifesciences Korea Luncheon

Hall 2

Nov 8(Fri) 12:30–13:30

Moderator

- **Byung Gun Lim** (Korea University, Republic of Korea)

12:30-13:30 **Clinical application of non-invasive hemodynamic monitoring**

Chung-Sik Oh (Konkuk University, Republic of Korea)

The advantages of noninvasive monitoring during anesthesia should be understood by anesthesiologists. We will discuss the clinical experience of noninvasive blood pressure monitoring in this session, along with its advantages and disadvantages.

VIVOZON Luncheon

Hall 3

Nov 8(Fri) 12:30–13:30

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)
- **Jae-Hyon Bahk** (Seoul National University, Republic of Korea)

12:30-13:00 **First-in-class non-opioid, non-NSAID multi-target analgesic - Part 1**

Doo-Hyun Lee (VIVOZON, Republic of Korea)

Part 1. Anti-nociceptive multi-target drug VVZ-149 (Opiranserin)
1. Antagonize peripheral 5HT2a known to be the source of pain signal by serotonin.
2. Antagonize descending facilitation of pain by 5HT2a.
3. Block glycine reuptake by GlyT2 so that more and longer action of synaptosomal glycine in spinal cord dorsal horn cells.

13:00-13:30 **First-in-class non-opioid, non-NSAID multi-target analgesic - Part 2**

Ji-Yeon Sim (University of Ulsan, Republic of Korea)

Part 2. Reduction of Postoperative Pain and Opioid Consumption by VVZ–149, First–in–Class Analgesic Molecule: A Confirmatory Phase 3 Trial of Laparoscopic Colectomy
1. Pivotal study design and results for Opiranserin injections.
2. Review and future studies for Opiranserin injections.

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Medtronic Korea Luncheon

Hall 4

Nov 8(Fri) 12:30–13:30

Moderator

- **Duk Kyung Kim** (Sungkyunkwan University, Republic of Korea)

12:30-13:30 **Optimizing anesthesia management: The significance of DSA (Density Spectral Array) in pEEG monitoring**

Jung Hee Ryu (Seoul National University, Republic of Korea)

This lecture will provide an in-depth understanding of electroencephalography (EEG), processed EEG (pEEG), Density Spectral Assay (DSA), and the significance of DSA in pEEG monitoring, particularly in optimizing anesthesia management.
1. Understanding EEG Fundamentals.
   Explain the basic principles of EEG, including its physiological basis and the types of brain waves detected.
   Identify the standard EEG setup, including electrode placement and the equipment used for recording.
2. Processed EEG (pEEG) Applications.
   Discuss the clinical applications of pEEG in anesthesia, including monitoring depth of anesthesia and detecting awareness.
3. Density Spectral Assay (DSA).
   Describe the concept of Density Spectral Assay (DSA) and how it analyzes EEG signals for each anesthetics.
   Illustrate how DSA provides insights into the frequency components of the EEG signal over time.
4. Evaluate the importance of DSA in monitoring anesthesia depth and patient outcomes.
   Analyze case studies demonstrating the impact of DSA on clinical decisions in anesthesia management.

Masimo Luncheon

Hall 5

Nov 8(Fri) 12:30–13:30

Moderator

- **Tae-Yop Kim** (Konkuk University, Republic of Korea)

12:30-13:30 **Optimal fraction of inspired oxygen for patients undergoing general anesthesia**

Chul-Ho Chang (Yonsei University, Republic of Korea)

During general anesthesia, the anesthesiologist monitors and maintains the depth of anesthesia and the patient's vital signs within normal ranges.
However, it seems that there are many anesthesiologists who do not adjust the fraction of inspired oxygen.
In this lecture, we will look at the complications of high inspired oxygen fraction and discuss how to manage it.

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Regional Anesthesia II

Hall 1

Nov 8(Fri) 13:30–15:00

Moderator

- **Justin Sangwook Ko** (Sungkyunkwan University, Republic of Korea)
- **Balavenkat Subramanian** (Ganga Medical Centre & Hospitals, India)

13:30-13:50 **Anaesthesia for orthogeriatrics: An update**

Balavenkat Subramanian (Ganga Medical Centre & Hospitals, India)

1. Challenges in the Perioperative Care of a Geriatric patient coming with Hip Fractures
2. Preoperative Assessment and quick Prehabilitation
3. Intraoperative strategies
4. Postoperative complications and solutions to prevent complications
5. To share the clinical pathway followed in our centre

13:50-14:10 **Updates on neurolocalization techniques: What do we actually need**

Azrin bin Mohd azidin (Hospital Kuala Lumpur, Malaysia)

1. The rationale for neuro-localization in regional practice.
2. Current available techniques for neuro-localization.
3. Evidence-based neuro-localization practices and their considerations.
4. Potential future areas of work.
5. The here and now- what do we really need?

14:10-14:30 **Improving clinical outcomes after hip fracture surgery: Practical approaches**

Ha-Jung Kim (University of Ulsan, Republic of Korea)

As the elderly population increases, the number of hip fracture surgeries is also rising. However, the clinical outcomes after hip fracture surgery tend to be relatively poorer compared to elective hip surgery. This lecture will explore which anesthesia methods may be preferable when considering clinical outcomes.

14:30-15:00 **Q&A**

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Pediatric Anesthesia

Hall 2

Nov 8(Fri) 13:30–15:00

Moderator

- **Jin-Tae Kim** (Seoul National University, Republic of Korea)
- **Byung Gun Lim** (Korea University, Republic of Korea)

13:30-13:50 **Workforce challenges in pediatric anesthesiology**

Jim Fehr (Stanford University School of Medicine, USA)

1. Consider the history of Pediatric Anesthesiology & Critical Care
2. Understand the workforce challenges confronting Pediatric Anesthesiology
3. Reflect upon the future of Pediatric Anesthesiology

13:50-14:10 **Anesthetic related neurotoxicity in the young; A saga in four acts**

Randall Flick (Mayo Clinic, USA)

Preclinical studies in multiple animal species including non-human primates demonstrate significant neuronal injury secondary to exposure to nearly all commonly used anesthetic agents. Early observational studies suggested a near doubling in the frequency of learning disabilities among children exposed to anesthetics more than once prior to their third birthday while single exposure studies are mostly negative. Later more robust studies have been reassuring but continue to demonstrate subtle changes related to parent reported behavior. These finding are consistent across multiple studies performed in variety of settings. The world-wide effort to better understand the problem of anesthetic related neurotoxicity serves as a model of cooperation and teamwork representing the best of the scientific community within the field.

14:10-14:30 **Management of the pediatric difficult airway**

Jina Sinskey (University of California, San Francisco, USA)

1. Identify factors to consider in evaluating the pediatric airway
2. Summarize oxygen delivery, ventilation, and intubation techniques
3. Develop an airway management plan for a pediatric patient with a difficult airway

14:30-14:50 **Tailoring anaesthesia for children with intellectual disabilities: Best practices and considerations**

Ina Ismiarti Shariffuddin (University Malaya, Malaysia)

1. Understand the Unique Needs of Children with Intellectual Disabilities.
2. Able to modify Preoperative Assessment Techniques for these children.
3. Able to tailor anaesthetic plans based on behavioural and medical considerations.
4. Understand best practices for managing Postoperative Care and Pain Management.
5. Understands the importance of a multidisciplinary team in managing the perioperative care of these patients.

14:50-15:00 **Q&A**

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Pain Medicine

Nov 8(Fri) 13:30–15:00

Hall 3

Moderator

- **Pyung-Bok Lee** (Seoul National University, Republic of Korea)
- **Younghoon Jeon** (Kyungpook National University, Republic of Korea)

13:30-13:55 **Opioid therapy for chronic pain in Japan**

Shigeki Yamaguchi (Dokkyo Medical University, Japan)

1. Even in Japan, which has not experienced the surge in opioid consumption documented in other countries, opioid use disorder has been observed, especially in cancer survivors.
2. In Japan, most cases with the opioid use disorder are iatrogenic syndromes.
3. Behind opioid use disorder as an iatrogenic syndrome in cancer survivors, there is an exaggerated belief that "do not cause pain to the patient" and "to obtain pain relief is patients' right", and easy prescription of opioid analgesics.
4. To prevent opioid use disorder or opioid overdose in Japan, universal precautions for opioid use should be followed not only for patients with chronic noncancer pain but also for patients with cancer pain or pain related to cancer treatment.

13:55-14:20 **Practical ultrasound-guided technique for pain management**

Hue Jung Park (The Catholic University of Korea, Republic of Korea)

1. Understand important anatomic structure of ultrasound image for nerve block and injection.
2. Perform practical ultrasound-guided procedure for pain management.

14:20-14:45 **Clinical tips to perform cervical block**

Hyun-Jung Kwon (University of Ulsan, Republic of Korea)

To maximize the safety of cervical epidural blocks, the cervical interlaminar approach should be performed at the C7-T1 level and not above the C6-7 level. An MRI review is essential to confirm adequate epidural space. For the interlaminar approach, the paramedian approach is preferred over the midline approach. When using the paramedian approach, a contralateral oblique view at 50° is more advantageous than the lateral view during needle advancement toward the epidural space. The paramedian interlaminar approach is also preferred over the transforaminal approach, as it is not inferior but offers a safer profile concerning complications.

14:45-15:00 **Q&A**

AAF(Asia Anesthesia Forum) III

Nov 8(Fri) 13:30–15:00

Hall 4

Moderator

- **Lian Kah Ti** (National University Health System, Singapore)
- **Suhaini Kadiman** (Institut Jantung Negara, Malaysia)

13:30-13:50 **Perioperative diastolic heart failure and dysfunction in non-cardiac surgery**

Stanton Shernan (Harvard University, USA)

1. Diagnosis and definition of diastolic dysfunction and heart failure
2. Etiologies and mechanisms of diastolic dysfunction and heart failure
3. Perioperative management of diastolic dysfunction and heart failure

13:50-14:10 **Perioperative management of right heart failure**

Alina Nicoara (Duke University, USA)

1. Understand key aspects of right ventricular physiology
2. Discuss pathophysiologic features of acute and chronic right ventricular failure
3. Recognize and anticipate challenges in the perioperative management of right ventricular failure

14:10-14:30 **Perfusion emergencies and anesthesiologists**

Chow Yen Yong (Lam Wah Ee Hospital, Malaysia)

These learning objectives aim to equip anesthesiologists with the knowledge and skills necessary to effectively manage perfusion incidents /emergencies during cardiopulmonary bypass (CPB), ensuring patient safety and improving outcomes.

1. Understanding the principles of CPB.
2. Prevention, contingency planning and early identification of critical perfusion incidents.
3. Intraoperative resuscitation and emergency procedures during perfusion emergencies.
4. Effective team communication and decision-making under pressure.
5. Post-CPB complications and their management.

14:30-15:00 **Q&A**

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Workshop 2

Pain Medicine: Ultrasound Advanced Course

Room A

Nov 8(Fri) 14:00–17:00

Instructor

- **Yeong-min Yoo** (Pusan National University, Republic of Korea)
- **Chung Hun Lee** (Korea University, Republic of Korea)
- **Yookyung Jang** (Korea University, Republic of Korea)

Abstract Presentation (AP–03)

Room B

Nov 8(Fri) 13:30–15:00

Moderator

- **Ji Won Choi** (Sungkyunkwan University, Republic of Korea)
- **Kyu Nam Kim** (Hanyang University, Republic of Korea)

Abstract Presentation (AP–04)

Room C

Nov 8(Fri) 13:30–15:00

Moderator

- **Chung-Sik Oh** (Konkuk University, Republic of Korea)
- **Hyungseok Suh** (Kyung Hee University, Republic of Korea)

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Neuromuscular Research

Hall 1

Nov 8(Fri) 15:30–17:00

Moderator

- **Jin-Young Chon** (The Catholic University of Korea, Republic of Korea)
- **Sangseok Lee** (Inje University, Republic of Korea)

15:30-15:50 **Succinylcholine and malignant hyperthermia**

Seok Kyeong Oh (Korea University, Republic of Korea)

1. Learn about the mechanism of action and potential adverse effects of succinylcholine.
2. Learn about malignant hyperthermia induced by succinylcholine.
3. Look at the situation of supply interruption of succinylcholine in Korea.

15:50-16:10 **Current status of dantrolene supply in South Korea**

Sung-Ae Cho (Konyang University, Republic of Korea)

1. Current status of dantrolene in South Korea
2. The management of dantrolene in overseas
3. How to get supplies of dantrolene in South Korea

16:10-16:30 **Extravascular injection of neuromuscular blocking drugs**

Wonjin Lee (Inje University, Republic of Korea)

1. Understand the risk factors and clinical implications of extravasation of neuromuscular blocking drugs (NMBDs) in anesthesia practice.
2. Discuss the pharmacokinetics of NMBDs after subcutaneous injection and its effects on neuromuscular block duration.
3. Explore strategies for preventing and managing extravasation, including the use of monitoring techniques and reversal agents like Sugammadex.

16:30-17:00 **Q&A**

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Neuroanesthesia

Hall 2

Nov 8(Fri) 15:30–17:00

Moderator

- **Jinyong Jung** (Daegu Catholic University, Republic of Korea)
- **Hee-Pyoung Park** (Seoul National University, Republic of Korea)

15:30-15:50 **Covert stroke - Something new to worry about?**

Adrian Gelb (Past-President of World Federation of Societies of Anesthesiologists (WFSA); UCSF, USA)

1. Know the difference between a covert and an overt stroke
2. Understand the etiology and incidence
3. The clinical consequences of covert stroke

15:50-16:10 **Impact of perioperative management on postoperative neurocognitive disorders**

Dong-Xin Wang (Peking University First Hospital, China)

1. Effects of regional vs. general anesthesia on PNDs and other outcomes for patients with hip fracture
2. Effects of combined regional-general vs. general anesthesia on PNDs
3. Effects of propofol-based TIVA vs. inhalational anesthesia on PNDs
4. Effects of perioperative dexmedetomidine on PNDs

16:10-16:30 **Should we be concerned about the outcomes of early exposure to general anesthesia: The effects on the developing brain?**

Vesna Jevtovic-Todorovic (University of Colorado School of Medicine, USA)

1. To provide scientific background information regarding the neurotoxic effects of general anesthesia on the developing brain
2. To share currently available clinical findings pros and cons
3. To discuss path forth

16:30-17:00 **Q&A**

General Assembly & Special Lecture (총회)

Hall 3

Nov 8(Fri) 15:30–17:00

Moderator

- **Dong Woo Han** (Yonsei University, Republic of Korea)

15:30-16:00 General Assembly

16:00-17:00 한국 사회는 왜 전문가와 불통하는가? 한국인의 주체성과 갈등–불신의 메커니즘

Kyung Il Kim (Ajou University, Republic of Korea)

1. 한국의 미래 사회는 어떤 모습을 지니게 되는가를 이해해 본다.
2. 한국인의 주체성은 어떤 의미와 수준을 가지는가를 파악해 봄으로써 한국 문화의 소통의 기제를 이해한다.
3. 한국문화가 각 분야의 전문가를 대하는 과정에서 갈등의 이유와 해결 방법을 모색해 본다.

AAF(Asia Anesthesia Forum) IV

Hall 4

Nov 8(Fri) 15:30–17:00

Moderator

- **Suraphong Lorsomradee** (Chiang Mai University Hospital, Thailand)
- **Shigeki Yamaguchi** (Dokkyo Medical University, Japan)
- **Hyungseok Suh** (Kyung Hee University, Republic of Korea)

15:30-15:50 **Ambulatory surgery: The focused factory principle**

Xavier Falières (Albert Schweitzer Hospital, Netherlands)

1. Introduce the Concept of the Focused Factory in Ambulatory Surgery
2. Understand the Role of Anesthesiology Across All Phases
3. Systematize Preoperative, Perioperative, and Postoperative Policies
4. Patient Selection and Preoperative Screening Protocols
5. Optimize Safety and Quality Measurements
6. Tailor Anesthesia Techniques Based on Procedure
7. Organization of the Operating Theater and Postoperative Follow-Up
8. Highlight the Importance of Dedicated Teams
9. Improve Communication and Collaboration Among Teams
10. Explore Future Trends and Innovations

These objectives will guide the audience through understanding the systematization of policies, anesthesia management, and safety measures in the focused factory model, emphasizing the critical role of anesthesiology in every phase.

15:50-16:10 **Experience and strategy in anesthesia for ambulatory surgery and outpatient procedure for pain management**

Shih-Jyun Shen (Linkou Chang Gung Memorial Hospital, Taiwan, China)

In this session, I will share our experience about outpatient surgery and discuss how we try to minimize the incidence and severity of postoperative complications as much as possible. Preoperative and intraoperative management must ensure that outpatient surgical patients do not require hospitalization due to unexpected events and can be discharged promptly after a quick recovery in the recovery room.

16:10-16:30 **Aging and surgical resilience in a Singapore cohort**

Lian Kah Ti (National University Health System, Singapore)

With a global aging population, there has been a growing demand for surgical interventions among older adults. However, older individuals have diminishing physiological reserves and loss of surgical resilience. This lecture will explore surgical resilience in a cohort of older patients undergoing major non-cardiac surgery in a major hospital in Singapore.

16:30-16:50 **Anaesthesia for fragility fractures in the older patients**

Pui San Loh (University Malaya, Malaysia)

1. Understand the impact of age and frailty related changes on anaesthesia for fragility fractures.
2. Evaluate preoperative risk factors and co-morbidities that determine a suitable choice of anesthesia.
3. Recognize potential peri-operative complications and appropriate safety measures.
4. Implement an effective and early pain control strategy.
5. Emphasize evidence based current practices and multidisciplinary collaboration as a team.

16:50-17:00 **Q&A**

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Abstract Presentation (AP–05)

Room B

Nov 8(Fri) 15:30–17:00

Moderator

- **Young-Eun Jang** (Seoul National University, Republic of Korea)
- **Seunguk Bang** (The Catholic University of Korea, Republic of Korea)

Abstract Presentation (AP–06)

Room C

Nov 8(Fri) 15:30–17:00

Moderator

- **Hojin Lee** (Seoul National University, Republic of Korea)
- **Hye-Min Sohn** (Ajou University, Republic of Korea)

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AI & Research

Hall 1

Nov 9(Sat) 09:00–10:30

Moderator

- **Chul-Ho Chang** (Yonsei University, Republic of Korea)
- **Varinee Lekprasert** (The Royal College of Anesthesiologists of Thailand, Thailand)

09:00-09:20 **Leveraging artificial intelligence to predict persistent opioid use and addiction**

Rodney Gabriel (University of California San Diego, USA)

1. Review the use of AI modalities for predicting opioid outcomes, such as persistent opioid use after surgery and opioid use disorder
2. Discuss the current state and limitations of studies that have developed AI-based models for predicting opioid outcomes

09:20-09:40 **Optimizing perioperative medicine using artificial intelligence approaches**

Rodney Gabriel (University of California San Diego, USA)

1. Overview of how AI may be used to improve perioperative efficiency in the operating room
2. Overview of how AI may be used to improve the preoperative optimization process of patients prior to surgery

09:40-10:00 **How to use large language model for clinical research**

Jungchan Park (Sungkyunkwan University, Republic of Korea)

1. Understand the fundamentals of Large Language Models (LLMs):
   Define what an LLM is and explain its underlying architecture, including the neural networks and the training process.
   Describe the role of data collection, preprocessing, and fine-tuning in LLM development.
2. Identify the practical applications of LLMs in clinical research and medicine:
   Explain how LLMs can be used for medical note-taking, medical consultation, and improving clinical decision-making.
   Discuss how LLMs can contribute to various stages of clinical research, such as data analysis, manuscript drafting, and results interpretation.
3. Evaluate the pros and cons of using LLMs in clinical research:
   Assess ethical concerns, including the risk of errors and the limitations related to domain-specific knowledge.
   Discuss the policies of major journals (e.g., Science, NEJM AI) regarding the use of LLMs in publications, including accountability and proper acknowledgment of LLM use.
4. Develop skills in prompt engineering and customization of LLMs:
   Learn how to optimize the input prompts to elicit accurate and context-appropriate responses from LLMs.
   Understand the nuances in formulating prompts for complex questions or requests.
5. Explore the future potential and challenges of LLMs in medicine and research:
   Examine how advancements in AI and LLMs may enhance clinical research efficiency and accuracy.
   Discuss the limitations and future improvements necessary for LLMs to be more fully integrated into medical practice and research environments.

10:00-10:30 **Q&A**

Pain Medicine

Nov 9(Sat) 09:00–10:30

Hall 2

Moderator

- **Youngki Kim** (University of Ulsan, Republic of Korea)
- **Jeong-Il Choi** (Chonnam National University, Republic of Korea)

09:00-09:25 **Optimizing radiofrequency ablation for back pain**

Jinseok Yeo (Kyungpook National University, Republic of Korea)

1. Physical characteristics of radiofrequency ablation technique.
2. Introducing radiofrequency ablation techniques for low back pain.
3. Radiofrequency ablation for facetogenic pain.

09:25-09:50 **Review of clinical trials for various waveforms of SCS**

Jae Hun Kim (Konkuk University, Republic of Korea)

1. Spinal cord stimulation의 다양한 waveform에 어떤 것들이 있는지 이해한다.
2. 각 waveform의 차이점과 특징을 이해한다.
3. 각 waveform에 대한 적용 결과 및 연구 보고를 확인한다.

09:50-10:15 **Intrathecal drug delivery pump: Management of clinical pitfalls for successful trial and maintenance**

Woong-Mo Kim (Chonnam National University, Republic of Korea)

1. Intrathecal pharmacokinetics of morphine
2. Complications during implantation and maintenance of IT pump
3. IT morphine dose titration

10:15-10:30 **Q&A**

KMA 필수교육

Nov 9(Sat) 09:30–11:30

Hall 3

Moderator

- **Dong Won Kim** (Hanyang University, Republic of Korea)
- **Ha Yeon Kim** (Ajou University, Republic of Korea)

09:30-09:50 **침습적 시술에서 환자 안전을 위한 감염관리**

Yeon dong Kim (Wonkwang University, Republic of Korea)

1. 감염과 관련된 환자 안전사고 현황과 유형을 파악한다.
2. 마취통증영역에서의 침습적 시술의 종류와 감염 발생의 위험성을 이해한다.
3. 감염예방 일반지침과 권고안의 내용을 소개하고 이해한다.

09:50-10:10 **환자안전을 위한 최근의 수혈 전략**

Hyunjoo Jung (Yonsei University, Republic of Korea)

Current transfusion strategies for patient safety

10:10-10:30 **환자 안전을 위한 의료인의 지속적 교육 – 시뮬레이션 교육**

Hyo-Jin Byon (Yonsei University, Republic of Korea)

1. 의료인을 위한 시뮬레이션 교육의 필요성 및 목적을 이해한다.
2. 시뮬레이션 교육의 종류 및 방법을 파악한다.
3. 마취통증의학 분야에서 시뮬레이션 교육의 적용 사례를 통해 시뮬레이션 교육의 효과를 파악한다.

10:30-10:50 **마취통증의학과 의사를 위한 의료분쟁 예방과 대응**

Jin Seok Cho (Ohkims, Republic of Korea)

의료민사사건을 중심으로 마취통증의학 분야에서의 의료분쟁 사례 및 그 예방 및 대응방법을 공유함으로써 임상의료현장에서의 법적 위험성을 최소화한다.

10:50-11:30 **Q&A**

Ambulatory Anesthesia

Hall 4

Nov 9(Sat) 09:00–10:30

Moderator

- **Tae-Yop Kim** (Konkuk University, Republic of Korea)
- **Won Seok Chae** (Soonchunhyung University, Republic of Korea)
- **Tomoko Yorozu** (Kyorin University School of Medicine, Japan)

09:00-09:20 **Ambulatory surgery, pushing the limits**

Xavier Falières (Albert Schweitzer Hospital, Netherlands)

1. Explore the Current Limits of Ambulatory Surgery
2. Examine the Role of Anesthesiology
3. Analyze How Different Resources Affect the Scope of Ambulatory Surgery
4. Assess the Influence of Country-Specific Factors
5. Consider the Role of Dedicated Teams
6. Review the Impact of Patient Education and Compliance
7. Discuss Safety Protocols and Quality Measurements
8. Assess How Healthcare Systems Adapt to Rising Demand
9. Evaluate the Role of Technology and Innovation
10. Address Legal and Regulatory Challenges

These objectives will guide the audience through understanding how various factors impact the scope of ambulatory surgery, with a specific focus on anesthesiology, patient safety, and multidisciplinary team involvement.

09:20-09:40 **Regional anesthesia for outpatients**

Sakura Kinjo (University of California, San Francisco, USA)

1. Discuss the benefits and risks of peripheral nerve blocks in outpatient surgery.
2. Discuss the different nerve block techniques, including continuous nerve catheters, liposomal bupivacaine, and adjuncts to local anesthetics.

09:40-10:00 **Patients with obesity and sleep apnea for ambulatory surgery**

Kelly Lebak (MetroHealth Medical Center, USA)

Describe how to determine if/when patients with obesity and/or obstructive sleep apnea can safely get surgery and anesthesia in an ambulatory surgery center (ASC).

10:00-10:30 **Q&A**

Workshop 3

ERAS 🇰🇷

Room A

Nov 9(Sat) 09:00–12:00

Instructor

- **Boohwi Hong** (Chungnam National University, Republic of Korea)
- **Bon-Wook Koo** (Seoul National University, Republic of Korea)
- **Hojin Lee** (Seoul National University, Republic of Korea)

Abstract Presentation (AP-07)

Room B

Nov 9(Sat) 09:00–10:30

Moderator

- **Kyu Nam Kim** (Hanyang University, Republic of Korea)
- **Dong Kyu Lee** (Dongguk University, Republic of Korea)

Abstract Presentation (AP-08)

Room C

Nov 9(Sat) 09:00–10:30

Moderator

- **Seok Kyeong Oh** (Korea University, Republic of Korea)
- **Young-Eun Jang** (Seoul National University, Republic of Korea)

Neuromuscular Research

Nov 9(Sat) 11:00–12:30

Hall 1

Moderator

- **Justin Sangwook Ko** (Sungkyunkwan University, Republic of Korea)
- **Huang-Ping Yu** (Linkou Chang Gung Memorial Hospital, Taiwan, China)

11:00-12:00 **ASA practice guidelines for monitoring and antagonism of neuromuscular blockade**

Stephan Thilen (University of Washington, USA)

1. Explain the ASA guidelines for monitoring and antagonism of neuromuscular blockade
2. Compare and contrast quantitative to qualitative neuromuscular monitoring
3. Apply evidence-based practices to prevent residual paralysis

12:00-12:20 **The gap between sugammadex use and clinical guidelines in auto insurance patients in Korea – a single center analysis**

Ki Tae Jung (Chosun University, Republic of Korea)

1. The current trends in sugammadex payment deductions within the Korean auto insurance system.
2. The discrepancies between clinical guidelines and insurance policies on sugammadex claims.
3. Strategies to reduce sugammadex payment denials.

12:20-12:30 **Q&A**

Obstetrics Anesthesia

Nov 9(Sat) 11:00–12:30

Hall 2

Moderator

- **Hyungtae Kim** (University of Ulsan, Republic of Korea)
- **Tomoko Yorozu** (Kyorin University School of Medicine, Japan)
- **Thang Cong Quyet** (Hanoi Medical University, Vietnam)

11:00-11:20 **Strategies for the management of postpartum hemorrhage**

Brendan Carvalho (Stanford University School of Medicine, USA)

1. Identify key interventions to reduce preventable morbidity and mortality from postpartum hemorrhage.
2. Understand patient safety bundle components of readiness, recognition, response and reporting in the management of obstetric hemorrhage.

11:20-11:40 **Family centered cesarean delivery and early skin to skin contact**

Katsuo Terui (Saitama Medical Center, Saitama Medical University, Japan)

1. Understand the concept and the value of family centered cesarean delivery.
2. Familiarize with Enhanced Recovery After Cesarean (ERAC) protocol with special emphasis on breastfeeding success.
3. Understand the role of anesthesiologists in encouraging early skin to skin contact for successful breastfeeding.

11:40-12:00 **Anesthesia for intrauterine fetal intervention surgery at Hanoi obstetrics and gynecology hospital**

Nguyen duc Lam (Hanoi Medical University, Vietnam)

The report introduces an overview of surgical interventions for fetuses in the uterine cavity. Introduces some centers for surgical interventions for fetuses in the uterine cavity in Vietnam. Provides notes on anesthesia and resuscitation for some common surgical interventions for fetuses in the uterine cavity.
Presenting some experiences in anesthesia and resuscitation for some diseases that require surgical intervention for fetuses in the uterine cavity in Vietnam.

12:00-12:30 **Q&A**

KJA Session

Hall 4

Nov 9(Sat) 11:00–12:30

Moderator

- **Young Lan Kwak** (Yonsei University, Republic of Korea)
- **Younsuk Lee** (Dongguk University, Republic of Korea)

11:00-12:30 **Methods unraveled: A traveler's roadmap through the statistical labyrinth**
Sang Gyu Kwak (Daegu Catholic University, Republic of Korea)

The purpose of this lecture, titled "Methods Unraveled... A Traveler's Roadmap Through The Statistical Labyrinth", is to provide solutions for determining statistical quantities and statistical analysis methods that should be determined when using statistics in research.
Through this lecture, attendees will acquire the ability to select statistical analysis methods required for research.
During the lecture, we will provide an interesting hands-on time to solve the statistical labyrinth together.
In addition, there will be a 30-minute Q&A time to solve all your questions about statistical analysis.

Abstract Presentation (AP–09)

Room B

Nov 9(Sat) 11:00–12:30

Moderator

- **Jae-Sik Nam** (University of Ulsan, Republic of Korea)
- **Chung-Sik Oh** (Konkuk University, Republic of Korea)

Abstract Presentation (AP–10)

Room C

Nov 9(Sat) 11:00–12:30

Moderator

- **Wangseok Do** (Pusan National University, Republic of Korea)
- **Seokyung Shin** (Yonsei University, Republic of Korea)

UPINEMED Luncheon

Hall 3

Nov 9(Sat) 11:30–12:30

Moderator

- **Ah Young Oh** (Seoul National University, Republic of Korea)

11:30-12:30 **EMG based neuromuscular monitoring**
Chang-Hoon Koo (Seoul National University, Republic of Korea)

1. Explain the fundamental principles of neurotransmission and electromyography as they relate to neuromuscular monitoring.
2. Compare and contrast electromyography (EMG) with acceleromyography (AMG) and other EMG techniques in the context of neuromuscular function assessment.
3. Critically evaluate the advantages, challenges, and limitations of EMG-based neuromuscular monitoring in clinical anesthesia practice.

Medtronic Korea Luncheon

Hall 1

Nov 9(Sat) 12:30–13:30

Moderator

- **Sang Hyun Kim** (Soonchunhyang University, Republic of Korea)

12:30-13:30 **Convective warming device: A vital tool for patient temperature management**
Jong Wook Song (Yonsei University, Republic of Korea)

1. Thermoregulation and hypothermia overview
2. The effect of general anesthesia on thermoregulation and operating room considerations
3. Efficacy of active forced air warming with clinical evidence
4. Calima & Warmtouch

FULL PROGRAM
Nov 7 (Thu)
Nov 8 (Fri)
Nov 9 (Sat)

HK inno.N Luncheon

Hall 2

Nov 9(Sat) 12:30–13:30

Moderator

- **Jun-Heum Yon** (Inje University, Republic of Korea)

12:30-13:30 **Welcome, Korea's new preoperative carbohydrate drinks**

Hojin Lee (Seoul National University, Republic of Korea)

1. To understand preoperative fasting guidelines.
2. To explore the background and benefits of implementing preoperative carbohydrate loading.
3. To identify patient groups requiring special consideration when applying preoperative carbohydrate loading.

ACEMEDICAL Luncheon

Hall 3

Nov 9(Sat) 12:30–13:30

Moderator

- **Hyun Kang** (Chung-Ang University, Republic of Korea)

12:30-13:30 **Effective strategies to prevent intraoperative hypothermia - Play your ace! 'Mega Acer Kit' -**

Je Jin Lee (Chung-Ang University, Republic of Korea)

1. Review the mechanism of intraoperative hypothermia and recognize the importance of maintaining body temperature during surgery.
2. Explore the efficacy of heated-humidified breathing circuit (HHBC) and associated warming strategies in maintaining intraoperative core temperature through meta-analysis and network meta-analysis.
3. Introduce the 'Mega Acer Kit,' a HHBC combined with IV fluid warmer, and review the related clinical evidence.

GE HealthCare Luncheon

Hall 4

Nov 9(Sat) 12:30–13:30

Moderator

- **Tae-Yop Kim** (Konkuk University, Republic of Korea)

12:30-13:30 **Perioperative POCUS in anesthesiology: A transformative partner (마취통증의학과의 새로운 동반자: 현장초음파와 함께하는 변화)**

Hye-Min Sohn (Ajou University, Republic of Korea)

1. To delineate key perioperative pathologies through POCUS and demonstrate how nuanced ultrasound findings inform anesthetic planning and decision-making.
2. To critically evaluate evidence-based applications of POCUS in optimizing hemodynamic management, procedural precision, and immediate clinical interventions across perioperative phases.
3. To examine the evolving role of POCUS as a catalyst for change in anesthesiology, addressing intraoperative underutilization and proposing strategies for seamless integration into routine practice.

Edwards Lifesciences Korea Luncheon

Hall 5

Nov 9(Sat) 12:30–13:30

Moderator

- **Young Lan Kwak** (Yonsei University, Republic of Korea)

12:30-13:30 **Hypotension prediction index: evidence based practical implentation**

Jin-Tae Kim (Seoul National University, Republic of Korea)

1. Understand the physiology of oxygen delivery to the tissue and learn about new hemodynamic monitoring variables.
2. Examine the characteristics of intraoperative hypotension and understand the importance and methods of maintaining appropriate blood pressure during surgery.
3. Explore the clinical usefulness and limitations of HPI.
4. Consider future directions for research in hemodynamics.

FULL PROGRAM
Nov 7 (Thu)
Nov 8 (Fri)
Nov 9 (Sat)

Hemodynamic Management & Cardiothoracic Vascular Anesthesia

Hall 1

Nov 9(Sat) 13:30–15:00

Moderator

- **Jae-Kwang Shim** (Yonsei University, Republic of Korea)
- **Chien-Kun Ting** (Taipei Veterans General Hospital, Taiwan, China)

13:30-13:50 **Management of RHF and pulmonary hypertension**

Alina Nicoara (Duke University, USA)

1. Explain the underlying pathophysiological mechanisms of right heart failure and pulmonary hypertension, including the hemodynamic changes and impact on right ventricular function.
2. Describe the key diagnostic modalities and criteria for identifying right heart failure and pulmonary hypertension.
3. Discuss evidence-based treatment options for managing right heart failure and pulmonary hypertension.

13:50-14:10 **The pulse of precision: Advanced hemodynamic monitoring in the OR**

Laurence Weinberg (Austin Health, Australia)

1. This lecture will provide a contemporary overview of the application of advanced hemodynamic monitoring in the operating room.
2. Every circulation demonstrates a unique pattern of pressure and flow regulation in health and disease that cannot be fully understood using Guyton's pressure equation.
3. The approach proposes that oxygen delivery be conceptualized as the product of oxygen availability and perfusion, with oxygen availability measured in terms of flow and its constituents, and perfusion measured in terms of a "pressure field".
4. This lecture will present emerging evidence that each person has a unique "pressure field" or hemodynamic phenotype" and that perfusion dysregulation can be quantified by direction and degree of displacement of the pressure field, and the duration of the displacement.
5. Real case scenarios will be presented, and an overview of the common haemodynamic states will be discussed.
6. Participants can expect to gain a deeper understanding of the benefits and limitations of advanced hemodynamic monitoring and how best to apply these principles to improve the care of their patients.

14:10-14:30 **Why heart health and blood health go hand in hand**

Axel Hofmann (University of Western Australia, Australia)

1. Understand the detrimental impact of anaemia on patients with heart failure and other cardiovascular disease
2. Understand that heart health and blood health are inseparable aims for hundreds of millions of patients
3. Understanding the anesthesiologists' role to improve blood health

14:30-14:50 **Ultrasound assessment of systemic venous congestion**

Jae-Kwang Shim (Yonsei University, Republic of Korea)

Ultrasound assessment of the IVC, hepatic vein, portal vein, and intrarenal veins may provide us important clinical clue that portrays actual end-organ damage due to venous congestion and RV dysfunction, and an objective guide to stop fluid loading and intitiate therapies in that regard.

14:50-15:00 **Q&A**

지도전문의 교육

Hall 2

Nov 9(Sat) 13:30–17:30

Moderator

- **Jaehwan Kim** (Korea University, Republic of Korea)
- **Byung Gun Lim** (Korea University, Republic of Korea)

13:30-14:30 **연차별 수련교육 내용 및 전문의 자격 취득 요건**

Young Kyoung Lee (Myongji Hospital, Republic of Korea)

1. 대한마취통증의학회의 활동
2. 전공의 수련교육의 근거
3. 전공의 연차별 수련 교과과정
4. 수련교과과정 개발
5. 전공의 수련환경 변화

14:30-15:30 **수련교육 프로그램 평가**

Jeongrim Lee (Yonsei University, Republic of Korea)

1. 전공의의 수련을 담당하는 병원에서 일하는 전문의로서, 각 병원의 수련교육 시스템과 내용은 병원협회와 학회에서 매년 평가되고 있음을 인지한다.
2. 전공의의 수련을 담당하는 병원에서 일하는 전문의로서, 이 평가를 위해 인적으로 시스템적으로 어떤 자격이 갖추어져야 하는지 인지한다.
3. 매년 이에 관한 평가결과가 이후 전공의 수련병원으로서의 질향상을 요구하거나 전공의 정원의 결정에 관련된 자료로 이용될 수 있음을 이해한다.

15:30-16:30 **핵심역량평가 및 책임지도전문의 안내**

Seok Kyeong Oh (Korea University, Republic of Korea)

1. 책임지도 전문의 제도에 대해 살펴본다.
2. 핵심역량평가의 배경, 개념, 현황 및 변경 사항 등을 알아본다.

16:30-17:30 **전공의 시뮬레이션 교육**

Hannah Lee (Seoul National University, Republic of Korea)

1. Learners will comprehend the current status and challenges of simulation education in anesthesiology within Korea, recognizing its integral role in enhancing clinical skills, teamwork, and patient safety.
2. Learners will be able to articulate the advantages and disadvantages of simulation as a training modality, and how it can be effectively utilized to maximize learning outcomes, especially in settings without dedicated simulation centers.
3. Learners will derive practical insights and strategies for implementing in-situ simulations by exploring actual case studies and quality assurance (QA) activities conducted in the presenter's institution, understanding how to navigate and optimize simulation experiences in their respective settings.

ERAS

Hall 3

Nov 9(Sat) 13:30–15:00

Moderator

- **Sang Hyun Hong** (The Catholic University of Korea, Republic of Korea)
- **Steven Wong** (The Society of Anaesthetists of Hong Kong, Hong Kong, China)

13:30-13:55 **How we have established the ERAS® teams in Asian countries**
Kwang Yeong How (Tan Tock Seng Hospital, Singapore)

1. Learn about the brief history of ERAS in Asia
2. Appreciate the geographical and cultural influences in ERAS implementation in Asian countries
3. Understand and overcome challenges in ERAS implementation in Asia
4. Discover opportunities to further develop ERAS in Asia

13:55-14:20 **A National-scale implementation of ERAS in Taiwan: Lessons learned on patient safety and value-based healthcare**
Shu Lin Guo (Taiwan Chapter, ERAS Society, Taiwan, China)

1. Understand the crucial role of Taiwan Chapter, ERAS Society, in advancing ERAS implementation and influencing national healthcare policy, including the designation of ERAS as one of National Patient Safety Goals announced by the Ministry of Health and Welfare.
2. Identify the logistical and workforce challenges, such as the professional manpower shortage, that impact the successful adoption of ERAS protocols in Taiwan's healthcare system.
3. Explore the development of a sustainable, value-based payment model for ERAS, focusing on optimizing the balance between quality care and cost efficiency, and incentivizing healthcare teams through cost savings allocation.

14:20-14:45 **Implementation of ERAS programs in a tertiary university hospital in South Korea**
Hojin Lee (Seoul National University, Republic of Korea)

1. Identify the challenges in perioperative management in South Korea.
2. Explore the barriers to the implementation of ERAS in South Korea.
3. Examine the key considerations for applying ERAS in the South Korean healthcare system.

14:45-15:00 **Q&A**

KSPAN (회복마취간호사회) 🇰🇷

Hall 4

Nov 9(Sat) 13:30–17:00

Workshop 4

Pharmacology 🇰🇷

Room A

Nov 9(Sat) 14:00–17:00

Instructor

- **Gyu-Jeong Noh** (University of Ulsan, Republic of Korea)
- **Byung-Moon Choi** (University of Ulsan, Republic of Korea)
- **Kyung Mi Kim** (University of Ulsan, Republic of Korea)

Abstract Presentation (AP–11)

Room B

Nov 9(Sat) 13:30–15:00

Moderator

- **Geunjoo Choi** (Chung-Ang University, Republic of Korea)
- **Young Suk Kwon** (Hallym University, Republic of Korea)

Abstract Presentation (AP–12)

Room C

Nov 9(Sat) 13:30–15:00

Moderator

- **Hyungseok Suh** (Kyung Hee University, Republic of Korea)
- **Woosuk Chung** (Chungnam National University, Republic of Korea)

Nov 7 (Thu) Nov 8 (Fri) Nov 9 (Sat)

Transplant Anesthesia [KSTA-SATA Symposium]

Hall 1

Nov 9(Sat) 15:30–17:00

Moderator

- **Sang Hyun Kim** (Soonchunhyang University, Republic of Korea)
- **Gebhard Wagener** (Columbia University, USA)
- **Justin Sangwook Ko** (Sungkyunkwan University, Republic of Korea)

15:30-15:50 **Intraoperative catastrophes during liver transplants**

Gebhard Wagener (Columbia University, USA)

1. Identify Common Intraoperative Catastrophes
   - Learners will be able to recognize the most common intraoperative catastrophes that may occur during liver transplants, including massive bleeding, cardiac arrest pulmonary emboli.
2. Understand the Pathophysiology and Risk Factors
   - Learners will understand the underlying pathophysiology and risk factors associated with these intraoperative catastrophes
3. Describe Effective Prevention Strategies
   - Learners will be able to outline strategies to minimize the risk of intraoperative catastrophes, including preoperative optimization, anesthetic management, and coordination with the surgical team.
4. Develop Skills for Rapid Recognition and Intervention
   - Learners will develop skills to rapidly recognize the early signs of intraoperative catastrophes and implement appropriate interventions, such as fluid resuscitation, transfusion protocols, and pharmacologic management.
5. Review Ethical Considerations in High-Risk Scenarios
   - Learners will discuss ethical considerations involved in high-risk liver transplant scenarios, including ethics of the use of ECMO and organ utilization.

15:50-16:10 **Do viscoelastic testing-guided algorithms really improve patients' outcomes?**

Klaus Görlinger (University Hospital Essen, Germany)

1. The aim of patient blood management (improving patients' outcomes).
2. Which allogeneic blood products or factor concentrates have a negative effect on patients' outcomes.
3. Latest meta-analyses on the effect of VET-guided bleeding management algorithms on transfusion requirement and patients' outcomes in chronic liver disease, liver surgery and transplantation and other clinical settings.
4. Recent guidelines for perioperative bleeding management in LTX and other clinical settings.

16:10-16:30 **Fluid dynamics: Navigating crystalloid and colloid choices in kidney and liver transplants**

Laurence Weinberg (Austin Health, Australia)

1. The scientific literature provides little evidence-based guidance in amount (quantitative fluid intervention) or type (qualitative fluid intervention) of fluid to optimize outcomes during liver and renal transplantation.
2. Fluid intervention and vasoactive pharmacological support for transplantation depend on clinician preference, institutional resources and practice culture.
3. This lecture will provide a contemporary overview of the fundamental principles underpinning fluid intervention for adult liver and renal transplantation.
4. A rational physiochemical approach to fluid therapy in these settings will be overviewed.

16:30-16:50 **Anesthetic selection in lung transplantation**

Kyuho Lee (Yonsei University, Republic of Korea)

1. Discuss complications after lung transplantation
2. Discuss anesthetic effect on immune system
3. Discuss clinical implications of anesthetic selection in lung transplantation outcomes

16:50-17:00 **Q&A**

Nov 7 (Thu) Nov 8 (Fri) Nov 9 (Sat)

Abstract Presentation (AP-13)

Room B

Nov 9(Sat) 15:30–17:00

Moderator

- **Jae-Sik Nam** (University of Ulsan, Republic of Korea)
- **Seunguk Bang** (The Catholic University of Korea, Republic of Korea)

FULL PROGRAM
Nov 7 (Thu)
Nov 8 (Fri)
Nov 9 (Sat)

101ST
KOREANESTHESIA 2024
The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

101ST
KOREANESTHESIA 2024
The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

WORKSHOPS

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Workshop 1

US-guided Peripheral Nerve Block

Nov 8(Fri) 09:00 – 12:00

Room A

Instructor

- **Boohwi Hong** (Chungnam National University, Republic of Korea)
- **Hyungtae Kim** (University of Ulsan, Republic of Korea)
- **Seunguk Bang** (The Catholic University of Korea, Republic of Korea)

학습목표

1. Ask me anything: Block for upper extremity surgery
2. Ask me anything: Block for lower extremity surgery
3. Ask me anything: Block for thoracic & abdominal surgery

상세내용

이 과정은 신경차단법의 advanced level 지식과 술기를 습득하는 과정으로서, 적어도 basic level의 신경 차단을 시행할 수 있는 역량을 가진 참가자를 대상으로 합니다. 상지수술, 하지수술, 흉부 및 복부수술을 위한 부위마취방법에 대한 교육 과정입니다. 교육 과정은 instructor가 3-5분간 간단한 실습강의와 함께 live demonstration을 시행한 후, 참가자들이 직접 초음파 view를 잡는 것을 1차 교육 목표로 합니다. 또한 2차 목표는 참가자들이 신경과 주변 구조물을 확인하고 구별할 능력을 함양 시키며, 이와 더불어 합병증 발생을 최소화하는 성공적인 신경차단을 위한 술기를 습득하도록 하는 것입니다.

프로그램

시간	프로그램	강사
09:00 – 12:00	Ask me anything: Block for upper extremity surgery	홍부휘 (충남의대)
	Ask me anything: Block for lower extremity surgery	김형태 (울산의대)
	Ask me anything: Block for thoracic & abdominal surgery	방승욱 (가톨릭의대)

Workshop 2

Pain Medicine: Ultrasound Advanced Course

Nov 8(Fri) 14:00 – 17:00

Room A

Instructor

- **Yeong-min Yoo** (Pusan National University, Republic of Korea)
- **Chung Hun Lee** (Korea University, Republic of Korea)
- **Yookyung Jang** (Korea University, Republic of Korea)

학습목표

1. Learning the anatomy and ultrasound-guided pain intervention in cervical spine.
2. Learning the anatomy and ultrasound-guided pain intervention in thoracic spine and fascial blocks.
3. Learning the anatomy and ultrasound-guided pain intervention in lumbar spine.

상세내용

1. Anatomy and nerve blocks using ultrasound in the cervical spine (medial branch block, root block, SGB, etc.)
2. Anatomy and nerve blocks using ultrasound in the thoracic spine (thoracic paravertebral block, ESPB, intercostal nerve block)
3. Anatomy and nerve blocks using ultrasound in the lumbar spine (facet joint block, medial branch block, quadratus lumborum Block, etc.)

프로그램

시간	프로그램	강사
14:00 – 15:00	Cervical MBB, Root block, SGB, Plexus block	유영민 (부산의대)
15:00 – 16:00	Thoracic paravertebral block, ESPB, intercostal nerve block	이충훈 (고려의대)
16:00 – 17:00	Lumbar facet joint block, MBB, Quadratus Lumborum Block, Root block	장유경 (고려의대)

Workshop 3

ERAS

Nov 9(Sat) 09:00 – 12:00

Room A

Instructor

- **Boohwi Hong** (Chungnam National University, Republic of Korea)
- **Bon-Wook Koo** (Seoul National University, Republic of Korea)
- **Hojin Lee** (Seoul National University, Republic of Korea)

학습목표

As leaders in perioperative management, anesthesiologists can play a pivotal role in improving perioperative care within hospitals. In this session, we will focus on the role of anesthesiologists in abdominal surgeries where ERAS was first introduced. We will examine the challenges of implementing ERAS in Korea and discuss the establishment of ERAS protocols tailored to the current situation in Korea.

상세내용

In the first session, we will cover the overall aspects of ERAS and discuss potential improvements based on the current protocols at each participant's hospital.

- Considerations for establishing an ERAS protocol in major abdominal surgery
  - Concept & Goals of ERAS
  - Role of anesthesiologists in ERAS
  - Key considerations for establishing ERAS protocols in major abdominal surgery
  - Evaluation of the effectiveness of ERAS protocols

In the second session, we will split into two groups to learn about the useful applications of ultrasound in the ERAS protocol.

- Ultrasound-guided assessment of gastric residual volume
- Ultrasound-guided regional anesthesia in abdominal surgery

프로그램

시간	프로그램	강사
09:00 – 09:50	[Lecture] Role of Anesthesiologists in ERAS	홍부휘 (충남의대) 구본욱 (서울의대) 이호진 (서울의대)
09:50 – 10:00	Break	
10:00 – 10:30	[Discussion] Considerations for establishing an ERAS protocol in major abdominal surgery	
10:30 – 10:40	Break	
10:40 – 11:10	[Lecture + Hands-on] Group A: Ultrasound-guided regional anesthesia in abdominal surgery Group B: Ultrasound-guided assessment of gastric residual volume	
11:10 – 11:15	Break	
11:15 – 11:45	[Lecture + Hands-on] Group A: Ultrasound-guided assessment of gastric residual volume Group B: Ultrasound-guided regional anesthesia in abdominal surgery	
11:45 – 12:00	Wrap up	

Workshop 4

Pharmacology

Nov 9(Sat) 14:00 – 17:00

Room A

Instructor

- **Gyu-Jeong Noh** (University of Ulsan, Republic of Korea)
- **Byung-Moon Choi** (University of Ulsan, Republic of Korea)
- **Kyung Mi Kim** (University of Ulsan, Republic of Korea)

학습목표

1. Understand the likelihood functions of classical and new estimation methods in NONMEM (nonlinear mixed effects modeling).
2. Understand various mathematical models that combine covariates and fixed effect parameters.
3. Understand simultaneous modeling approaches.
4. Understand predictive checks and nonparametric bootstrap.

상세내용

The purpose of this workshop is to provide anesthesiology specialists, who major in anesthetic pharmacology and wish to apply it clinically, with an opportunity to experience the entire process from exploratory data analysis to actual model building. Various participants who have completed the expert course of the Society of Anesthetic Pharmacology will share their results of performing pharmacokinetic and pharmacodynamic modeling using nonlinear mixed effects models, utilizing actual data obtained from volunteers administered with propofol. The workshop will also discuss how to resolve various error messages encountered during the model building process and the methods for model selection and validation.

프로그램

시간	프로그램	강사
14:00 – 14:20	Brief review of NONMEM likelihood functions	노규정 (울산의대)
14:20 – 15:10	Basic PKPD model and covariates	최병문 (울산의대)
15:10 – 15:20	Break	
15:20 – 16:10	Simultaneous PKPD modeling	김경미 (울산의대)
16:10 – 17:00	Model validation	

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ABSTRACT

AC AP E-Poster

Abstract Competition (AC-01)

AC-01	Nov 8(Fri) 09:00-10:30 / Room B
AC-01-1 2024-0274	The Effect of Remimazolam on Regional Cerebral Oxygenation and Hemodynamics during Orthopedic Surgery in the Sitting Position Kyu Nam Kim[1*], Jeong min Sung[1], Dong won Kim[1] 1. Department of Anesthesiology and Pain Medicine, Hanyang University, Republic of Korea
AC-01-2 2024-0321	The neuroprotective effects of sugammadex in a rat stroke model Young Sung Kim[1*], Sejong Jin[2], Eung-hwi Kim[3] 1. Anesthesiology and pain medicine, Korea University, Republic of Korea 2. College of medicine, Korea University, Republic of Korea 3. Institute for Healthcare Service Innovation, Korea University, Republic of Korea
AC-01-3 2024-0302	Association of Erythroferrone and Erythropoietin Levels with Hemoglobin Recovery After Cardiac Valve Surgery: A Prospective Observational Study Seo hee Ko[1], Young-lan Kwak[1*], Jae-kwang Shim[1], Jong wook Song[1], Sarah Soh[1], Mijin Jue[1], Ji young Kim[1] 1. Department of Anesthesiology and Pain Medicine, Severance Hospital, Republic of Korea
AC-01-4 2024-0042	Dopamine-induced vasoconstriction is attenuated by endothelial nitric oxide in isolated rat aorta Kyeong-eon Park[1], Ju-Tae Sohn[1*], Soo hee Lee[1], Yeran Hwang[1], Seong-ho Ok[1] 1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea
AC-01-5 2024-0058	Assessing Surgical Fitness: Utilizing Large Language Models for Preoperative Clinical Support Ke Yuhe[1*] 1. Department of Anaesthesia, SGH, Singapore

ABSTRACT
AC
AP
E-Poster

AC AP E-Poster

Abstract Competition (AC-02)

AC-02	Nov 8(Fri) 11:00-12:30 / Room B
AC-02-1 2024-0071	Effect of Patient Position on the Success Rate of Placing Triple-Cuffed Double Lumen Endotracheal Tubes: A Two-Center Interventional Observational Study Dong kyu Lee[1], Tae-yop Kim[2], Jongwon Yun[1], Seongkyun Cho[1], Hansu Bae[1*] 1. Department of Anesthesiology and Pain Medicine, Dongguk University Il-san Hospital, Republic of Korea 2. Department of Anesthesiology, Konkuk University Medical Center, Republic of Korea
AC-02-2 2024-0117	Comparing the Perioperative Blood Loss in Hypovolemic Phlebotomy versus Non-Hypovolemic Phlebotomy with Low Central Venous Pressure in Patients Undergoing Open Liver Resection, A Randomized Controlled Study Nutthanun Tungsrirut[1], Warangkana Lapisatepun[1*] 1. Department of Anesthesiology, Chiang Mai University, Thailand
AC-02-3 2024-0311	Hypoxemia Prediction in Pediatric patients under General Anesthesia using Machine Learning: A Retrospective Observational Study Sujin Baek[1,2], Jung-bin Park[3], Ji hye Heo[4], Donghyeon Baek[5], Kyungsang Kim[6], Chahyun Oh[1,2], Hyung-chul Lee[3], Dongheon Lee[4,7], Boohwi Hong[1,2,4*] 1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Republic of Korea 3. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea 4. Big data center, Department of Medical Information, Chungnam National University Hospital, Republic of Korea 5. College of Medicine, Chungnam National University, Republic of Korea 6. Department of Radiology, Massachusetts General Hospital and Harvard Medical School, USA 7. Department of Biomedical Engineering, Chungnam National University College of Medicine, Republic of Korea
AC-02-4 2024-0338	Impact of Post-Transplant Diabetes Mellitus on Graft Failure and Mortality in Liver Transplant Recipients: A Propensity Score-Matched Analysis Yeon ju Kim[1], In-gu Jun[1], Hye-mee Kwon[1], Seong-mi Yang[1], Sung-hoon Kim[1], Jun-Gol Song[1*], Gyu-sam Hwang[1] 1. Anesthesiology and pain medicine, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea
AC-02-5 2024-0085	Investigation of Interspace between the Popliteal Artery and the Posterior Capsule of the Knee block: A Cadaveric Study Kusang Lee[1], Jiyoung Kim[2], Sung eun Sim[1], Hue Jung Park[1*] 1. Department of Anesthesiology and Pain Medicine, The Catholic University of Korea, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, Myoungji Hospital, Republic of Korea

ABSTRACT
AC
AP
E-Poster

Abstract Presentation (AP-01)

AP-01 Nov 8(Fri) 09:00-10:30 / Room C

AP-01-1
2024-0041

Lipid emulsion attenuates theophylline-induced cardiotoxicity in rat cardiomyoblasts

Seong-ho Ok[1], Ju-Tae Sohn[1*]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea

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AP-01-2
2024-0045

Effect of hand grip strength on postoperative outcomes in elderly female patients scheduled for total knee arthroplasty under general anesthesia – prospective observational study –

Sangho Lee[1*], Doh yoon Kim[1], Hee yong Kang[1], Jeong-hyun Choi[1], Sung wook Park[1], Mi kyeong Kim[1]

1. Department of Anesthesiology and Pain Medicine, Kyung Hee University Hospital, Republic of Korea

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AP-01-3
2024-0140

Reducing anesthesia-induced burst suppression during surgery prevents long-lasting changes in anxiety and sociability in late postnatal mice

Woosuk Chung[1*], Tao Zhang[2], Jiho Park[1], Boohwi Hong[1], Seongeun Kim[3]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University, Republic of Korea
2. Department of Medical Science, Chungnam National University School of Medicine, Republic of Korea
3. Department of Applied Artificial Intelligence, Seoul National University of Science and Technology (SeoulTech), Republic of Korea

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AP-01-4
2024-0101

Evaluation of Effect of Ketofol and Ketodex on Duration of Seizure Activity, Hemodynamic Profile, Recovery Times, and Cortical Activity (Using fNIRS) in Patients Undergoing Electroconvulsive Therapy for Depression

Kavinkumar K r[1], Puneet Khanna[1], Rohit Verma[2], Shailendra Kumar[1*], Lokesh Kashyap[1]

1. Department of Anesthesia, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Department of Psychiatry, All India Institute of Medical Sciences, New Delhi, India

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AP-01-5
2024-0155

Effect of topical ropivacaine on extubation response in patients undergoing supratentorial tumor surgeries: a prospective randomized double-blinded placebo-controlled trial

Niraj Kumar[1*], Amarjyoti Yadav[1], Mihir prakash Pandia[1], Suman Sokhal[1]

1. Neuroanaesthesiology And Critical Care, All India Institute of Medical Sciences, New Delhi, India

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AP-01-6
2024-0091

Comparison of operation time, vital signs, bleeding tendency, and recovery time according to anesthesia method in hip surgery patients

Je bog Yoo[1], Woo young In[2], Chang ok Pyo[3], Jeung hee Kwon[4], Min Ji Lee[5], Kyoung ok Kim[6], Mi Yu[7*]

1. College of Nursing, Gyeongsang National University, Republic of Korea
2. Post Anesthesia Care Unit, Yonsei University Heath system, Severance Hospital, Republic of Korea
3. Post Anesthesia Care Unit, Gangneung Asan Hospital, Republic of Korea
4. Anesthesiology, Yeungnam University Medical Center, Republic of Korea
5. Post Anesthesia Care Unit, Seoul National University Bundang Hospital, Republic of Korea
6. Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea
7. College of Nursing, Gyeongsang National University, Republic of Korea

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AP-01-7
2024-0036

Bispectral Index and General Anesthesia in Geriatric Patients

Gabriela Montolalu[1*], Riyadh Firdaus[1], Bintang Pramodana[1]

1. Anesthesiology and Intensive Care, Faculty of Medicine, Universitas Indonesia, Indonesia

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AP-01-8
2024-0238

Effects of Intratracheal Lidocaine versus Intravenous Lidocaine among Adult patients under General Endotracheal Anesthesia in Decreasing Cough, Tachycardia and Increase in Blood Pressure during Extubation: A Systematic Review and Meta-analysis

Antonie kyna Lim[1*]

1. Anesthesiology, St. Luke's Medical Center Quezon City, Philippines

Abstract Presentation (AP-02)

AP-02 Nov 8(Fri) 11:00-12:30 / Room C

AP-02-1
2024-0284

An Analgesic Efficacy Of Intrathecal Dexmedetomidine Versus Intrathecal Morphine As Adjuvants To Bupivacaine In Patients Undergoing Total Laparoscopic Hysterectomy: A Randomised Parallel-group Double-blind Non-inferiority Trial

Harsha Suvarna[1*]

1. Anaesthesiology, Pain Medicine, Critical Care, All India Institute of medical sciences, New Delhi, India

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AP-02-2
2024-0281

Comparison of ultrasound guided double-injection vs triple injection technique of intertruncal approach of supraclavicular brachial plexus block: A randomised non-inferiority trial

Sriraam Swaminathan[1*]

1. Department of Anaesthesiology, Pain Medicine and Critical care, All India Institute of Medical Sciences, New Delhi, India

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AP-02-4
2024-0078

Comparison of Acute Postoperative Pain Between Preemptive Ultrasound-Guided Pectoral Nerve Block and Intraoperative Subpectoral Plane Block in Patients Undergoing Mastectomy

Sivaporn Pondeenana[1], Khwanchai Wanjerdkit[1], Chawisachon Nonsri[2], Rawee Jongkongkawutthi[2*]

1. Department of Surgery, Faculty of medicine, Naresuan University, Thailand
2. Department of Anesthesiology, Faculty of medicine, Naresuan University, Thailand

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AP-02-5
2024-0074

Analgesic Efficacy of Ultrasound-Guided Triple-Level Erector Spinae Plane Block Versus Triple-Level Costotransverse Foramen Block in Patients Undergoing Percutaneous Nephrolithotomy Surgery: A randomized parallel-group double-blind non-inferiority trial

Niharika Das[1*], Virender Mohan[1]

1. Anaesthesiology, All India Institute of Medical Sciences, New Delhi, India

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AP-02-6
2024-0267

The Effective Dose of Spinal Nalbuphine Combined with Adductor Canal Block for Enhancing Postoperative Analgesia after Total Knee Arthroplasty: A Randomized Controlled Trial

Apirak Tewaritruangsri[1], Inthiporn Kositanurit[1*], Chawisachon Nonsri[1], Kornthip Jeephet[3], Piti Rattanaprichavej[2], Artit Laoruengthana[2]

1. Department of Anesthesiology, Naresuan University, Thailand
2. Department of Orthopaedics, Naresuan University, Thailand
3. Clinical epidemiology and clinical statistics unit, Naresuan University, Thailand

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AP-02-7
2024-0015

Evaluating the Efficacy of Intraoperative Nefopam on Postoperative Pain, Opioid Consumption, and Recovery Quality Following Single-Port Robotic Cholecystectomy with Parietal Pain Block

Soeyon Lee[1], Hyunsik Chung[1], Joonpyo Jeon[1], Hosik Moon[1], Meeyoung Chung[1], Changjae Kim[1], Min suk Chae[2*]

1. Anesthesiology and Pain Medicine, Eunpyeong St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea
2. Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea

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AP-02-8
2024-0275

Intra-Operative Morphine versus Intra-Operative Fentanyl on Time to Home Discharge for Day-Case GI Endoscopy: A Natural Experiment

Phonkrit Soontornwit[1], Atipong Pathanasethpong[1*]

1. Department of Anesthesiology, Khon Kaen University, Thailand

Abstract Presentation (AP-03)

AP-03 | **Nov 8(Fri) 13:30-15:00 / Room B**

AP-03-1
2024-0160

Comparison of Cerebral Vasodilatory effects of Sevoflurane, Isoflurane and Desflurane in patients undergoing surgery for supratentorial lesions under general anaesthesia

Sudhir Venkataramaiah[1*], Mayank Arora[1]

1. Neuroanaesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bangalore, India

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AP-03-2
2024-0053

Effect of Sugammadex versus Neostigmine reversal on lung aeration score after operative fixation of traumatic cervical spine injury: A prospective, double blinded, randomised control trial

Sumit Roy chowdhury[1*], Ashish Bindra[1], Gyninder Pal singh[1], Charu Mahajan[1], Maroof Ahmad khan[2]

1. Department of Neuroanesthesiology and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Department of Biostatistics, All India Institute of Medical Sciences, New Delhi, India

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AP-03-4
2024-0296

Effects on the optic nerve sheath diameter in patients undergoing laparoscopic cholecystectomy maintained with Desflurane v/s Propofol.

Anik Goel[1], A Aleem[1*], Shilpi Verma[1], Neeraj Srivastava[1]

1. Anesthesiology and Critical Care, All India Institute of Medical Sciences Raebareli, Uttar Pradesh, India

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AP-03-5
2024-0054

Point-of-care ultrasound to identify frailty and predict outcomes in patients with traumatic brain injury: A prospective observational study

Nipun Gupta[1*], Charu Mahajan[1], Niraj Kumar[1], Hirok Roy[1]

1. Department of Neuroanesthesiology and Critical Care, AIIMS New Delhi, India

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AP-03-6
2024-0320

"Systemic Immune Inflammatory Markers as independent predictors of outcomes in Acute Cerebral Injury: Taking A Step Back To Catapult"

Archana Sharma[1*], Rohini Surve[1], Dhritiman Chakrabarti[1], Kavin Devani[2]

1. Neuroanesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bengaluru, India
2. Neurosurgery, National Institute of Mental Health and Neurosciences, Bengaluru, India

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AP-03-7
2024-0235

Comparison of point-of-care haemoglobin monitoring in elective major neurosurgery patients

Bharath S[1*], Radhakrishnan M[1], Shwethashri K r[1]

1. Neuroanaesthesia & Neurocritical Care, National Institute of Mental Health and Neurosciences, India

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AP-03-8
2024-0209

Delayed gastric emptying due to raised intracranial pressure in neurosurgical patients : An Association or just a Coincidence

Suresh kumar Singhal[1], Renu Bala[1], Shveta Jindal[1*]

1. Anaesthesiology and Critical care, Pt. BD Sharma, Postgraduate Institute Of Medical Sciences, Rohtak, Haryana, India

Abstract Presentation (AP-04)

AP-04 | **Nov 8(Fri) 13:30-15:00 / Room C**

AP-04-1
2024-0339

Comparison of i-gel versus Proseal Laryngeal Mask Airway in Elective Procedures of Short Duration Requiring General Anaesthesia without Muscle Relaxants

Vinuth k Murthy[1*]

1. Department of Anaesthesia, ESIC Medical College PGIMSR & Mh, India

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AP-04-2
2024-0202

The Association Between Perioperative Hemodialysis Timing and Postoperative Complications

Leerang Lim[1], Christine Kang[2], Hannah Lee[1], Ho geol Ryu[1,2*]

1. Anesthesiology and Pain Medicine, Seoul National University, Republic of Korea
2. Critical Care Medicine, Seoul National University Hospital, Republic of Korea

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AP-04-3
2024-0285

Effect of Bed Height on Laryngoscopy Force and Operator Ergonomics during Simulated Endotracheal Intubation

Ja Eun Lee[1], Kwan young Hong[1], Chisong Chung[1], Jeong-jin Min[1*]

1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Republic of Korea

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AP-04-4
2024-0082

Pressure Support Ventilation and Electroencephalography-Guided Emergence to Prevent Unwanted Complications: A Randomized Controlled Trial

Sun-Kyung Park[1], Jayyoung Bae[1], Dong woo Han[1], Young Song[1*]

1. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Gangnam Severance Hospital, Republic of Korea

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AP-04-5
2024-0323

Association of E-Health Literacy with Health Status in Older Surgical Patients

Pavida Srichant[3], Varalak Srinonprasert[2,3], Pawit Somnuke[1], Papob Chaiwatanodom[4], Yollada Phungsiangdee[3], Arunotai Siriassawakul[1,3*]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
2. Division of Geriatric Medicine, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
3. Siriraj Integrated Perioperative Geriatric Excellence Research Center, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
4. Department of Rehabilitation Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

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AP-04-6
2024-0129

The Empirical Use of Antifungal in Non-Neutropenic Critical Care Patients: Associated Factors and Treatment Outcome

Vishaaliny Permalu[1,2], Mohd makmor Bakry[2], Aliza Alias[3], Yeh Han Poh[1*], Noornadia Noorzaidy[1]

1. Department of Anaesthesiology and Intensive Care, Sungai Buloh Hospital, Malaysia
2. Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Malaysia
3. Hospital Shah Alam, Ministry of Health, Malaysia

AP-04-7
2024-0083

Burnout, Personality Traits and Resilience Among anaesthesia personnel in Thailand

Napasorn Sakulteera[1], Sirirat Rattana-arpa[1], Pongtong Puranitee[2], Atipong Pathanasethpong[3], Kasana Raksamani[1*]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
2. Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand
3. Department of Anesthesiology, Faculty of Medicine, Khon kaen University, Thailand

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AP-04-8
2024-0312

Comparison of Pre-Oxygenation with Heated Humidified High Flow Nasal Cannula Vs. Standard technique for Induction of General Anaesthesia followed by Fiber-Optic Nasal Intubation in patients undergoing Head & Neck Onco-Surgery: A randomized Controlled Trial

Manisha Sahoo[1*], Brajesh Ratre[1], Balbir Kumar[1]

1. Onco-Anaesthesia and Palliative Medicine, Dr B.R.A.Irch, Aiims, New Delhi, India

Abstract Presentation (AP-05)

AP-05	Nov 8(Fri) 15:30-17:00 / Room B
AP-05-2 2024-0173	Effect of perioperative transdermal nicotine therapy on postoperative pain: A systematic review and meta-analysis. Bharat Yalla[1], Puneet Khanna[1*] 1. Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
AP-05-4 2024-0066	Continuous preperitoneal vs. thoracic epidural analgesia in open pancreaticoduodenectomy: A randomized controlled trial Taeyup Kim[1], Jin-young Jang[2], Ho-jin Lee[1,3*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea 2. Department of Surgery and Cancer Research Institute, Seoul National University College of Medicine, Republic of Korea 3. Department of Anesthesiology and Pain Medicine, Seoul National University College of Medicine, Republic of Korea
AP-05-5 2024-0245	Ultrasound guided supraclavicular vs costoclavicular brachial plexus block: Comparison of ipsilateral hemidiaphragmatic paresis in upper limb surgeries Rashi Sarna[1*], Nidhi Bhatia[1], Ankur Kumar[1] 1. Anesthesia and Instensive Care, Post Graduate Institute of Medical Education and Research, India
AP-05-6 2024-0240	Effectiveness of enhanced recovery after surgery on postoperative recovery after minimally-invasive distal gastrectomy: An open-labeled randomized controlled study Hae Kyeong Yoo[1], Hojin Lee[1*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
AP-05-7 2024-0322	Comparitive evaluation of intravenous opioid (morphine) vs great auricular nerve block (using 0.25% bupivaciane with dexamethasone) for post operative analgesia in ympanomastoid surgeries Manu Giri[1*] 1. Department of anesthesiology, Yashoda Hospital, India
AP-05-8 2024-0204	Comparative evaluation of analgesic efficacy of ultrasound guided Erector Spinae Plane block versus Intrathecal morphine in patients undergoing Percutaneous Nephrolithotomy: A prospective randomized pilot study Ravinder kumar Pandey[1*], Madhurjya Baishya[1], Vanlal Darlong[1], Jyotsna Punj[1] 1. Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Abstract Presentation (AP-06)

AP-06	Nov 8(Fri) 15:30-17:00 / Room C
AP-06-1 2024-0260	Development of a novel virtual reality-based application as an adjunctive modality in chronic non-cancer pain management Lydia Li[1*] 1. Anaesthesia, Singapore Health Services, Singapore
AP-06-2 2024-0097	Analgesic Properties of Nefopam after Uvulopalatopharyngoplasty in patients with Obstructive Sleep Apnea Sriwimon Panyamee[1*] 1. Anesthesiology, Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
AP-06-3 2024-0252	Validation of Korean version of Defense and Veterans Pain Rating Scale for assessment of postoperative pain: a prospective observational cohort study Seungeun Choi[1], Taeyup Kim[1], Soo-hyuk Yoon[1], Ho-jin Lee[1*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Seoul National University College of Medicine, Republic of Korea
AP-06-4 2024-0136	A smart device application for acute pain service in surgical patients at a tertiary hospital in South Korea: a prospective observational feasibility study Soohyuk Yoon[1], Ho-jin Lee[1*] 1. Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
AP-06-5 2024-0253	Radiographic predictors of difficult fiberscopic intubation under general anesthesia in patients with a cervical collar to simulate a difficult airway Woo-young Jo[1], Hyongmin Oh[1*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
AP-06-6 2024-0088	A comparative study of intubation parameters between Blockbuster LMA and C-MAC video laryngoscope in patient with normal airway undergoing elective surgery:- A Randomised control trial Babli Kumari[1*] 1. Anesthesiology, Ims, Bhu, Varanasi, India
AP-06-8 2024-0014	Mortality associated risk factors among intensive care unit (ICU) patients requiring continuous renal replacement therapy(CRRT) Akita Yvonne Koh[1*] 1. Anesthesia & Intensive Care, Queen Elizabeth Hospital, Malaysia

Abstract Presentation (AP-07)

AP-07	Nov 9(Sat) 09:00-10:30 / Room B
AP-07-1 2024-0277	Prevention of hypercapnia by percutaneous carbon dioxide monitoring during sedation for endoscopic submucosal dissection: A randomized controlled trial, Preliminary report Seungwon Lee[1], Ji won Choi[1*], In sun Chung[1], Justin sangwook Ko[1], Duk-kyung Kim[1] 1. Anesthesiology and Pain medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea
AP-07-2 2024-0266	Comparison of Ultrasound-guided Short Axis-Dynamic Needle Tip Positioning (SA-DNTP) vs Long Axis In Plane (LAIP) technique for radial artery cannulation after structured simulated training Siri Prabhushankar Hiriyur[1*] 1. Anaesthesiology, Pain medicine and Critical care, All India Institute of Medical Sciences, New Delhi, India
AP-07-3 2024-0153	Hypotension prediction index monitoring to minimize intraoperative hypotension: a systematic review and meta-analysis of randomized controlled trials Sriganesh Kamath[1*], Thomas Francis[1], Rajeeb Mishra[1], Dhritiman Chakrabarti[1] 1. Neuroanaesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bengaluru, India
AP-07-4 2024-0261	Comparison between pleth variability index (PVI) vs Rainbow PVI (RPVI) in non-cardiothoracic surgery: a retrospective study Chahyun Oh[1,2], Boohwi Hong[1,2*] 1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Daejeon, Korea, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Daejeon, Republic of Korea
AP-07-5 2024-0241	Effects of a biofeedback-based sleep aid smartphone application on perioperative sleep quality in breast cancer surgery patients: an open-label, randomized controlled trial Hae Kyeong Yoo[1], Hojin Lee[1*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
AP-07-6 2024-0072	Effect of perioperative Analgesia Nociception Index (ANI) guided opioid administration on postoperative pain score, opioid consumption and endocrine stress response in paediatric patients undergoing cochlear implant surgery: A prospective randomized controlled trial Gajalakshmi Sanjeevi[1*] 1. Anaesthesiology, Critical care and Pain medicine, All India Institute of Medical Sciences, India
AP-07-7 2024-0211	Intraoperative temperature monitoring with (earphone-type) tympanic thermometer in comparison with esophageal and skin temperature: Prospective observational study JungEun Sun[1], Young sang Cho[2], Sang hyun Lee[1], Duk kyung Kim[1], Jiwon Choi[1*] 1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea 2. Department of Otorhinolaryngology-Head and Neck Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea
AP-07-8 2024-0210	Comparison of time for endotracheal intubation with flexible tip bougie versus standard bougie during videolaryngoscopy in simulated cervical spine immobilisation in adult patients - A randomized control trial Renu Sinha[1*], Shivam S[1], Bikash R ray[1], Kanil Ranjith kumar[1], Manpreet Kaur[1], Vanlal Darlong[1], Jyotsna Punj[1] 1. Anaesthesiology, Pain Medicine & Critical Care, All India Institute Of Medical sciences, New Delhi, India

Abstract Presentation (AP-08)

AP-08	Nov 9(Sat) 09:00-10:30 / Room C
AP-08-1 2024-0113	Management of Children and Young People (CYP) under 19 years of Age with Phaeochromocytoma and Paraganglioma - The Perioperative Management (Part of the National UK Guidelines) Samuel Quek[1*] 1. Paediatric Medicine, KK Women's and Children's Hospital, Singapore
AP-08-2 2024-0018	Influence of preoperative gum chewing on postoperative requirements of anti-emetic drugs in female patients undergoing robot-assisted laparoscopic surgery for multiple myomas: A prospective single-blinded randomized controlled trial Min suk Chae[1], Hyun jung Koh[1*] 1. Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea
AP-08-3 2024-0216	Comparison of lateral and supine position for tracheal extubation in children undergoing cleft palate repair surgery: A prospective randomised clinical trial Sanjay Kumar[1*] 1. Anesthesia, M.D, India
AP-08-6 2024-0069	Neuraxial fentanyl for treating breakthrough pain during labor analgesia Michiko Sugita[1,2*] 1. Obstetric anesthesia, Kumamoto University Hospital, Japan 2. Obstetric anesthesia, Fukuda Hospital, Japan
AP-08-7 2024-0248	Characteristics of endotracheal tube design related to proper endotracheal intubation in pediatrics: an in vitro study Jirawat Wankijcharoen[1,2], Pramuk Khamman[2,3], Kittipott Thusneyapan[2,3], Adisak Kasemassawachanont[2], Karnkawin Patharateeranart[3], Ramida Amornsitthiwat[3], Terasut Numwong[2], Chairat Turbpaiboon[2], Nophanan Chaikittisilpa[1], Taniga Kiatchai[1*] 1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand 2. Department of Anatomy, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand 3. Department of Radiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
AP-08-8 2024-0188	The Impact of Preoperative Duration of Fasting on the Intravascular Volume Status of Children Older than 5 Years of Age: A Prospective, Observational Study Beliz Bilgili[1*], Tumay Umuroglu[1] 1. Anesthesiology and Intensive Care Medicine, Marmara University, School of Medicine, Türkiye

Abstract Presentation (AP-09)

AP-09	Nov 9(Sat) 11:00-12:30 / Room B
AP-09-1 2024-0179	Association of preoperative diaphragmatic thickness fraction and post operative pulmonary complication in adults undergoing major abdominal surgery : A prospective observational study Satyajeet Misra[1*], Bikram Behera[1], Amritha Chandran[1] 1. Anesthesiology and Critical Care, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India
AP-09-2 2024-0251	Lowering the inspired oxygen fraction before tracheal extubation does not reduce the occurrence of immediate and delayed postoperative atelectasis after laparoscopic gastrectomy: A multi-center, randomized, double-blinded trial Yoon Joo Chung[2], Ji won Choi[1], Jie ae Kim[1*] 1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Chung-Ang University Hospital, Republic of Korea
AP-09-3 2024-0172	Predicting Intraoperative Hypoxemia in Lung Resection Surgery: Assessing the Utility of Oxygen Reserve Index Measurements during One Lung Ventilation before pleural opening Sang-Wook Lee[1], Dae-kee Choi[1*] 1. Department of Anesthesiology and Pain Medicine, Asan medical center, University of Ulsan College of Medicine, Republic of Korea
AP-09-5 2024-0170	Association between hypotension timing and postoperative acute kidney injury and delirium following cardiac surgery with cardiopulmonary bypass : a retrospective cohort study Atsushi Ishikawa[1*], Toshiyuki Nakanishi[1], Takumi Sasaki[1], Tetsuya Tamura[1], Kazuya Sobue[1] 1. Department of Anesthesiology and Intensive Care Medicine, Nagoya City University Graduate School of Medical Sciences, Japan
AP-09-6 2024-0316	Integrating CT body composition, Clinical Frailty Scale, and additional clinical variables for enhanced prediction of one-year mortality after aortic valve replacement for aortic stenosis Heesoo Shin[1], Suji Lee[2], Jin ha Park[1], Hyun-soo Zhang[3], Young-lan Kwak[1], Sarah Soh[1*], Young joo Suh[2] 1. Anesthesia and Pain Research Institute, Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea 2. Department of Radiology, Research Institute of Radiological Science, Severance Hospital, Yonsei University College of Medicine, Republic of Korea 3. Department of Biomedical Systems Informatics, Biostatistics Collaboration Unit, Yonsei University College of Medicine, Republic of Korea
AP-09-7 2024-0297	Effect of ascorbic acid on postoperative acute kidney injury in moderate to high-risk patients undergoing valvular heart surgery: a single center randomized controlled trial Hye ji Joo[1], Sarah Soh[2], Young-lan Kwak[2], Jae-kwang Shim[2*] 1. Department of Anesthesiology and Pain Medicine, Ewha Womans University Seoul Hospital, Seoul, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea
AP-09-8 2024-0220	Machine learning of clinical and intraoperative biosignal data for predicting persistent acute kidney injury after cardiac surgery Changho Han[1], Hyun Il Kim[2], Jong wook Song[2], Sarah Soh[2*], Dukyong Yoon[1] 1. Department of Biomedical Systems Informatics, Yonsei University College of Medicine, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea

Abstract Presentation (AP-10)

AP-10	Nov 9(Sat) 11:00-12:30 / Room C
AP-10-2 2024-0305	Relationship Between Cognitive Decline and Systemic Inflammatory Biomarkers After Laparoscopic Abdominal Surgeries in the Adult Population: A Comparison Between Inhalational and Total Intravenous Anaesthesia Farah Hanim Abdullah[1*], Yanlin Ho[1], Qurratu aini Musthafa[1], Azarinah Izaham[1] 1. Anaesthesiology & Intensive Care, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Malaysia
AP-10-3 2024-0254	Comparison of Scalp Block and Intravenous Esmolol for Hemodynamic Responses during Skull Pin Application in Elective Supratentorial Craniotomy Akkhara Olanvoravuth[1*] 1. Anesthesiology, Srinagarind Hospital, Khon Kaen University, Thailand
AP-10-5 2024-0193	Comparison Of Change In The Pulsatality Index Before And After Ventriculoperitoneal Shunt Surgery In Adult Patients With Hydrocephalus Deepak Ganjigere palaksha[1*] 1. Neuroanaesthesia and Neurocritical care, N.I.M.H.A.N.S, Bengaluru, India
AP-10-6 2024-0151	White Matter Changes Following Traumatic Brain Injury: A Tract-Based Spatial Statistics Study Rohini Surve[1*], Sunil Khokhar[2], M Radhakrishnan[1], Rose Bharath[2] 1. Neuroanaesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, India 2. Neuro Imaging & Interventional Radiology, National Institute of Mental Health and Neurosciences, India
AP-10-7 2024-0190	Impact of ultrasound-guided cervical plexus block on inflammation response and early postoperative recovery in trigeminal neuralgia or hemifacial spasm patients undergoing microvascular decompression Kyung Won Shin[1], Woo-young Jo[1], Hyongmin Oh[1], Hee-pyoung Park[1], Seungeun Choi[1*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
AP-10-8 2024-0080	Comparison of Cognitive Impairment Between Propofol and Remimazolam Anesthesia in ApoE4 Knock-In Mouse Model Jong ho Kim[1,2], Harry Jung[2], Eun seo Lee[2], Eun hae Lee[2], Wonrae Kim[2], Jong hee Sohn[2,3*] 1. Department of Anesthesiology and Pain Medicine, Chuncheon Sacred Heart Hospital, Hallym University College of Medicine, Republic of Korea 2. Institute of New Frontier Research, Hallym University College of Medicine, Republic of Korea 3. Department of Neurology, Chuncheon Sacred Heart Hospital, Hallym University College of Medicine, Republic of Korea

Abstract Presentation (AP-11)

AP-11	Nov 9(Sat) 13:30-15:00 / Room B
AP-11-1 2024-0291	Assessing Minute Volume, Tidal Volume and Room Air Oxygen Saturation as Criteria for Safe Extubation After General Anesthesia with Sevoflurane and Rocuronium : Preliminary Study Angeline Soeparto[1*], Ardyan Wardhana[2], Juni Kurniawaty[3], Anisa fadhila Farid[3], Ratih kumala fajar Apsari[3] 1. Anesthesiology and Intensive Care Therapy Resident FK-KMK UGM, RSUP Dr.Sardjito Yogyakarta, Indonesia 2. Anesthesiology, Surabaya University, Indonesia 3. Anesthesiology and Intensive Care Therapy Staff FK-KMK UGM, RSUP Dr.Sardjito Yogyakarta, Indonesia
AP-11-2 2024-0055	Explainable artificial intelligence for predicting mortality in geriatric patients undergoing hip arthroplasty: Machine learning analysis using national health insurance data Hyunyoung Seong[1], Kwang-sig Lee[2], Donghyun Na[1], Hyeon ju Shin[1*] 1. Department of Anesthesiology and Pain Medicine, Korea University Medical Center, Anam Hospital, Republic of Korea 2. AI center, Korea University College of Medicine, Republic of Korea
AP-11-3 2024-0271	Predictive Factors for High Number of Red Blood Cell Transfusion in Liver Transplantation: Towards Efficient Blood Management Kunravitch Soraprajum[1], Karuna Wongtangman[2], Chutwichai Tovikkai[3], Prawat Kositamongkol[3], Sudta Parakkamodom[2], Janejira Kittivorapart[1*] 1. Department of Transfusion Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand 2. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand 3. Hepato-Pancreato-Biliary and Transplant Surgery Unit, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
AP-11-4 2024-0228	Assessing Quality of Death in Surgical ICUs: A Preliminary Report of Medical Perspectives and Influencing Factors Christine Kang[1], Hannah Lee[2*] 1. Critical Care Medicine, Seoul National Hospital University, Republic of Korea 2. Anesthesiology and Pain Medicine, Seoul National Hospital University, Republic of Korea
AP-11-5 2024-0059	Assessing the Effect of Phonation on the Modified Mallampati Classification in Predicting a Potential Difficult Airway Using the Modified Cormack-Lehane Score in Western Visayas Medical Center Alexie corelle Muyco[1], Rosalie Iturriaga[1*] 1. Anesthesiology, Western Visayas Medical Center, Philippines
AP-11-6 2024-0064	Preoperative COVID-19 and postoperative mortality in cancer surgery: A South Korean nationwide study Taeyup Kim[1], Jae-woo Ju[1,2], Soo-hyuk Yoon[1], Tak kyu Oh[3], Ho-jin Lee[1,2*] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea 2. Department of Anesthesiology and Pain Medicine, Seoul National University College of Medicine, Republic of Korea 3. Department of Anesthesiology and Pain Medicine, Seoul National University Bundang Hospital, Republic of Korea
AP-11-7 2024-0301	The Incidence of Adjusting the Supraglottic Airway Device in Overweight and Obese Patients Woon-seok Kang[1], Yea-ji Lee[1], Jaekyung Kim[1], Chung-Sik Oh[1*] 1. Anesthesiology and Pain Medicine, Konkuk University, Republic of Korea

Abstract Presentation (AP-12)

AP-12	Nov 9(Sat) 13:30-15:00 / Room C
AP-12-1 2024-0229	Comparison of analgesic efficacy of ropivacaine and levobupivacaine in labour analgesia by Dural Puncture Epidural technique– a prospective double-blinded randomized trial Jyotsna Punj[1*] 1. Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
AP-12-2 2024-0150	Comparison of Ropivacaine-Fentanyl with Ropivacaine-Sufentanil for Labour Epidural Analgesia Manish Kumar Tiwary[1*], Yasir Ahmed[1] 1. Anaesthesia and Pain Medicine, Sheikh Khalifa Medical City Ajman Uae, United Arab Emirates
AP-12-3 2024-0161	Comparative evaluation of the efficacy and safety of intrathecal hyperbaric ropivacaine with hyperbaric bupivacaine in patients undergoing caesarean section under spinal anaesthesia Savita rani Singhal[1*] 1. Obstetrics & Gynaecology, Pt. BD Sharma PGIMS, Rohtak, Haryana 124001, India
AP-12-4 2024-0315	The impact of decision-to-delivery interval on neonatal outcomes in Category 1 caesarean section deliveries: A quality improvement project Jo-Ve Ng[1], Shairil rahayu Ruslan[1], Intan syafiqah Ikram shah[2], Nur azreen Hussain[2], Nabilah Abdul ghani[1], Rajeev kumar Rajaratnam[3], Mayura Damanhuri[1*] 1. Anaesthesiology, Universiti Malaya, Malaysia 2. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia 3. Obstetrics and Gynaecology, Universiti Malaya, Malaysia
AP-12-5 2024-0030	A Comparison of Prophylactic Phenylephrine between 100, 150 and 200 mcg Intravenous Slow Injection on Vasopressor Consumption, Bradycardia and Other Side Effects after Spinal Anesthesia in Obese Parturients during Cesarean Section: A Randomized, Single-Blind Study Suchaya Jeeranukosol[1], Ratikorn Anusorntanawat[1*] 1. Anesthesia, Chaophraya Yommaraj Hospital, Thailand
AP-12-7 2024-0290	Effect of maternal oxygen supplementation by face mask or high flow nasal cannula versus no oxygen supplementation, on umbilical vein oxygen content in the setting of category ii/iii fetal heart rate tracings- A randomized trial Supreet Kaur[1*] 1. Department of Anesthesiology, All India institute of medical sciences, Patna, Bihar, India
AP-12-8 2024-0138	Evaluation of Perfusion index as an indicator of post-operative pain in parturients undergoing caesarean section: An observational study Suresh kumar Singhal[1*], Vandana Arora[1], Pragya Sharma[1] 1. Anaesthesiology and Critical care, Pt. BD Sharma, Postgraduate Institute Of Medical Sciences, Rohtak, Haryana, India

ABSTRACT
AC
AP
E-Poster

Abstract Presentation (AP-13)

AP-13 — **Nov 9(Sat) 15:30-17:00 / Room B**

AP-13-2
2024-0294

Impact of Frailty on Days Alive and Out of Hospital Within 30 Days After Cardiac Surgery in Elderly Patients

Seo hee Ko[1], Young-lan Kwak[1*], Jae-kwang Shim[1], Jong wook Song[1], Yoon jin Lee[1], Wonsik Lim[1]

1. Department of Anesthesiology and Pain Medicine, Severance Hospital, Republic of Korea

AP-13-3
2024-0109

The Effects of preoperative continued Angiotensin-Converting Enzyme Inhibitors/Angiotensin Receptor Blockers on postoperative Acute Kidney Injury after Coronary Artery Bypass Graft Surgery

Thanaphon Srimueang[1*], Pairin Simcharoen[1], Sirigun Phinsunte[1], Chonticha Seingdang[1], Suppachai Lawanaskol[2]

1. Anesthesiology, Khon Kaen University, Thailand
2. General practitioner, Chaiprakarn hospital, Thailand

AP-13-4
2024-0317

Assessment of inferior vena cava distensibility index in patients undergoing general anesthesia

Soyombo Orsoo[1], Oyuntugs Byambasukh[2], Ganbold Lundeg[1*]

1. Critical Care and Anesthesia, School of Medicine of Mongolian National University of Medical Sciences, Mongolia
2. Department of Endocrinology, School of Medicine, Mongolian National University of Medical Science, Mongolia

AP-13-5
2024-0044

Dexmedetomidine alleviates CoCl2-induced hypoxic cellular damages in INS-1 cells via regulating autophagy

Jin Ha Park[1,2*], Ju eun Oh[2]

1. Anesthesiology and pain medicine, Yonsei University College of Medicine, Republic of Korea
2. Anesthesia and Pain Research Institute, Yonsei University College of Medicine, Republic of Korea

AP-13-6
2024-0243

Association between the first 12-hour postoperative central body temperature trajectory and acute kidney injury after valvular heart surgery

Jin Sun Cho[1], Young-lan Kwak[1*]

1. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea

AP-13-7
2024-0046

Clinical Evaluation of the New Supraglottic Airway i-gel®Plus : a Single Prospective Observational Study

Ayaka Tani[1*], Toshiyuki Nakanishi[1], Atushi Ishikawa[1], Kei Matsumoto[1], Yuki Takami[1], Yuji Kamimura[1], Rina Kato[1], Minhye So[1], Kazuya Sobue[1]

1. Department of Anesthesiology and Intensive Care Medicine, Nagoya City University Graduate School of Medical Sciences, Japan

AP-13-8
2024-0262

Effect of Remimazolam on Non-Intubated Video-Assisted Thoracoscopic Surgery

Po-yu Huang[1*]

1. Anesthesia, Taipei Veterans General Hospital, Taiwan, China

2024-0013

Airway management in submandibular abscess patient: Sharing experience with 20 cases from a single tertiary center

Akita Yvonne Koh[1*]

1. Anesthesia & Intensive Care, Queen Elizabeth Hospital, Malaysia

2024-0019

Alarming Moment: Tearing the Cuff Is Not The Only Thing A Nasal Spur Can Do

He Ma[1,2*], Jingping Wang[2]

1. Department of Anesthesiology, the Second Hospital of Jilin University, China
2. Department of Anesthesia, Critical Care and Pain Management, Massachusetts General Hospital, Harvard Medical School, USA

2024-0024

Thromboelastography 6s CFF-MA as a Predictor of Perioperative Blood Loss in Orthopedic Surgery of Femur Fracture in Elderly: Prospective Observational Study

Hae Wone Chang[1*], Hyoseok Kang[1], Wan Kim[1]

1. Anesthesiology and Pain Medicine, Nowon Eulji University Hospital, Republic of Korea

2024-0025

Studying efficacy of lipsense device after day care elective surgery: A randomized controlled trial

Vikas Saini[1*], Alisha Goel[1]

1. Anaesthesia and Intensive care, Postgraduate institute of medical education and research, Chandigarh, India

2024-0026

Perioperative opioid consumption and post operative neurocognitive dysfunction in elderly patients undergoing laparoscopic surgeries: An observational study

Dipayan Mistry[1*], Puneet Khanna[1], Nitin Choudhary[1]

1. Department of Anesthesiology, Pain Medicine and Critical Care, All India institute of medical sciences, New Delhi, India

2024-0028

Ex-Utero Intrapartum Therapy (EXIT) Procedures: A Comprehensive Case Series and Anesthesia Analysis in Pediatric and Obstetric Practice in Hospital Tunku Azizah, Malaysia.

Kishorkumar Mahandran[1*]

1. Anaesthesia and Intensive Care, Department Of Anaesthesia & Intensive Care, Hospital Tunku Azizah, Kuala Lumpur, Malaysia

2024-0031

Monocyte distribution width (mdw) in detection of sepsis in critically ill patients

Ki yang Soo[1*], Azrina Binti md. ralib[2], Jerry ee siung Liew[3]

1. Anaesthesiology and Critical Care, Hospital Queen Elizabeth II, Malaysia
2. Anaesthesiology and Critical Care, International Islamic University Malaysia, Malaysia
3. Pharmacy, Hospital Queen Elizabeth I, Malaysia

2024-0032

Videolaryngoscopy versus Direct Laryngoscopy in Class 2 and 3 Obesity: A Systematic Review, Meta-analysis and Trial Sequential Analysis

Alyssa Chiew[1], Zhi jie Goh[3*], Aaron Ang[3], Si-xian nicole Ang[3], Shermaine See[3], Jinbin Zhang[2], Kumaresh Venkatesan[1]

1. Department of Anaesthesia, Khoo Teck Puat Hospital, Singapore
2. Department of Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore
3. School of Medicine, Lee Kong Chian School of Medicine, NTU Singapore, Singapore

2024-0033

Nausea and Vomitting with Gadolinium Contrast in MRI and its Impact on Anesthesia Practice

Thao Bui[1*]

1. Anesthesiology, MD Anderson Cancer Center, USA

2024-0034

The safety of norepinephrine versus phenylephrine in the treatment of post-spinal hypotension in parturients undergoing cesarean section: A systematic review & meta-analysis

Alexandra Christine Lao[1*], Mark anthony Castillejos[1]

1. Department of Anesthesiology, St. Luke's Medical Center, Philippines

2024-0035

Anesthetic management of an adult patient with vocal fold immobility undergoing medialization thyroplasty under monitored anesthesia care with mild sedation using dexmedetomidine in the philippines: a case report

Pristine joy Polido[1*], Fideliz Gutierrez[1]

1. Department of Anesthesiology, St. Lukes Medical Center, Philippines

2024-0037

Thyroid storm with septic shock: A clinical dilemma and role of therapeutic plasma exchange in thyroid storm management in district critical care

Aimi khairunnisa binti Morti[1], Amir khairi bin Md supar[1*], Nurfadilah binti Mahli[1]

1. Anesthesiology & Critical Care Department, Hospital Bintulu, Malaysia

2024-0038

Effect of nicotine replacement therapy on pain and opioid requirement in abstinent smokers undergoing spinal fusion: A double blind randomized controlled trial

Ankita Maheshwari[1], Akhil kant Singh[1], Bhavuk Garg[2], Puneet Khanna[1*]

1. Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Orthopaedics, All India Institute of Medical Sciences, New Delhi, India

2024-0039

An experience with the first robotic assisted kidney transplant in the philippines

Christelle Coden[1*]

1. Anesthesiology, St. Luke's Medical Center, Philippines

2024-0040

Lipid emulsion reverses loperamide-mediated inhibition of phenylephrine-induced contration in isolated rat aorta

Soo hee Lee[1], Ju-Tae Sohn[1*], Kyeong-eon Park[1], Yeran Hwang[1], Seong-ho Ok[1]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea

2024-0043

Double Fistula: A Conservative yet Comprehensive Staged Approach

Theng Koe Wong[1*], Chen chen Chua[1]

1. Cardiothoracic Anaesthesia and Perfusion, Hospital Queen Elizabeth II, Malaysia

2024-0052

Local anesthetic infiltration of the pterygopalatine ganglion by cotton swab was useful to treat trigeminal postherpetic neuralgia following Ramsay Hunt syndrome type 2.

Anna Koyama[1], Kiyoyuki Miyasaka[1*], Yuka Suzuki[1], Nobuko Fujita[1], Seiki Abe[1]

1. Department of Anesthesiology, St. Luke's International Hospital, Japan

2024-0056

Anesthetic Management of a Pregnant Patient with Functional Abdominal Pain Syndrome, In Threatened Preterm Labor via Epidural Catheter Tunnelling

Catherine Sicadsicad[1], Salvador Brodit jr.[1*]

1. Anesthesiologyt, St. Luke's Medical Center Quezon City, Philippines

2024-0057

Neuroanaesthetic management in a child with Lennox Gastaut Syndrome who undergoes Vagus Nerve Stimulation (VNS) placement

Boon Tat[1,2*], Thai hau Koo[3], Laila Ab mukmin[2], Ikhwan nasir Idris[1], Jabraan Jamil[1]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Department of Anaesthesiology and Intensive Care, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

2024-0062

A Unique Case of Descending Mediastinitis

Anissa Lye[1*], Edith Wong[1], Alyssa Chiew[2], Jian li Tan[3], Vicky Ng[1]

1. Anaesthesia and Intensive Care Medicine, Tan Tock Seng Hospital, Singapore
2. Anaesthesia and Intensive Care Medicine, Khoo Teck Puat Hospital, Singapore
3. Otorhinolaryngology, Tan Tock Seng Hospital, Singapore

2024-0063

Anesthetic Management using Remimazolam in an Adult Patient with Fontan Circulation

Satoshi Hayashi[1,2], Tomoki Sasakawa[2*], Kiyoyuki Miyasaka[1], Satoshi Kurokawa[2], Yasuko Nagasaka[2]

1. Anesthesiology, St luke's international hospital, Japan
2. Anesthesiology, Tokyo Women's Medical University, Japan

2024-0070

Anesthetic Management of Patient With Single Ventricle Circulation Undergoing Scoliosis Surgery

Ma. Patricia Mae Quintin[1*]

1. Department of Anesthesiology, The Medical City, Philippines

2024-0075

Effective Topical Anesthesia Using a Vibrating Mesh Nebulizer for Awake Intubation (Aerogen Ultra®) in a Super Morbidly Obese Patient : A Case Report

Serabi Tanabe[1*]

1. Department of Anesthesiology, Tokyo Metropolitan Tama Medical Center, Japan

2024-0076

Neuroleptospirosis with cerebral venous sinus thrombosis (CVST) In a young farmer: A case report

Boon Tat[1,4*], Thai hau Koo[2], Laila Abd mukmin[3], Song yee Ang[5]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Anaesthesiology & Intensive Care, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
4. Medical Education, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
5. Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

2024-0077

Comparison of pretreatment with Magnesium sulphate v/s Lignocaine on neuromuscular blockade of Rocuronium in elective surgeries: A randomized, double blinded study

Arhan Pasha[1], Kanika Gupta[1*], Priyanka Gupta[1], Mridul Dhar[1]

1. Anaesthesiology, All India Institute of Medical Sciences, Rishikesh, India

2024-0079

Shared decision making in perinatal management of rapidly deteriorating early-onset preeclampsia – a case report

Tomoyo Takahashi[1], Anna Koyama[1*], Kiyoyuki Miyasaka[1], Nobuko Fujita[1]

1. Anesthesia, St.Luke's International Hospital, Japan

2024-0081

A Case Series of 3 Patients Who Received Alcohol Chemical Neurolysis of Genicular Nerve for Chronic Knee Pain

Annie Wong[1*]

1. Anaesthesia, Chronic Pain, Intensive Care Unit, Changi General Hospital, Singapore

2024-0084

A Comprehensive Comparison of the Technical Parameters in Single-Use Disposable Flexible Bronchoscopes

Samuel Tong[1], Xianyi timothy Yang[1*], David yew chuan Chong[1]

1. Department of Anaesthesia and Operating Theatre Services, Queen Elizabeth Hospital, Hospital Authority, Hong Kong, China

2024-0093

Antibiotic-impregnated central venous catheter(CVC) coating technique for long-term prevention of CRBSIs

Seung zhoo Yoon[1], Hye won Shin[1*], Choon hak Lim[1], Jang eun Cho[1], Sung uk Choi[1], DongHyun Na[1]

1. Department of anesthesiology, Korea Univ. hospital, Anam, Republic of Korea

2024-0094

A case of successful continuous sacral epidural administration of ethanol therapy for anal pain due to multiple metastasis of malignant pheochromocytoma

Takehito Sato[1*], Ichiko Asano[1], Takahiro Ando[1]

1. Department of Anesthesiology, Nagoya University Hospital, Department of Anesthesiology, Japan

2024-0095

Postpartum Hemorrhage in Epidural Labor Analgesia

Kei Komatsu[1*], Anna Koyama[1], Tsukasa Yoshida[2], Ami Satou[2], Michiko Yamanaka[2], Sachiko Ohde[3], Nobuko Fujita[1], Seiki Abe[1]

1. Anesthesiology, St. Luke's International Hospital, Japan
2. Gynecology, St. Luke's International Hospital, Japan
3. Public Health, St. Luke's International University, Graduate School of Public Health, Japan

2024-0100

Development of nomogram for predicting post-liver transplant survival using cardiac biomarkers in patients with acute-on chronic liver failure

Hyeon-seok Lee[1], Sang-bin Han[1], Hye-mee Kwon[1], In-gu Jun[1], Jun-gol Song[1], Gyu-sam Hwang[1*]

1. Department of Anesthesiology and Pain Medicine, Laboratory for Cardiovascular Dynamics, Asan Medical Center, Ulsan University College of Medicine, Republic of Korea

2024-0102

Knowledge and practice of preoperative clear liquid diet fasting among medical staff and nurses in medical school hospital

Phirunrat Senlin[1*], Jeerawan Kitijan[1], Chaowanan Khamtuikrua[1], Sirilak Suksompong[1]

1. Anesthesiology, Siriraj hospital, Thailand

2024-0103

Clavipectoral Plane Block, A Rising Analgesia Modality for Clavicle Fracture Surgery: A Case Series

Jessica Yeo[1], Mu jung Lee[1*]

1. Anesthesiology, Shin Kong Wu Ho-Su Memorial Hospital, Taiwan, China

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Local anesthetic systemic toxicity caused by non-anesthesiologists: analysis of case reports and review

Ho kyung Yu[1], Soo hee Lee[1], Ju-Tae Sohn[1*]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University Changwon Hospital, Gyeongsang National University College of Medicine, Republic of Korea

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Ultrasound guided thoracic paravertebral block as post operative pain control in a rare case of myasthenia gravis who underwent video assisted thoracoscopic surgery (VATS) for thymectomy

Sittie haynnah Monte[1], Norjana Lao[1*]

1. Anesthesiology, Amai Pakpak Medical Center, Philippines

2024-0110

Diagnosing and Managing Post-Thyroidectomy Diaphragmatic Paralysis: A Case Report

Masayuki Akatsuka[1*], Kotaro Yamano[2], Hiroomi Tatsumi[1]

1. Department of Intensive Care Medicine, Sapporo Medical University School of Medicine, Japan
2. Division of Rehabilitation, Sapporo Medical University Hospital, Japan

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Delayed Neurological Deficit After Posterior Spinal Instrumentation & Fusion In Adolescent Idiopathic Scoliosisiosis

Nik Rowina Nik Mohammed[1*], Janes belinda Tan geil nii[1]

1. Anaesthesiology & Intensive Care, Universiti Putra Malaysia, Malaysia

2024-0112

Low dose intrathecal morphine in thoracic surgery

Thanaphon Srimueang[1*], Sunittra Yuencheevit[1]

1. Anesthesiology, Khon Kaen University, Thailand

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Propofol use and dose for sedation during Endos copy in Mongolian adult. Single center study

Batkhurel Batbayar[1,2], Enkhchimeg Tuul[1,2], Chantsal Bold[3*]

1. Anesthesiology, Brilliant hospital IGIC Center, Mongolia
2. Anesthesiology, IGIC Center, Mongolia
3. Anesthesiology, EMJJ hospital, Mongolia

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Anesthetic challenges in a Patient with Huge Multinodular goiter for Emergency Lower Segment Cesarean Section Surgery: A Case Report

Boon Tat Yeap[1*], Thai hau Koo[2], Ikhwan Nasir[1], Mohd fauzy Mat sani[3], Shari Nor[4]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Intensive Care, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Anaesthesiology & Intensive Care, Tawau Specialist Medical Centre (Tsmc), Tawau, Sabah, Malaysia
4. Obstetrics & Gynaecology, Tawau Specialist Medical Centre (Tsmc), Tawau, Sabah, Malaysia

2024-0118

Challenging airway in a giant neurofibroma case : A novel life saving approach

Supreet Kaur[1*]

1. Anaesthesiology, All India institute of medical sciences, Patna, Bihar, India

2024-0119

Unanticipated Difficult Intubation in the Presence of an Undiagnosed Large Asymptomatic Lingual Thyroid: A Case Report

Sandy Lim[1*], Chi ho Chan[2], Fook onn Lai[3]

1. Anaesthesiology, SingHealth, Singapore
2. Anaesthesiology, SingHealth (Sengkang General Hospital), Singapore
3. Anaesthesiology, SingHealth (Sengkang General Hospital), Singapore

2024-0123

Botulinum Toxin as an Effective Treatment for Persistent Twitching in first toe: A Detailed Case Study

Jaesuk Kim[1], Seongjin Park[1], So young Kwon[1*]

1. Anesthesia and Pain medicine, The Catholic University of Korea, ST. Vincent's Hospital, Republic of Korea

2024-0124

Determine outcomes of continuous sedation among mechanically ventilated adult patients in the ICU of a tertiary hospital in the Philippines

Fatima hayranie Guro[1,2*], Viena flor Del prado[1]

1. Acute and Critical Care Institute, The Medical City, Philippines
2. Internal Medicine, Amai Pakpak Medical Center, Philippines

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Tailoring Therapy with FloTrac: Insights from a Case of Mixed Drug Overdose

Xue Lun Yeong[1*], Sherilyn Seah[1], Soak yee Loh[4], Alyssa Chiew[3], Qing yuan Goh[1,2]

1. Department of Intensive Care Medicine, Sengkang General Hospital, Singapore
2. Department of Surgical Intensive Care, Singapore General Hospital, Singapore
3. Department of Anaesthesia and Intensive Care Medicine, Khoo Teck Puat Hospital, Singapore
4. Department of Pharmacy, Sengkang General Hospital, Singapore

2024-0127

Paediatric MELAS crisis for urgent MRI: sedation or general anaesthesia?

Hui yi Tan[1*], Tracy yi shuen Tan[1]

1. Department of Paediatric Anaesthesia, Kandang Kerbau Women's and Children's Hospital, Singapore

2024-0130

Severe Aortic Stenosis Detected During Preoperative Assessment by Perianesthesia Nurse in a Patient Presenting for Bladder Cancer Surgery

Yuka Suzuki[1*], Anna Koyama[1], Inoue Daisuke[1], Nobuko Fujita[1]

1. Anesthesia, St. Luke's International Hospital, Japan

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Intra-operative handover checklists: A tool to improve completeness of data transfer

Ruth Yeoh[1*], Guan yee Ng[1], Sandy Lim[1], Zhaohan Goh[1], Shin yuet Chong[1]

1. Division of Anaesthesiology, Singapore General Hospital, Singapore

2024-0135

Enhancing compliance to postoperative glycemic monitoring at Post Anaesthesia Care Unit (PACU)

Malvine Phua[1*], Dorothy Lim[1], Hairil Rizal abdullah[1,2,3], Charlene Kwa[1], Chai lian Teng[4], Brenda pei yi Tan[1], Celestine Loh[3]

1. Division of Anaesthesiology and Perioperative Medicine, Singapore General Hospital, Singapore
2. Health Services and Systems Research, Duke-NUS Medical School, Singapore
3. Duke-NUS Medical School, Singapore
4. Division of Surgery & Surgical Oncology, Singapore General Hospital, Singapore

2024-0142

Metoclopramide induced methemoglobinemia in a g6pd deficient patient with severe dengue fever: A case report

Zhen xiang Hiew[1*], Hui yee Tan[1], Yeh-han Poh[1]

1. Department of Anesthesiology & Intensive Care, Hospital Sungai Buloh, Malaysia

2024-0143

Just the Tip of the Iceberg: Anesthetic Management of an Adult patient with Central Airway Obstruction under going Rigid Bronchoscopy and Tracheal Stenting with Intraoperative Manual Jet Ventilation: A Case Report

Antonie Kyna Lim[1*], Ma. stephanie Balaoing[2]

1. Anesthesiology, St. Luke's Medical Center Quezon City, Philippines
2. Anesthesiology, St. Luke's Medical Center Quezon City and Lung Center of the Philippines, Philippines

2024-0144

Intraoperative central venous pressures related to early graft function in deceased donor kidney transplant recipients with low immunological risks

Hyo Eun Ahn[1*], Jun bae Bang[2]

1. Anesthesiology and Pain Medicine, Ajou University Hospital, Republic of Korea
2. Transplant and vascular surgery, Ajou University Hospital, Republic of Korea

2024-0145

Anesthetic Management of Cesarean Delivery in a case with Systemic Lupus Erythematosus: A Case Report

Manish Kumar Tiwary[1*], Yasir Ahmed[1]

1. Anaesthesia, Sheikh Khalifa Medical City Ajman Uae, United Arab Emirates

2024-0154

Precipitation Of Tracheal Obstruction In A Patient With Anomalous Aortic Arch Following Aneurysmal Subarachnoid Haemorrhage

Deepak Ganjigere palaksha[1*]

1. Neuroanaesthesia and Neurocritical care, N.I.M.H.A.N.S, Bengaluru, India

2024-0156

The Changes in the Age Distribution of Surgical Patients during last 10 years

Hong Seuk Yang[1*], Jonh ho Kim[1], Sung mi Hwang[1], Youngsuk Kwoan[1]

1. Department of Anesthesiology and Pain Medicine, Chuncheon Sacred Heart Hospital, College of Medicine, Hallym University, Republic of Korea

2024-0157

ROBOTIC left cardiac sympathetic denervation in patients with inherited arrhythmia syndromes; surgical risk and perioperative considerations

Fadzwani Basri[1], Maggie Zou[2], Emilie Martinoni hoogenboom[2], Kunal Bhakri[3*]

1. Anaesthesiology and Intensive Care, Hospital Kuala Lumpur, Malaysia
2. Anaesthesia and Perioperative Medicine, University College London Hospital NHS Foundation Trust, United Kingdom
3. General Thoracic Surgery, University College London Hospital NHS Foundation Trust, United Kingdom

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Beyond the heart: A Case Report on the Anesthetic Challenges in a Pediatric Patient with Edwards Syndrome and Double Outlet Right Ventricle Undergoing Non-Cardiac Surgery

Karenina Saenz[1], Anne michelle Salomon[1*]

1. Department of Anesthesiology, The Medical City, Pasig, Philippines

2024-0162

Age-Based Cole's Formula Versus Fifth Fingernail Width-Based Method in Determining Pediatric Endotracheal Tube Size in WVMC

Berlin rizza Robles[1], Meda rose Luhan[1,2*]

1. Anesthesiology, Dr. Catalino Gallego Nava Provincial Hospital, Philippines
2. Anesthesiology, Western Visayas Medical Center, Philippines

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Aditi Prakash[1*]

1. Critical Care Medicine, Medicover Hospitals, India

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Jaesik Park[1], Yung eun Moon[1*]

1. Anesthesiology, Seoul St. Mary's Hostpital, Republic of Korea

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Case report: Labour epidural, a major headache

Nabilah Abdul ghani[1*], Putri jasmine filza Firdaus[1], Jo ve Ng[1], Intan syafiqah Ikram shah[2], Mayura Damanhuri[1], Nur azreen Hussain[1]

1. Anaesthesiology, Universiti Malaya, Malaysia
2. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia

2024-0175

Bradycardia during MVA (The Brewer-Luckhardt Reflex): A Case Report

Raju Thapa Magar[1*]

1. Anaesthesiology and Critical Care, Nepal Korea Friendship Municipality Hospital, Nepal

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Unmasking the Silent Threat: A Retrospective Analysis of Unplanned Extubation Incidents in the Intensive Care Unit, Sarawak General Hospital

Farah Razali[1*], Jamaidah Jamhuri[2], Alex Kim[3], Tiong Xun ting[2], Hidayatur afifah Shuib[2], Marvina Tekhee[3], Teo Shu ching[2], Alan Fong yean yip[1], Chin Yi zhe[4]

1. Clinical Research Centre, Sarawak General Hospital, Malaysia
2. Anaesthesiology and Intensive Care, Sarawak General Hospital, Malaysia
3. Quality Unit, Sarawak General Hospital, Malaysia
4. Anaesthesiology and Intensive Care, Borneo Medical Miri, Malaysia

2024-0181

Anesthetic Management of a Rare Case of Tracheal Transection

Suganya Dhanabalan[1], Lavanya Ponnusamy[1*], Prashanth Reddy[1], Pramod Reddy[1]

1. Anesthesiology, Yashoda Hospital, India

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Noorul Asyikeen Kasim[1], Grace Soon[1*], Raja muhidayah Raja baniamin[1], Tan Li kuan[1], Satvinderjit Singh[1]

1. Anaesthesiology, Hospital Wanita Dan Kanak Kanak Sabah, Malaysia

2024-0192

Efficacy of multimodal analgesia in comparison with intrathecal morphine and intravenous patient-controlled analgesia in patients who underwent robot-assisted laparoscopic partial nephrectomy

Jung-Woo Shim[1], Sanghyun Hong[1*]

1. Department of Anesthesiology and Pain Medicine, St. Mary's Hospital, Catholic University of Korea, Republic of Korea

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Analgesic efficacy of classical thoraco-lumbar interfascial plane block (TLIP) Vs lateral thoraco-lumbar interfascial plane block in patients undergoing lumbar discsSurgery: A comparative, randomized controlled trial

Ravinder kumar Pandey[1*], Sourav Mondal[1], Mritunjay Kumar[1], Jyotsna Punj[1], Vanlal Darlong[1]

1. Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

2024-0206

A case of a refractory cancer pain which switch to epidural infusion from iv of a large amount of morphine was effective for proceeding to home-based care

Hana Oue[1], Daisuke Inoue[1*], Yuka Suzuki[1], Anna Koyama[1], Satoshi Hayashi[1], Tokuhito Hayashi[1], Nobuko Fujita[1]

1. Department of Anesthesia, St.Luke's Internatinal Hospital, Japan

2024-0207

Clinical Validation of the Eleveld Target-Controlled Infusion (TCI) Model for Propofol in the Malaysian Obese Population

Izzuddin Azaharuddin[1*], Azarinah Izaham[1], Muhammad Maaya[1], Farah hanim Abdullah[1], Syarifah noor nazihah Sayed masri[1], Liu Chian yong[1], Cheah Saw kian[1], Nizam Mokhtar[1], Qurratu 'aini Musthafa[1]

1. Departement Of Anaesthesiology and Intensive Care, National University Of Malaysia, Malaysia

2024-0217

Spinal Anaesthesia for Cervical Cerclage in the First Trimester

Kaiquan Tan[1], Yoong chuan Tay[1*]

1. Anaesthesiology, Singapore General Hospital, Singapore

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Impending Doom in a Tiny Airway: Sublingual Dermoid Cyst in a Neonate

Blair ann Dela rosa[1], Anne michelle Salomon-avelino[2*]

1. Department of Anesthesiology, Quezon City General Hospital, Philippines
2. Department of Anesthesiology, Quezon City General Hospital, Philippines

2024-0219

Aspiration pneumonia as possible complication of lumbar procedures in older patients.

Hyeryung Kang[1*]

1. Anesthesiology and Pain medicine, VHS Medical Center, Republic of Korea

2024-0224

Postoperative Outcomes Among COVID-19 Infected Pediatric Patients in a Philippine Tertiary Pediatric Specialty Hospital

Yuri Mikael De mesa[1*], Allan benson Gamo[1]

1. Anesthesia, National Children's Hospital, Philippines

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Anesthesia for Hepatectomy in Myasthenia Gravis

Danissa fidia Puteri[1*], Meta restu Synthana[1], Ratih kumala fajar Apsari[1], Pinter Hartono[1]

1. Anesthesiology and Intensive Care, Universitas Gadjah Mada, Indonesia

2024-0226

Impact of Cognitive Function in School-aged children undergoing General Anaesthesia

Mohamad afiq Ahmad sayuti[1], Azarinah Izaham[1*], Muhammad Maaya[1], Siti nidzwani Mohamad mahdi[1], Syarifah noor nazihah Sayed masri[1], Farah hanim Abdullah[1]

1. Department of Anaesthesiology and Intensive Care, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Malaysia

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Handling Catastrophic Internal Carotid Artery Injury in Endoscopic Transsphenoidal Surgery: From Intraoperative Management to Postoperative Care

Poonyanuch Charoenkoop[1*]

1. Department of Anesthesiology, Ramathibodi Hospital, Thailand

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Spontaneous Intracranial Hemorrhage in a Pregnant Woman with Severe Preeclampsia: Anesthetic Challenges and Management

Renol hamonangan Simatupang[1*], Ratih kumala fajar Apsari[2]

1. Department of Anesthesiology and Intensive Therapy, Gadjah Mada University, Dr. Sardjito General Hospital, Yogyakarta, Indonesia
2. Department of Anesthesiology and Intensive Therapy, Gadjah Mada University, Obstetric Anesthesiologist Dr. Sardjito General Hospital, Yogyakarta, Indonesia

2024-0231

To Assess Technical Feasibility of Ultrasound Lumbar Sympathetic Block with Electrical Stimulation Needle in Out of Plane Needle Orientation: A Prospective Interventional Study

Jyotsna Punj[1*]

1. Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

2024-0232

A Case of Unexpected Recurrent Postoperative Bleeding in Paediatric Dental Surgery

Priscilla Manymuthu[1*]

1. Anaesthesiology & Critical Care, Tawau Hospital, Sabah, Malaysia

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Retained fragment of epidural catheter: An anaesthetist's dilemma

Nur Haryanti Izumi Suhaimi[1*], Mohd hafiz Abdullah[2], Rosman Noor ali[2], Khadijah Zulkifli[2]

1. Anaesthesiology and Critical Care, Hospital Kepala Batas, Malaysia
2. Anaesthesiology and Critical Care, Hospital Sultan Abdul Halim, Malaysia

2024-0236

Complexities of Acute Ischemic Strokes in Pregnant Women

Denise Quah[1*]

1. Anaesthesiology, Singapore General Hospital, Singapore

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The effect of perioperative antiplatelet and anticoagulant therapy on time to surgery and related clinical outcomes in elderly patients with hip fracture

Jutatip Laitip[1], Thita Pokawattana[1], Suppachai Poolsuppasit[1*]

1. Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

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Peripartum cardiomyopathy (PPCM) under spinal anesthesia for twin cesarean section

Seung Hee Yoo[1], Heeseung Lee[1*], Dong yeon Kim[1], Jong in Han[1], Jong hwa Lee[1], Won-joong Kim[1], Sooyoung Cho[1], Youn jin Kim[2], Jae hee Woo[2], Hye-won Oh[2]

1. Department of Anesthesiology and Pain medicine, College of Medicine, Ewha Womans University Mokdong Hospital, Republic of Korea
2. Department of Anesthesiology and Pain medicine, College of Medicine, Ewha Womans University Seoul Hospital, Republic of Korea

2024-0242

Accuracy of ultrasonography to confirm the appropriate depth of endotracheal tube in children with heart disease

Ornin Chintabanyat[1*], Pornnapat Konateerakul[1], Pichaya Waitayawinyu[1], Chodchanok Vijarnsorn[2], Kasana Raksamani[1]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
2. Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

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Laryngospasm after superior laryngeal nerve block: A case report

Punchika Luetrakool[1*], Tossapol Homthain[1]

1. Anesthesiology, Ramathibodi hospital, Thailand

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Anesthesia Management for Excision of a Huge Intra-abdominal mass in an Infant: A Case Discussion

Utsav Acharya[1*]

1. Department of Anaesthesiology, Tribhuvan University Teaching Hospital, Nepal

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Exploring the Physiological Determinants of Cerebral Oxygenation Using Structural Equation Modeling: a retrospective study

Chahyun Oh[1,2], Soomin Lee[1,2*], Sujin Baek[1,2], Byong-sop Song[3], Boohwi Hong[1,2], Yoon-hee Kim[1,2], Yunseo Ku[4]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Daejeon, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Daejeon, Republic of Korea
3. School of Life Sciences, Gwangju Institute of Science and Technology, Gwangju, Republic of Korea
4. Department of Biomedical Engineering, Chungnam National University College of Medicine, Daejeon, Republic of Korea

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Challenges in managing airway of an infant with a huge oral mass with an unplanned intra-operative extubation: A case report

Jyoti k.c. khatri[1*], Utsav Acharya[1], Robins Tiwari[1]

1. Department of Anaesthesiology, Tribhuvan University Teaching Hospital, Nepal

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Anaesthetic Management of a Rare Case of Adult Rhabdomyosarcoma of the Head & Neck

Priscilla Manymuthu[1*]

1. Anaesthesiology & Intensive Care, Tawau Hospital, Sabah, Malaysia

2024-0273

Navigating infective endocarditis and end-stage liver disease with combined aortic valve replacement and liver transplantation: a pinnacle of complexity.

Manisha Chintakunta[1], Vijay kant Pandey[2*], Subhash Gupta[3]

1. Fellow in liver transplant anesthesia and critical care, CLBS., Max super speciality hospital, New Delhi, India
2. Associate director, CLBS-Anesthesia., Max super speciality hospital, New Delhi, India
3. Chairman, CLBS, Max super speciality hospital, New Delhi, India

2024-0276

Back-2-Back: A Case Report on Anesthetic Management of a Pregnant Patient with Kyphoscoliosis and Dwarfism for Emergency Cesarean Section

Jennifer Bunagan[1*]

1. Anesthesiology, Bataan General Hospital and Medical Center, Philippines

2024-0278

The Unfolding: A Case Report of Severe Kyphoscoliosis with Bilateral Ankylosing Spondylodiscitis undergoing Pedicle Subtraction Osteotomy

Phei Woon Ng[1*]

1. Anaesthesiology And Intensive Care Unit, Hospital Canselor Tuanku Muhriz UKM, Malaysia

2024-0280

Efficacy of Remimazolam Administration for Shivering during Cesarean Delivery in a Parturient with Moyamoya Disease

Sooyeon Han[1], Satoshi Toyama[1*], Alisa Tamura[2]

1. Department of Anesthesiology, Tokyo Medical and Dental University, Graduate School of Medical and Dental Sciences, Japan
2. Department of Anesthesiology, Tokyo Medical and Dental University, Japan

2024-0282

Subcostal Transversus Abdominis Plane Block as the Sole Anesthesia for an Open Gastrostomy in Patient with Tracheoesophageal Fistula: A Case Report

Sandy Theresia[1*], Asis deelip Mirchandani[1], Pryambodho Pryambodho[1]

1. Department of Anesthesiology and Intensive Care, Universitas Indonesia, Indonesia

2024-0286

From Nitrate to Cyanosis: A Case Report on Accidental Sodium Nitrite Ingestion Leading to Methemoglobinemia

Emylia nur afiqah Mohd sharir[1], Ili syazana Saufian[1*]

1. Anaesthesiology, Hospital Sungai Buloh, Malaysia

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001 Emergency Code

Ujjwal Basnet[1*]

1. Obstetric Anesthesia, Paropakar Maternity and Women's Hospital, Kathmandu, Nepal

2024-0293

Anesthetic Management in Pregnant Woman with Fetal Congenital Diaphragmatic Hernia: a Case Report

Alvian Reza Muhammad[1], Fildza sasri Peddyandhari[2*]

1. Anesthesiology And Intensive Care, Rumah Sakit Universitas Indonesia, Indonesia
2. Anesthesiology And Intensive Care, Cipto Mangunkusumo National Hospital, Indonesia

2024-0298

Post-Operative Nausea and Vomiting - Improving Outcomes Over 10 Years at The Queen Elizabeth Hospital, South Australia

Rajesh Sethi[1*]

1. Department of Anaesthesia, The Queen Elizabeth Hospital, Central Adelaide Local Health Network, Australia

2024-0300

The Effect of Intravenous Fluid Loading on the Incidence of Hypotension in Children Undergoing General Anesthesia for Magnetic Resonance Imaging: A Randomized Controlled Trial

Ploychompoo Worratarakul[1*], Darunee Sripadungkul[1], Cattleya Kasemsiri[1], Prathana Wittayapairoch[1], Narin Plailaharn[1], Fangam Charoenpol[1]

1. Department of anesthesiology, Srinagarind Hospital, Khon Kaen University, Thailand

2024-0303

Submandibular Abscess: Strategy to a Successful Difficult Airway Management: a Case Series

Alvian Reza Muhammad[1], Noor Hafidz[1*]

1. Anesthesiology And Intensive Care, Rumah Sakit Universitas Indonesia, Indonesia

2024-0307

Crab Feast to Catastrophe: The Deadly Turn of a Vibrio vulnificus Infection

Muaz Jamil[1*], Nurbayani Inche mat[1], Zayuah Mat sulaiman[1]

1. Department of Anaesthesiology and Critical Care, Hoshas, Ministry of Heatlh, Malaysia

2024-0308

Prevalence of anaemia and factors influencing blood transfusion in paediatric major non-cardiac surgery: A 5-year retrospective review.

Kogil Thavamoney[1], Rufinah Teo[1*]

1. Department of Anaesthesiology and Intensive Care, Hospital Canselor Tuanku Muhriz, UKM, Malaysia

2024-0309

Post-Caesarean Shock, Anemia and Thrombocytopenia: A Case Report on Suspected Complement-mediated Thrombotic Microangiopathy (C-TMA)

Joshan lal Bajracharya[1*], Pankaj Baral[1]

1. Anesthesiology and Critical Care Medicine, Provincial Hospital Bhadrapur, Nepal

2024-0313	Valve-in-vale transcatheter aortic valve replacement with extracorporeal membrane oxygenation in an end-stage renal disease patient with cardiogenic shock Sayaka Oki[1*], Kyosuke Takahashi[2] 1. Department of Anesthesiology and Critical Care Medicine, Jichi Medical University Saitama Medical Center, Japan 2. Department of Anesthesiology, Tokyo Medical and Dental University Hospital, Japan
2024-0314	Effectiveness of Intraperitoneal Tramadol Instillation in Laparoscopic Cholecystectomy: A Systematic Review and Meta-analysis Christine Lua[1*], Christabelle Toh[1], Manuel Gonzaga[1] 1. Department of Anesthesiology, Davao Doctors Hospital, Philippines
2024-0318	Endotracheal intubation with the McGRATH™ MAC videolaryngoscope in a child with Pierre Robin syndrome : a case report Yong Sup Shin[1*], Sujin Baek[1], Soomin Lee[1], Boohwi Hong[1], Woosuk Chung[1], Sunyeul Lee[1], Chaeseong Lim[1], Youngkwon Ko[1], Yoon hee Kim[1] 1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea
2024-0319	Applying Basic Physiology as a Rescue Strategy in Adenocarcinoma Lung Presenting with Refractory Hypoxemia Followed by Definitive Advance Intervention Jagdeep Sharma[1*], Lalita Mitra[1], Harsimran Walia[1] 1. Department of Anaesthesia, Critical Care & Pain, Homi Bhabha Cancer Hospital & Research Centre, New Chandigarh, India
2024-0324	Anesthetic Management of Pediatric Patient with Uncorrected Double- Outlet Right Ventricle for CT-Scan Guided Percutaneous Hepatic Abscess Aspiration: A Case Report Ma. Denise Cabral[1], Karen Adapon-sajo[1*] 1. Anesthesia Department, Las Pinas General Hospital and Satellite Trauma Center, Philippines
2024-0326	Cruising Through Crouzon's Syndrome Uma Kamat[1], Sanjeevani Zadkar[1*], Anita Shetty[2] 1. Anaesthesia, Seth G.S .Medical College & KEM Hospital, India 2. Anaesthesia, R.N Cooper Hospital & HBT trauma center, India
2024-0344	The Impact of Frailty on Postoperative Complications and Resource Utilization in Older Patients Undergoing Hip Fracture Surgery Hiroshi Yonekura[1*] 1. Department of Anesthesiology and Pain Medicine, Fujita Health University Bantane Hospital, Japan
2024-0347	Anaesthetic Management of Tracheal Stenosis Repair: Challenges in Cross-Field Ventilation James Joseph[1*], Lee Kok tong[1], Mazlilah Abdul malek[1], Zuhrah Zakaria[1], Norly Ismail[1] 1. Cardiothoracic Anaesthesia and Perfusion, Hospital Sultan Idris Shah, Serdang, Malaysia

2024-0274

The Effect of Remimazolam on Regional Cerebral Oxygenation and Hemodynamics during Orthopedic Surgery in the Sitting Position

Kyu Nam Kim[1*], Jeong min Sung[1], Dong won Kim[1]

1. Department of Anesthesiology and Pain Medicine, Hanyang University, Republic of Korea

Background

In the sitting position, reduced venous return results in decreased blood pressure and cardiac output. This decrease in blood pressure and cardiac output can have serious consequences for the patients. Because the brain is located higher than the heart in the sitting position, reduced blood pressure and cardiac output can cause low brain perfusion which can lead to complications such as cerebral infarction and neurological abnormalities.

A novel ultra-short-acting benzodiazepine, remimazolam, possesses a superior safety profile of hemodynamic stability. We hypothesized that if the use of remimazolam could prevent a decrease in cerebral blood flow during surgery. Therefore, we performed this prospective, randomized, and controlled study to compare the effects of remimazolam versus propofol in maintaining cerebral oxygen saturation and hemodynamics in the sitting position.

Methods

After approval by the Institutional Review Board and registration of the Clinical Research Information Service, written informed consent was obtained. This study was conducted on adult patients under 75 years of age who underwent general anesthesia for orthopedic surgery in the sitting position. A total of 104 patients were divided into the Remimazolam group and the Propofol group, and 52 patients in each group were randomly assigned in a 1:1 ratio. Remimazolam at 6 mg/kg/hr and 1 mg/kg/hr was injected for induction and maintenance of anesthesia. The initial target effect site concentration (Ce) of propofol was set to 6.0 ㎍/ml for induction and 3.0 ㎍/ml for maintenance. The primary outcome was changes in brain oxygen saturation (regional tissue oxygen saturation, rSO2). Secondary outcomes was changes in mean arterial pressure and heart rate and the use of rescue drugs such as ephedrine, phenylephrine and atropine.

Results

A total of 104 patients was analyzed without flow-up loss. As a result of continuous comparison of rSO2, there was a significant decrease in brain oxygen saturation over time in both groups after changing to a sitting position ($P<0.0001$). However, there was no significant difference between the two groups (62.7±5.4 vs. .61.8 ± 6.7, $P = 0.45$). The mean arterial pressure was significantly higher in the remimazolam group than in the propofol group (72.2 ± 11.0 vs 65.1 ± 7.7, $P < 0.0001$). Although the heart rate was higher in the remimazolam group than in the propofol group, no significant statistical difference was observed (78.4 ± 13.8 vs 74.8 ± 11.5, $P = 0.15$). The incidence of cerebral desaturation was significantly lower in the remimazolam group than in the propofol group (11.5% vs 26.9%, $P = 0.047$, relative risk = 0.354, 95% CI 0.124 to 1.010). The incidence of hypotension was also significantly lower in the remimazolam group than in the propofol group (30.8% vs 61.5%, $P = 0.002$, relative risk = 0.278, 95% CI 0.123 to 0.626). Additionally, the usage of ephedrine (25% vs 51.9%, $P = 0.005$, relative risk = 0.309, 95% CI 0.134 to 0.708) and phenylephrine (11.5% vs 28.8%, $P = 0.028$, relative risk = 0.322, 95% CI 0.114 to 0.911), were significantly lower in the remimazolam group.

Conclusion

The use of remimazolam in surgeries performed in the sitting position significantly reduces the incidence of decreased cerebral oxygen saturation and hypotension during general anesthesia by maintaining a significantly higher mean arterial pressure. Therefore, we suggested the use of remimazolam as an effective alternative to propofol for general anesthesia in sitting position because of its high hemodynamic stability.

2024-0321

The neuroprotective effects of sugammadex in a rat stroke model

Young Sung Kim[1*], Sejong Jin[2], Eung-hwi Kim[3]
1. Anesthesiology and pain medicine, Korea University, Republic of Korea
2. College of medicine, Korea University, Republic of Korea
3. Institute for Healthcare Service Innovation, Korea University, Republic of Korea

Background

Previous experimental research showed that gammacyclodextrin, a precursor of sugammadex, provides therapeutic effects together with crocetin in an Alzheimer's model. Another study suggested neuroprotection of sugammadex which was similar to mannitol in a head injury model.

The aim of this study was to investigate the effect of sugammadex on neuroprotection from brain ischemia in a rat stroke model.

Methods

We used intraluminal filament middle cerebral artery occlusion (MCAO) model in which a filament is inserted into the right carotid artery of a rat to induce occlusion of the middle cerebral artery, causing local ischemia in the right brain, and then is removed after a certain period of time to induce reperfusion, thereby inducing ischemia-reperfusion injury in the brain. The rats were divided to the three groups: MCAO+vehicle, MCAO+sugammadex, Sham+vehicle. 3 days after MCAO treated, Y-maze test was applied to investigate time spent, distance, and entries in incorrect compartment. We also examined the effect of visual cue on the Y-maze test. TTC staining was applied to evaluate damaged brain areas.

Results

MCAO+sugammadex and sham+vehicle group showed lower time-spent, distance, entry frequency in incorrect compartment compared to MCAO+vehicle group. Visual cues did not help improve the quality of the results, but rather resulted in an increase in standard deviation. The brain infarct size of MCAO+sugammadex was bigger than that of sham+vehicle, but it was smaller than that of MCAO+vehicle.

Conclusion

Apart from muscle relaxation recovery, sugammadex has a neuroprotective effect by reducing cerebral infarction size in response to ischemic-reperfusion injury.

2024-0321

Figure & Table

Figure 1.

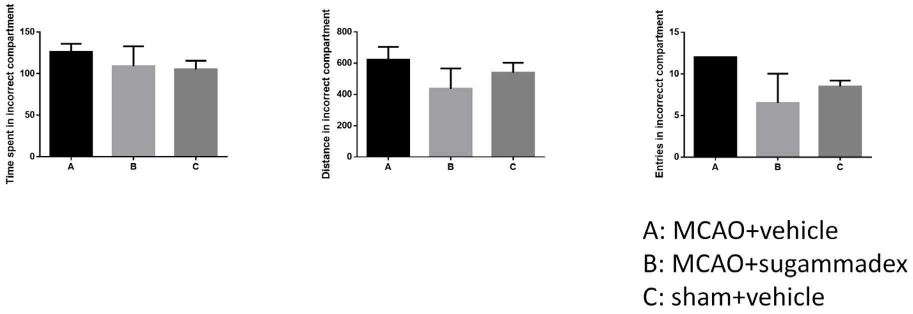
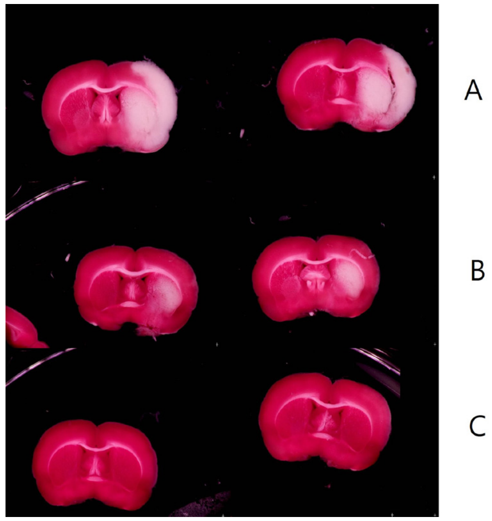


Figure 2.



2024-0302

Association of Erythroferrone and Erythropoietin Levels with Hemoglobin Recovery After Cardiac Valve Surgery: A Prospective Observational Study

Seo hee Ko[1], Young-lan Kwak[1*], Jae-kwang Shim[1], Jong wook Song[1], Sarah Soh[1], Mijin Jue[1], Ji young Kim[1]

1. Department of Anesthesiology and Pain Medicine, Severance Hospital, Republic of Korea

Background

Perioperative anemia significantly impacts recovery in cardiac surgery patients. Erythroferrone (ERFE), a key regulator of iron homeostasis, increases erythropoietin (EPO) secretion and downregulates hepcidin, thereby increasing iron availability for erythropoiesis. During surgical stress, ERFE may play a crucial role in modulating hemoglobin recovery, although clinical data on this is limited. This study investigates the association between postoperative ERFE and EPO levels with hemoglobin recovery in heart valve surgery patients.

Methods

This prospective observational study included 150 adults undergoing elective heart valve surgery. Blood samples were collected at four time points: pre-induction, immediately post-surgery, 24 hours, and 48 hours postoperatively. ERFE, hepcidin, and EPO levels were measured, and hemoglobin levels were monitored until postoperative day 7 or discharge if earlier. The primary endpoint was the relationship between ERFE levels and the degree of hemoglobin recovery from its perioperative lowest value to 1 month postoperatively. Patients were stratified into tertiles based on ERFE and EPO levels, and hemoglobin levels and their recovery were repeatedly measured up to 1 month postoperatively and compared using repeated measures analysis of variance.

Results

The levels of ERFE were highest immediately after surgery and then decreased on postoperative days 1 and 2, while EPO levels were higher on postoperative day (POD) 2 compared to POD 1. Patients in the highest ERFE tertile had significantly lower hemoglobin levels compared to those in the lowest tertile at multiple time points. Specifically, on POD 1, hemoglobin levels were 9.3 [8.3-10.7] g/dL in the highest ERFE tertile versus 10.6 [9.2-11.4] g/dL in the lowest ($p = 0.005$). This difference persisted until discharge. Analysis based on EPO tertiles at 48 hours revealed a significant impact on hemoglobin recovery. On POD 2, hemoglobin levels were significantly lower in the highest EPO tertile (8.1 [7.5-9.1] g/dL) compared to the lowest (10.3 [9.4-11.0] g/dL, $p < 0.001$). The degree of hemoglobin increase (ΔHb) measured at multiple time points (discharge, 2 weeks, 1 month) from POD 2 was significantly greater in highest EPO tertile. Even after adjusting for erythrocyte transfusion and drainage volume up to POD 2, the interaction between EPO tertile and the degree of hemoglobin recovery over time remained significant.

Conclusion

In this observational study, postoperative ERFE levels were associated with hemoglobin levels. ERFE reflects erythropoietic responses to bleeding, inflammation, and surgical stress by suppressing hepcidin and subsequently increasing EPO levels. These sequential changes might contribute to the degree of recovery of postoperative hemoglobin levels in valvular heart surgery patients.

2024-0302

Figure & Table

Table 1. Comparison of Hemoglobin, Erythropoietin, and Hepcidin Levels Between Tertiles Based on Immediate Postoperative ERFE Levels

	Lowest ERFE tertile	Highest ERFE tertile	p-value
Hemoglobin			
Preoperative	13.4 [12.7-14.4]	13.2 [12.2-14.2]	0.261
Lowest during surgery	8.0 [7.5-9.0]	7.6 [7.2-8.5]	0.137
End of surgery	11.2 [10.6-12.7]	11.2 [10.1-12.0]	0.225
Lowest at POD 1	10.6 [9.2-11.4]	9.3 [8.3-10.7]	0.005
Lowest at POD 2	9.5 [8.4-10.8]	8.7 [7.9-9.5]	0.010
Discharge	9.3 [8.6-10.5]	8.8 [8.3-9.5]	0.006
2 weeks postoperative	12.0 [10.9-12.8]	11.6 [10.5-12.4]	0.174
1 month postoperative	13.0 [12.3-13.9]	12.4 [11.7-13.3]	0.023
Erythropoietin			
Preoperative	9.1 [6.1-12.7]	11.9 [8.8-18.4]	0.008
24h-postoperative	34.0 [17.4-58.9]	80.0 [32.2-165.7]	0.001
48h-postoperative	58.7 [34.6-111.1]	115.8 [49.1-273.1]	0.002
Hepcidin			
Preoperative	5.4 [4.6-6.0]	4.7 [3.4-5.3]	0.002
24h-postoperative	6.3 [5.8-6.5]	6.1 [5.5-6.5]	0.136
48h-postoperative	6.1 [5.6-6.5]	5.8 [5.2-6.2]	0.019

Table 2. Comparison of Hemoglobin Levels, Hemoglobin Changes, Erythrocyte Transfusion, and Bleeding Measures Between Tertiles Based on 48-hour Postoperative EPO Levels

	Lowest EPO tertile	Highest EPO tertile	p-value
Hemoglobin			
Preoperative	13.8 [12.8-14.6]	13.1 [11.9-13.6]	0.007
Lowest during surgery	8.2 [7.5-8.8]	7.4 [7.0-8.3]	0.005
End of surgery	11.9 [10.6-12.8]	10.7 [10.1-11.6]	0.001
Lowest at POD 1	10.9 [10.0-11.9]	9.1 [8.0-10.4]	<0.001
Lowest at POD 2	10.3 [9.4-11.0]	8.1 [7.5-9.1]	<0.001
Discharge	9.7 [8.9-10.7]	8.8 [8.2-9.3]	<0.001
2 weeks postoperative	12.1 [11.2-13.0]	11.6 [10.1-12.4]	0.014
1 month postoperative	13.1 [12.4-13.9]	12.1 [10.9-13.4]	0.009
ΔHemoglobin (ΔHb) from POD 2			
to discharge	-0.3 [-0.7-0.2]	0.5 [-0.5-1.2]	0.002
to 2 weeks postoperative	1.9 [1.0-2.7]	2.5 [2.0-3.7]	0.002
to 1 month postoperative	2.9 [2.0-3.8]	3.6 [2.7-5.0]	0.018
Erythrocyte transfusion			
During surgery	0 [0-0]	0 [0-0]	0.521
During POD 1	0 [0-0]	0 [0-245]	<0.001
During POD 2	0 [0-0]	0 [0-290]	<0.001
During POD 3~7	0 [0-0]	0 [0-283]	0.005
During POD 1~7	0 [0-0]	292 [0-614]	<0.001
Bleeding measures			
Salvage volume during surgery	680 [475-720]	490 [470-700]	0.066
Drainage volume at POD 1	325 [247-417]	535 [297-801]	<0.001
Drainage volume at POD 2	163 [113-218]	170 [118-302]	0.260
Drainage volume up to POD 2	471 [401-636]	684 [462-1097]	<0.001

2024-0042

Dopamine-induced vasoconstriction is attenuated by endothelial nitric oxide in isolated rat aorta

Kyeong-eon Park[1], Ju-Tae Sohn[1*], Soo hee Lee[1], Yeran Hwang[1], Seong-ho Ok[1]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea

Background

Dopamine is used for treatment of hypotension, renal failure, and heart failure. Endothelial cells produce dopamine in oxygen-related manner, which contributes to intrinsic vasodilation in hypoxic condition. Endothelial nitric oxide (NO) inhibits vasoconstriction induced by agonists such as epinephrine or norepinephrine. In contrast, peroxynitrite reduces vasoconstriction induced by dopamine. Taken together, the role of endothelium on the dopamine-induced vasoconstriction may be controversial. Moreover, the role of endothelium on the vasoconstriction caused by dopamine remains unknown. Thus, the goal of this study was to examine the role of endothelium on the vasoconstriction caused by dopamine in isolated rat aorta, and underlying mechanism.

Methods

Dopamine (10-9 to 10-4 M) concentration-response curves were generated in the endothelium-intact and -denuded rat aorta. The effects of nitric oxide synthase inhibitor Nw-nitro-L-arginine methyl ester (L-NAME, 10-4 M), non-specific guanylate cyclase (GC) inhibitor methylene blue (10-6 M), NO-sensitive GC inhibitor 1H-[1,2,4]oxadiazolo[4,3-a]quinoxalin-1-one (ODQ, 10-5 M), and calmodulin-regulated enzyme inhibitor calmidazolium (3 X 10-5 M) on the contraction induced by dopamine in endothelium-intact aorta were examined. The effect of dopamine on the endothelial nitric oxide synthase (eNOS Ser1177) phosphorylation in human umbilical vein endothelial cells (HUVECs) was examined. The effect of dopamine (3 X 10-7 and 3 X 10-6 M) on the intracellular calcium level in HUVECs was examined. In addition, the effect of dopamine on the cyclic guanosine monophosphate (cGMP) formation in endothelium-intact rat aorta was examined.

Results

Dopamine-induced contraction was lower in endothelium-intact aorta than endothelium-denuded aorta. L-NAME, methylene blue, ODQ, and calmidazolium increased dopamine-induced contraction in endothelium-intact rat aorta. Dopamine increased intracellular calcium level in HUVECs. Dopamine produced eNOS (Ser1177) phosphorylation in HUVECs. Dopamine increased cGMP formation in endothelium-intact rat aorta.

Conclusion

Taken together, these results suggest that the vasoconstriction induced by dopamine is attenuated by endothelium-dependent vasodilation produced through the pathway involving calmodulin-NO-GC-cGMP. In addition, dopamine-induced vasoconstriction may be augmented in patients with compromised endothelium such as hypertension.

2024-0058

Assessing Surgical Fitness: Utilizing Large Language Models for Preoperative Clinical Support

Ke Yuhe[1*]

1. Department of Anaesthesia, SGH, Singapore

Background

Large Language Models (LLMs) offer potential for medical applications, but often lack the specialized knowledge needed for clinical tasks. Retrieval Augmented Generation (RAG) is a promising approach, allowing for the customization of LLMs with domain-specific knowledge, well-suited for healthcare. We focused on assessing the accuracy of RAG models in determining a patient's fitness for surgery and providing five additional crucial preoperative instructions.

Methods

We developed LLM-RAG models using 35 local and 23 international preoperative guidelines and tested them against human-generated responses, with a total of 3220 responses evaluated.

Clinical documents were processed, stored, and retrieved using Llamaindex. Multiple LLMs (GPT3.5, GPT4, GPT4-o, Llama2-7B, Llama2-13B, LLama2-70b, LLama3-8b, LLama3-70b, Gemini-1.5-Pro and Claude-3-Opus) were evaluated with 1) native model, 2) with local preoperative guidelines and 3) with international preoperative guidelines.

Fourteen clinical scenarios were assessed, focusing on six aspects of preoperative instructions. Established guidelines and expert physician judgment determined correct responses. Human-generated answers from senior and junior doctors served as a comparison. Comparative analysis was conducted using Fisher's exact test.

Results

The LLM-RAG model exhibited remarkable efficiency, generating answers within 20 seconds (with guideline retrieval in less than 5 seconds), significantly faster than the approximately 10 minutes typically required by clinicians. Notably, the LLM-RAG model utilizing GPT4 with international guidelines (GPT4_international) achieved the highest accuracy in assessing fitness for surgery, outperforming human-generated responses with an accuracy rate of 96.4% compared to 86.6% (p=0.016). Additionally, the LLM-RAG model demonstrated an absence of hallucinations, producing correct preoperative instructions that were comparable to those generated by clinicians.

Conclusion

This study demonstrates the successful implementation of LLM-RAG models for preoperative healthcare tasks. Our findings highlight the advantages of grounded knowledge, upgradability, and scalability as crucial factors for the effective deployment of LLMs enhanced with RAG within healthcare settings.

2024-0071

Effect of Patient Position on the Success Rate of Placing Triple-Cuffed Double Lumen Endotracheal Tubes: A Two-Center Interventional Observational Study

Dong kyu Lee[1], Tae-yop Kim[2], Jongwon Yun[1], Seongkyun Cho[1], Hansu Bae[1*]
1. Department of Anesthesiology and Pain Medicine, Dongguk University Il-san Hospital, Republic of Korea
2. Department of Anesthesiology, Konkuk University Medical Center, Republic of Korea

Background

Acute hypoxemia could develop during one-lung ventilation due to DLT malposition. Bronchoscopy is useful for evaluating proper DLT location; however, it can be challenging to obtain the right view in cases of extensive secretion or bleeding. The most common reason for DLT dislocation during anesthesia is moving to a lateral posture for surgery. An innovative endotracheal tube for lung separation, the triple-cuffed DLT (Ventibronc, Flexicare, Inc., CA, USA; ANKOR, Insung Medical Co., Ltd.; tcDLT), has a built-in carinal cuff that improves one-sided endobronchial intubation of the bronchial side tube. The main objective of this research is to assess the effectiveness of tcDLT installation in patients who need lung separation for thoracic surgery both before and after a position shift while using a carinal cuff. We compared the success rate of tcDLT placement using a carinal cuff in supine and lateral decubitus positions.

Methods

One hundred sixty-seven patients scheduled for thoracic surgery requiring one-lung ventilation were enrolled. The success rate of left-sided tcDLT was compared in the supine and lateral decubitus positions. When the proximal end of the bronchial cuff was placed within 5 mm below the carina, it was considered a successful tcDLT placement. With the exception of an obstructed second bronchus caused by the deeply placed bronchial tube tip, the extended successful tcDLT placement is more than 5 mm from the opening of the left main carina. This is because deeply placed left-sided DLT is clinically acceptable.

Results

Out of the 153 patients who finished the study, the lateral position had a substantially higher successful tcDLT placement rate (70.6%, 95%CI: 63.4% – 77.8%) than the supine position (50.3%, 95%CI: 42.4% – 58.3%). After changing from a supine to a lateral position, the successful placement rate increased significantly (McNemar's test, χ2(1) = 14.286, P value <0.001), and the rate difference was 20.3% (95%CI: 10.6% - 29.9%). With slightly deeper placements included, the extended successful placement rate (88.9%, 95%CI: 83.9% - 93.9% in supine; 86.3%, 95%CI: 80.8% - 91.7% in lateral positions) did not significantly differ between positions (McNemar's test, χ2(1) = 0.321, P value = 0.571, rate difference was 2.6%, 95%CI: -4.2% - 9.4%). We evaluated the factors affecting the successful tcDLT placement using the GEE model. For the successful placement in the supine position, none of the included explanation variables were statistically significant. In the case of successful placement in lateral positions, successful placement in the supine position significantly affected the successful placement in lateral position (P value = 0.079), tcDLT size of 37Fr (P value = 0.037), and smaller left main bronchus lateral diameter (P value = 0.037).

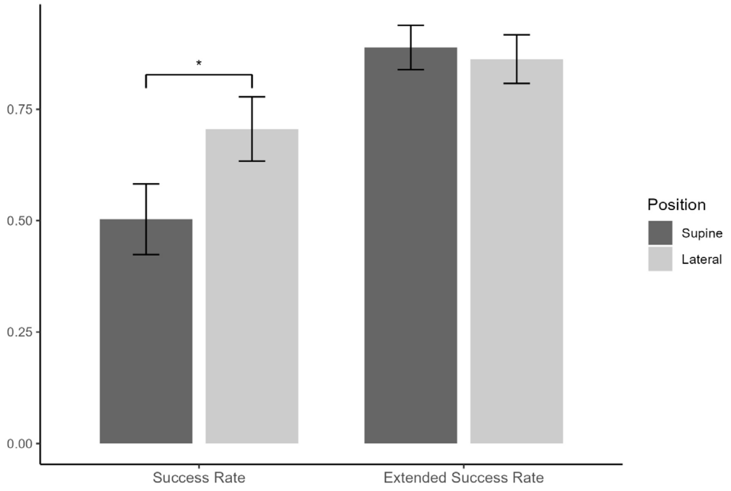
Conclusion

The left-sided tcDLT placement at the appropriate depth in the supine position and the increased success rate in the lateral position with the carinal cuff were guaranteed by a blind placement with the carinal cuff inflating. In situations where a bronchoscopy is not feasible or is difficult to execute, the tcDLT will be useful in blindly placing the DLT and establishing lung separation.

2024-0071

Figure & Table

Figure 1.



2024-0117

Comparing the Perioperative Blood Loss in Hypovolemic Phlebotomy versus Non-Hypovolemic Phlebotomy with Low Central Venous Pressure in Patients Undergoing Open Liver Resection, A Randomized Controlled Study

Nutthanun Tungsrirut[1], **Warangkana Lapisatepun**[1*]

1. Department of Anesthesiology, Chiang Mai University, Thailand

Background

Hypovolemic phlebotomy is employed as an anesthetic technique to minimize perioperative blood loss and reduce the need for allogenic blood transfusions during liver resections. Given the absence of randomized controlled trials, this study aims to compare intraoperative blood loss and blood transfusion requirements between hypovolemic phlebotomy and non-phlebotomy techniques with maintained low central venous pressure (CVP) during liver resection.

Methods

This prospective, randomized controlled trial involved patients undergoing elective open liver resection, randomly assigned to either the hypovolemic phlebotomy group (HP), where 7–10 mL/kg of whole blood was withdrawn without intravenous fluid replacement, or the non-phlebotomy group (non-HP). The primary endpoint was intraoperative blood loss, with secondary endpoints including allogenic blood transfusion needs and postoperative outcomes.

Results

One hundred patients were randomized into two groups, with 50 in each. Baseline characteristics showed no significant differences between the groups. The hypovolemic phlebotomy group exhibited a significant trend towards reduced median total intraoperative blood loss (375 mL vs. 500 mL, p=0.041) and during the transection phase compared to the non-phlebotomy group (300 mL vs. 500 mL, p=0.025). Fewer patients in the hypovolemic group experienced blood loss exceeding 500 mL during the transection phase (16% vs. 72%, p=0.008). Additionally, the median time to achieve low central venous pressure was significantly shorter in the HP group (50 minutes vs. 107.5 minutes, p=0.010). Bleeding scores assessed by surgeons indicated a statistically significant lower score in the hypovolemic phlebotomy group (median score: 2 [IQR 1-3] vs. 2 [IQR 2-4], p=0.010). More patients in the hypovolemic phlebotomy group received bleeding scores of 0 to 2, indicating no to minor bleeding and minimal blood aspiration required (74% vs. 52%, p=0.038). However, no significant differences were observed in perioperative allogenic blood transfusion rates (22% vs. 26%, p=0.815), length of hospital stay (8.5 days [range 8-11] vs. 9 days [range 7-11], p=0.423), or major complications as per the Clavien-Dindo classification (p=0.594).

Conclusion

Hypovolemic phlebotomy significantly reduces intraoperative blood loss and improves surgical bleeding control during liver transection by achieving low central venous pressure more rapidly and effectively. These findings suggest that hypovolemic phlebotomy demonstrates potential benefits in minimizing blood loss and may be considered a valuable anesthetic technique in elective liver resections to optimize patient outcomes.

2024-0311

Hypoxemia Prediction in Pediatric Patients under General Anesthesia Using Machine Learning: A Retrospective Observational Study

Sujin Baek[1,2], **Jung-bin Park**[3], **Ji hye Heo**[4], **Donghyeon Baek**[5], **Kyungsang Kim**[6], **Chahyun Oh**[1,2], **Hyung-chul Lee**[3], **Dongheon Lee**[4,7], **Boohwi Hong**[1,2,4*]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Republic of Korea
3. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
4. Big data center, Department of Medical Information, Chungnam National University Hospital, Republic of Korea
5. College of Medicine, Chungnam National University, Republic of Korea
6. Department of Radiology, Massachusetts General Hospital and Harvard Medical School, USA
7. Department of Biomedical Engineering, Chungnam National University College of Medicine, Republic of Korea

Background

Pediatric patients under general anesthesia are particularly vulnerable to hypoxemia, which can lead to rapid oxygen desaturation. This vulnerability necessitates heightened vigilance from anesthesiologists, making pediatric anesthesia management especially challenging. Continuous intraoperative monitoring of oxygenation is critical. However, traditional methods relying solely on SpO_2 readings may be insufficient and prone to inaccuracies.

Methods

This retrospective multicenter study aimed to develop and externally validate machine learning and deep learning models to predict intraoperative hypoxemia in pediatric patients under general anesthesia. Patient data were collected from 800 pediatric cases at Seoul National University Hospital and 134 at Chungnam National University Hospital. The datasets included vital signs and ventilator parameters sampled every 2 seconds. Four models (XGBoost, Long Short-Term Memory, InceptionTime, and Transformer) were trained and evaluated using the area under the receiver operating characteristic curve (AUROC), area under the precision-recall curve (AUPRC), and F1 score metrics.

Results

Internal validation showed that the XGBoost model achieved the highest performance, with AUROC, AUPRC, and F1 score of 0.85, 0.16, and 0.22, respectively. Meanwhile, external validation showed that the Transformer model performed best, with AUROC, AUPRC, and F1 score of 0.83, 0.07, and 0.14, respectively (Figure 1 and Table 1). Adjustments for age normalization and stratification into age subgroups resulted in minimal performance changes. Reducing the observation window from 1 minute to 10 seconds maintained a substantially high AUROC but decreased the AUPRC.

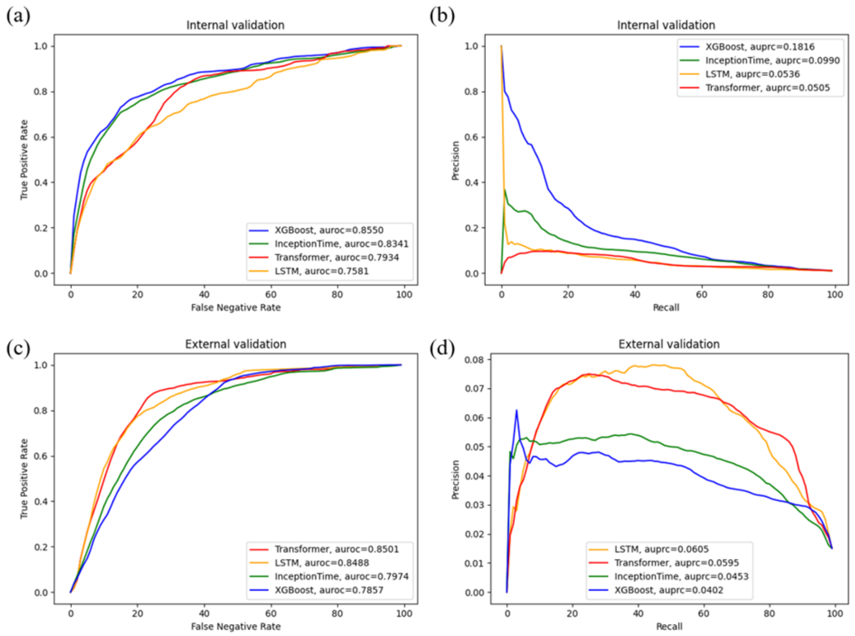
Conclusion

The XGBoost and Transformer models demonstrated robust performance in predicting intraoperative hypoxemia in pediatric patients under general anesthesia across two distinct hospitals. Adjustments to account for age-related variations did not enhance model performance. Future research should focus on developing machine learning models that can accurately distinguish true hypoxemia, leading to clinically significant improvements in patient outcomes.

2024-0311

Figure & Table

Figure 1. Comparison of AUROC and AUPRC for Models



This figure presents the performance curves of four models (XGBoost, InceptionTime, Transformer, and LSTM) in predicting intraoperative hypoxemia in pediatric patients under general anesthesia. Panels (a) and (b) show the AUROC and AUPRC for internal validation, respectively, whereas panels (c) and (d) show the AUROC and AUPRC for external validation, respectively.

Table 1. Comparative performance of machine learning models for hypoxemia prediction in pediatric patients

	Internal validation (SNUH)				External validation (CNUH)			
	AUROC	AUPRC	F1 score	p-Value	AUROC	AUPRC	F1 score	p-Value
XGBoost[15]	**0.8550**	**0.1816**	**0.2382**		0.7857	0.0402	0.0824	<0.001
LSTM[9]	0.7581	0.0536	0.1256	<0.001	0.8488	**0.0605**	**0.1347**	0.3802
Transformer[17]	0.7934	0.0505	0.1283	<0.001	**0.8501**	0.0595	0.1227	
InceptionTime[16]	0.8341	0.0990	0.1653	<0.001	0.7974	0.0453	0.0954	<0.001

The performance of the four machine learning models (XGBoost, LSTM, Transformer, and InceptionTime) in predicting hypoxemia in pediatric patients under general anesthesia was evaluated using AUROC, AUPRC, and F1 score metrics across both internal (SNUH) and external (CNUH) validation datasets. The highest values for each metric in both internal and external validation datasets are in bold. Abbreviations: SNUH, Seoul National University Hospital; CNUH, Chungnam National University Hospital; LSTM, Long Short-Term Memory; AUROC, area under the receiver operating characteristic curve; AUPRC, area under the precision-recall curve.

2024-0338

Impact of Post-Transplant Diabetes Mellitus on Graft Failure and Mortality in Liver Transplant Recipients

Yeon ju Kim[1], In-gu Jun[1], Hye-mee Kwon[1], Seong-mi Yang[1], Sung-hoon Kim[1], Jun-Gol Song[1*], Gyu-sam Hwang[1]

1. Anesthesiology and pain medicine, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea

Background

Post-transplant diabetes mellitus (PTDM) occurring after liver transplantation (LT) has been recognized as a frequent consequence. Nevertheless, the incidence of this complication and its impact on graft failure and mortality remain uncertain due to the limited cohort sizes and heterogeneous definitions. Therefore, we aim to investigate the incidence of PTDM following LT and its impact on graft failure and mortality.

Methods

All patients who underwent liver transplantation between January 2008 and December 2019 were retrospectively reviewed, and compared between patients diagnosed with PTDM after surgery and patients who were not. PTDM was defined to exclude transient hyperglycemia within 10 weeks of surgery and include hemoglobin A1c > 6.5% as a diagnostic criterion. The primary outcome was overall mortality. Secondary outcomes included 1-year mortality, 1-year and overall chronic kidney disease (CKD) and graft failure. We performed propensity score matching (PSM) to compare outcomes between two groups.

Results

Of 3,331 patients, 182 (5.5%) were diagnosed with PTDM. The overall incidence of CKD, graft failure, and mortality was 51.1%, 11.8%, and 10.9%, respectively. Overall mortality did not differ significantly between the two groups after PS matching (6.6% vs. 9.9%, P = 0.341). Furthermore, 1-year mortality (0.5% vs. 2.7%, P = 0.217), the incidence of 1-year and overall CKD (51.9% vs. 48.3%, P = 0.559; 51.9% vs. 50.3%, P = 0.835), and 1-year and overall graft failure (2.2% vs. 3.8%, P = 0.540; 8.8% vs. 12.1%, P = 0.391) also showed no significant differences between the groups after PSM.

Conclusion

The incidence of PTDM was not significantly associated with CKD, graft failure, and mortality rates in LT patients.

2024-0085

Investigation of Interspace between the Popliteal Artery and the Posterior Capsule of the Knee block: A Cadaveric Study

Kusang Lee[1], Jiyoung Kim[2], Sung eun Sim[1], Hue Jung Park[1*]

1. Department of Anesthesiology and Pain Medicine, The Catholic University of Korea, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, Myoungji Hospital, Republic of Korea

Background

The interspace between the popliteal artery and the posterior capsule of the knee (iPACK) block has been widely used in perioperative settings to control posterior knee pain and can additionally be used for chronic knee pain. In this cadaveric study, we aimed to investigate the needle tip position and its proximity to the articular branch of the tibial nerve (ABTN) during an iPACK-targeted radiofrequency procedure.

Methods

An ultrasound-guided iPACK block was performed on 20 knees of 10 cadavers. We injected 0.1 mL each of blue and green gelatinous dye near the tibial artery (point A) and posterior knee capsule (point B), respectively, and evaluated the spread of both around the ABTN. For a hypothetical conventional radiofrequency ablation (RFA) lesion (diameter, 2.95 mm) and cooled RFA lesion (diameter, 4.9 mm), we counted the number of specimens in which the ABTNs would be captured.

Results

The percentage of specimens in which the ABTN would be captured by a cooled RFA lesion was 64.71% at point A and 43.75% at point B ($p = 0.334$). Meanwhile, the percentage of specimens in which the ABTN would be captured by a conventional RFA lesion was 58.82% from point A and 25% from point B ($p = 0.065$).

Conclusion

When performing an RFA-based iPACK block, the needle tip may be positioned either lateral to the tibial artery or in the space between the posterior knee capsule and the tibial artery. However, more studies with larger samples are needed to verify these results before the clinical use of this procedure can be recommended.

2024-0041

Lipid emulsion attenuates theophylline-induced cardiotoxicity in rat cardiomyoblasts

Seong-ho Ok[1], Ju-Tae Sohn[1*]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea

Background

Lipid emulsion was reported to alleviate cardiovascular depression induced by toxic dose of non-local anesthetic with high lipid solubility. The cardiac toxicity of theophylline, which is used treat chronic obstructive pulmonary disease, causes cardiac arrythmia and elevation of creatine kinase MB. Although theophylline is water soluble (Log P: -0.02), the distributive shock caused by toxic dose of phosphodiesterase inhibitor theophylline, which is unresponsive to supportive treatment, was reported to be alleviated by lipid emulsion treatment. However, the effect of lipid emulsion on the cardiac toxicity induced by toxic dose of theophylline remains unknown. Thus, the goal of this study examined the effect of lipid emulsion on the cardiac toxicity caused by toxic dose of theophylline in H9c2 rat cardiomyoblasts.

Methods

The effects of lipid emulsion (Intralipid and Lipofundin MCT/LCT) and theophylline, alone or combined, on the cell viability of H9c2 rat cardiomyoblasts were examined using Cell Counting Kit 8. The effect of lipid emulsion (0.5%) and theophylline (3 × 10-3 M), alone or combined, on the cell migration was examined using wound healing assay. The effects of lipid emulsion (0.5%) and toxic dose of theophylline (3 × 10-3 M), alone or combined, on the cleaved caspase-3, -8, and -9 expression, and Bax/Bcl-XL expression, and nuclear factor-κB (NF-κB) phosphorylation were examined. The effect of lipid emulsion on the theophylline (3 × 10-3 M)-induced TUNEL-positive cells was examined.

Results

Theophylline (10-3 to 10-2 M) decreased cell viability. Lipofundin MCT/LCT (0.2 to 1%) inhibited theophylline (3 × 10-3 M)-induced decreased cell viability, whereas Intralipid had no effect on the theophylline (3 × 10-3 M)-induced decreased cell viability. Lipofundin MCT/LCT (0.5%) inhibited the theophylline-induced decreased cell migration. Lipofundin MCT/LCT (0.5%) inhibited the increased expression of cleaved caspase-3, and -9 expression induced by theophylline (3 × 10-3 M). In addition, Lipofundin MCT/LCT (0.5%) inhibited theophylline (3 × 10-3 M)-induced NF-κB phosphorylation. Lipofundin MCT/LCT (0.5%) inhibited the increase of Bax/Bcl-XL expression induced by theophylline (3 × 10-3 M). However, theophylline (3 × 10-3 M) had no effect on cleaved caspase-8 expression. Moreover, Lipofundin MCT/LCT (0.5%) inhibited the increased phosphorylation of NF-κB by theophylline (3 × 10-3 M).

Conclusion

Taken together, these results suggest that lipid emulsion, which is composed of 50% medium-chain and 50% long-chain fatty acid, inhibited theophylline-induced cardiotoxicity, which is mediated by blockade of intrinsic apoptotic pathway associated with NF-κB phosphorylation.

2024-0045

Effect of hand grip strength on postoperative outcomes in elderly female patients scheduled for total knee arthroplasty under general anesthesia
– prospective observational study –

Sangho Lee[1*], Doh yoon Kim[1], Hee yong Kang[1], Jeong-hyun Choi[1], Sung wook Park[1], Mi kyeong Kim[1]

1. Department of Anesthesiology and Pain Medicine, Kyung Hee University Hospital, Republic of Korea

Background

Preoperative hand grip strength (HGS) can be easily measured at bed side. The research regarding HGS has been actively performed recently and is being used to determine the frailty and predict postoperative complications.
This study aims to evaluate the effect of HGS measured preoperatively on postoperative outcomes in patients scheduled for TKA.

Methods

Seventy-eight elderly female patients, aged ≥65 years, who were diagnosed with knee osteoarthritis and scheduled for TKA under general anesthesia were enrolled in this study. We measured HGS after the patient entered the operating room. Propofol and rocuronium were administered for induction, and sevoflurane and remifentanil were used for maintenance of general anesthesia. Medical records were reviewed until postoperative days 30 to evaluate postoperative complications.
The primary outcome was the incidence of delirium according to the HGS. Secondary outcomes included surgical site infection, postoperative pulmonary complications, postoperative nausea and vomiting, acute kidney injury, postoperative urinary retention, and hospital length of stay. In receiver operating characteristic curve analysis, the cutoff value of HGS for the occurrence of delirium was obtained. Additionally, logistic regression was performed to evaluate the factors affecting the occurrence of postoperative delirium.

Results

The median HGS value for all participants was 17.6kg [13.5; 20.1]. Based on HGS of 17.6, the patients were divided into strong group (HGS≥17.6) and weak group (HGS<17.6). POD was more prevalent in the weak group (23.1% vs 0.0%, p=0.005). As secondary outcomes, there were no significant differences in SSI, PPC, PONV, AKI, POUR, and HLOS between the two groups. However, postoperative eGFR was significantly lower in the weak group (101.0 [84.5; 120.5] vs 122.0 [104.0; 136.0]; p=0.006). In the ROC curve analysis of POD occurrence according to HGS, the cutoff value was 14.9 (area under curve 0.79, p<0.001). In univariate logistic regression analysis, age, blood urea nitrogen, and HGS<14.9 were associated with the occurrence of POD. In multivariate logistic regression analysis, HGS<14.9 was the only factors that affects POD.

Conclusion

Preoperative HGS was significantly associated with POD and had no effect on other postoperative outcomes. Further large-scale prospective studies regarding HGS should be conducted targeting various patient groups.

2024-0045

Figure & Table

Figure 1. ROC_TKA HGS delirium

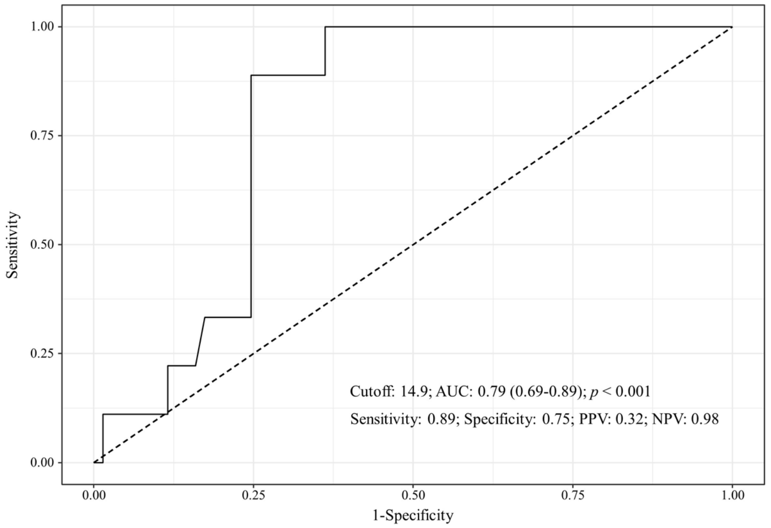


Table 1. Univariate and multivariate logistic regression analyses of factors associated with postoperative delirium.

	Univariable		Multivariable	
	OR (95% CI)	*p* value	OR (95% CI)	*p* value
Age	1.24 (1.08, 1.47)	0.005*	1.02 (0.83, 1.26)	0.828
BMI	0.88 (0.67, 1.11)	0.313		
ASA-PS II	1.64 (0.36, 11.60)	0.558		
Diabetes	1.00 (0.20, 4.16)	1.000	0.68 (0.06, 5.64)	0.720
Hypertension	5.80 (0.99, 110.64)	0.106	2.41 (0.23, 59.85)	0.497
WBC	1.00 (1.00, 1.00)	0.851		
Hematocrit	0.85 (0.67, 1.06)	0.145	1.08 (0.78, 1.51)	0.633
AST	0.95 (0.83, 1.03)	0.426		
ALT	0.89 (0.76, 0.99)	0.079	0.90 (0.74, 1.04)	0.246
BUN	1.15 (1.02, 1.31)	0.020*	1.13 (0.94, 1.44)	0.226
eGFR	0.99 (0.95, 1.02)	0.354		
ESR	1.00 (0.95, 1.04)	0.991		
HGS < 14.9kg	10.71 (2.33, 76.67)	0.005*	16.27 (1.46, 465.80)	0.046*
Intraoperative hypotension	1.63 (0.40, 8.23)	0.512	2.57 (0.41, 20.04)	0.326
Anesthesia time	1.02 (0.97, 1.06)	0.491	1.05 (0.97, 1.12)	0.196

* Statistical significance. ALT, alanine aminotransferase; ASA-PS, American Society of Anesthesiologists physical status; AST, aspartate aminotransferase; BMI, body mass index; BUN, blood urea nitrogen; CI, confidence interval; eGFR, estimated glomerular filtration rate; ESR, Erythrocyte Sedimentation Rate; HGS, hand grip strength; OR, odds ratio; WBC, white blood cell.

2024-0140

Reducing anesthesia-induced burst suppression during surgery prevents long-lasting changes in anxiety and sociability in late postnatal mice

Woosuk Chung[1*], Tao Zhang[2], Jiho Park[1], Boohwi Hong[1], Seongeun Kim[3]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University, Republic of Korea
2. Department of Medical Science, Chungnam National University School of Medicine, Republic of Korea
3. Department of Applied Artificial Intelligence, Seoul National University of Science and Technology (SeoulTech), Republic of Korea

Background

Preclinical studies have shown that exposure to anesthetics during neurodevelopment induces dose-dependent neurotoxicity. However, most studies include significant limitations, such as the lack of a clear criteria for anesthetic depth, lack of physiological monitoring, and the absence of surgical trauma, which limits the translation of these results. We attempted to overcome such limitations while hypothesizing that the combination of surgery and unnecessary depth of anesthesia, characterized by burst suppression (BS), may significantly affect neurodevelopment in postnatal day 17 (PND17) mice.

Methods

After evaluating sevoflurane concentrations associated with BS (Figure 1. A, B), PND17 mice were assigned to four groups: Control group; BS(0hr) group, surgery with 1.4% sevoflurane; BS(0.5hr) group, surgery with 0.5 hour of 2.5% sevoflurane; and BS(1.0hr) group, surgery with 1 hour of 2.5% sevoflurane (Figure 1. C). The duration of total anesthesia exposure was 2 hours, and tail blood pressure was non-invasively measured in a subset of mice (Figure 1. D, E). Long-term behavioral changes in activity, anxiety, sociability, learning and memory were evaluated at 8 weeks of age.

Results

Sevoflurane induced robust BS at concentrations often used in preclinical studies (> 2.0 %, Figure 1 B). Surgery and anesthesia did not affect weight gain, suggesting normal growth (Figure 2. A). Although there were no significant changes in general activity in the open field test (Figure 2. C), we found long-lasting but subtle changes in anxiety and social behaviors in the BS(1.0hr) group (Figure 2. D, E). An increase in anxiety was observed in the light/dark box test, as the number of transitions between the chambers decreased significantly (Figure 2. D, p = 0.018). A decrease in sociability was also observed in the 3-chamber test, as only mice in the BS(1.0hr) group did not prefer the chamber containing a stranger mouse (Figure 2. E, p = 0.065). There was no change in learning and memory evaluated in the fear chamber test in all groups (Figure 2. F).

Conclusion

Our results suggest that preclinical studies have been using unnecessary high doses of sevoflurane that induce robust BS. Most importantly, we discovered long-lasting but subtle changes in anxiety and sociability only when surgery was accompanied with prolonged duration of deep anesthesia, implying that anesthesia-induced neurotoxicity may be prevented by simply avoiding unnecessary depth of anesthesia.

2024-0140

Figure & Table

Figure 1.

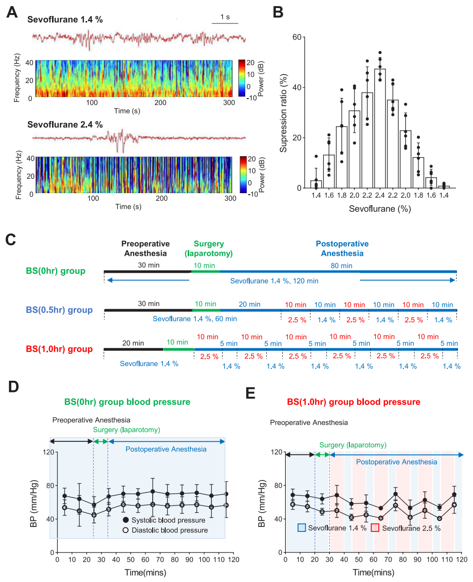


Figure 1. (A, B) Sevoflurane concentrations often used in preclinical studies induce robust burst suppression in postnatal day 17 mice. (C-E) Blood was relatively well-maintained during anesthesia and surgery.

Figure 2.

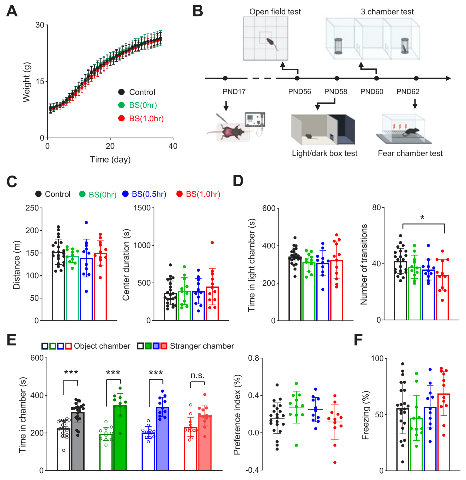


Figure 2. Reducing exposure to deep anesthesia prevents long-lasting changes in anxiety and sociability in mice that received laparotomy at PND17. (A) Surgery and anesthesia did not affect weight gain (n = 6 for each group). **(B)** Timeline of behavioral experiments (Control, n = 22; BS[0hr], n = 11; BS[0.5hr], n = 11; BS[1.0hr], n = 12). **(C)** Open field test. **(D)** Light-dark box test. Although there was no significant difference in time spent in the light chamber, the number of transitions between chambers was significantly decreased in the BS(1.0hr) group compared to the Control group (p=0.018, one-way ANOVA with post hoc Tukey test). **(E)** 3-chamber test. Unlike other groups, mice in the BS(1.0hr) group did not prefer the chamber with the stranger mouse, suggesting impaired sociability (p = 0.065, paired t-test). However, there was no significant differences in the preference index between groups. **(F)** Fear chamber test. There was no difference in freezing behavior between groups, suggesting comparable learning and memory. Values are presented as means ± SD.

2024-0101

Evaluation of Effect of Ketofol and Ketodex on Duration of Seizure Activity, Hemodynamic Profile, Recovery Times, and Cortical Activity (Using fNIRS) in Patients Undergoing Electroconvulsive Therapy for Depression

Kavinkumar K r[1], Puneet Khanna[1], Rohit Verma[2], Shailendra Kumar[1*], Lokesh Kashyap[1]

1. Department of Anesthesia, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Department of Psychiatry, All India Institute of Medical Sciences, New Delhi, India

Background

Electroconvulsive therapy (ECT) is a treatment for severe psychiatric disorders requiring general anesthesia. Propofol is popular for rapid recovery but raises seizure threshold. Ketamine prolongs seizures and has rapid antidepressant effects but can cause cardiotoxicity. Ketofol (ketamine and propofol) offers balanced benefits. Dexmedetomidine, sedative and anxiolytic, maintains respiratory function but can cause bradycardia. Combined with ketamine (ketodex), it balances side effects. This study compares ketofol and ketodex in ECT, focusing on seizure duration, recovery times, hemodynamic profile, and cortical activity using fNIRS.

Methods

Thirty patients were randomly assigned to receive either ketamine-dexmedetomidine or ketamine-propofol. Ketofol group received 0.5 mg/kg ketamine and 0.5 mg/kg propofol as a bolus in 30-60 sec, with additional propofol doses of 10 mg as needed. Ketodex group received 1-2 mg/kg ketamine and 1μg/kg dexmedetomidine over 5 min, followed by supplemental ketamine (0.5-1 mg/kg) as needed. Seizure duration (motor and EEG), recovery times (spontaneous breathing, eye opening, obeying commands), hemodynamic parameters, and fNIRS were compared.

Results

Ketodex showed longer Motor (37 sec vs 17 sec, P <.001) and EEG Seizure duration (22 sec vs 44 sec, P <0.001) compared to Ketofol but Ketodex had longer recovery time to spontaneous breathing (165 sec vs 293 sec, P <0.001), Eye opening (317 sec vs 540 sec, P <0.001) and obeying verbal commands (461 vs 787 sec, P <0.001) from the time of Succinylcholine administration. There was no difference in haemodynamic parameters (Heart rate, oxygen saturation, systolic, diastolic and mean blood pressure) between the two groups. There was need for termination of seizures in 2 patients in ketodex group since it did not terminate on its own. During cortical activity comparison at induction vs end of anaesthesia there was significant cortical activation in middle and superior frontal gyri (t=2.11; p=0.04) and cortical inhibition in bilateral medial and superior frontal areas (t=-2.23; p=0.04) at induction in ketofol group but there was no significant activation or inhibition in any channel in ketodex group. There was significant cortical activation in middle and superior frontal gyri (t=2.221; p=0.033), superior frontal and bilateral medial areas (t=2.48; p=0.02) during cortical activity comparison at induction versus end of anaesthesia in ketofol group than ketodex group.

Conclusion

Ketodex produces longer motor and EEG seizure duration compared to Ketofol group. Haemodynamic parameters are comparable between the two groups. Despite the disadvantage of a longer recovery time in Ketodex group, it can be considered as a feasible agent for effective Electroconvulsive therapy.

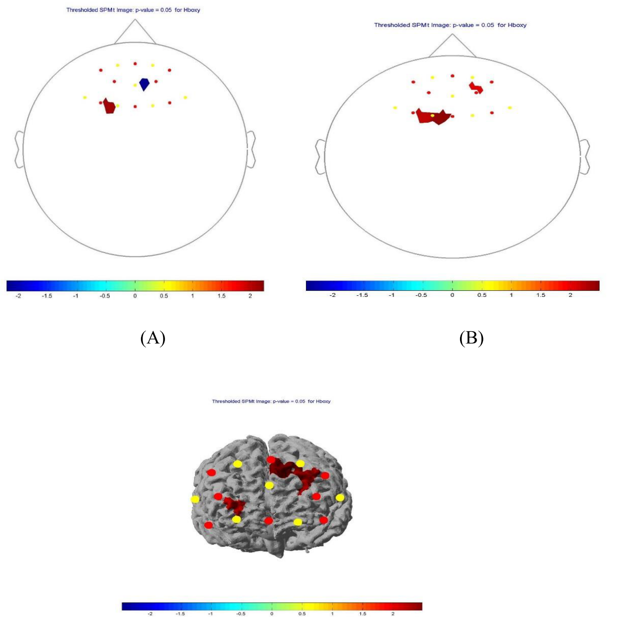
2024-0101

Figure & Table

Table 1. Comparison of the Motor, EEG Seizure duration and Recovery times between Ketofol and Ketodex Groups.

Seizure duration and Recovery times	Group Ketofol (Mean ± SD)	Group Ketodex (Mean ± SD)	t value	p value
Motor Seizure Duration (seconds)	17.60±7.79	37.80±21.42	3.43	<0.01
EEG Seizure Duration (seconds)	22.13±8.16	44.80±21.75	3.77	<0.01
Time to Spontaneous Breathing (seconds)	165.73±26.43	186.33±29.43	2.02	0.05
Time to Eye opening (seconds)	317.66±45.13	531.40±64.86	10.48	<0.01
Time to obeying verbal commands (seconds)	461.73±55.75	752.60±87.79	10.83	<0.01

Figure 1.


Thresholded SPMt Image: p-value = 0.05 for Hboxy
Thresholded SPMt Image: p-value = 0.05 for Hboxy
Thresholded SPMt Image: p-value = 0.05 for Hboxy
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

(A) (B)

(C)

Figure1: (A) Cortical image (2D) showing activation and inhibition during comparison at induction vs end of anaesthesia in ketofol group (Area highlighted- Red-channel 2: Left Middle and superior frontal gyri; Blue-channel 14: Bilateral medial and Right superior frontal areas of Prefrontal cortex).

(B) Cortical activation image (2D) on comparison between induction vs end of anaesthesia in ketofol group than ketodex group (Area highlighted- channel 2: Left Middle and Superior Frontal Gyri; channel 8: Left Superior frontal and Bilateral medial area; channel 16: Right Superior frontal area).

(C) High-definition cortical activation image (2D) on comparison between induction vs end of anaesthesia in ketofol group than ketodex group (Area highlighted- channel 2: Left middle and Superior Frontal Gyri; channel 8: Left superior frontal and Bilateral medial area; channel 16: Right superior frontal area). Red spot – Source, Yellow spot – Detector

2024-0155

Effect of topical ropivacaine on extubation response in patients undergoing supratentorial tumor surgeries: a prospective randomized double-blinded placebo-controlled trial

Niraj Kumar[1*], Amarjyoti Yadav[1], Mihir prakash Pandia[1], Suman Sokhal[1]

1. Neuroanaesthesiology And Critical Care, All India Institute of Medical Sciences, New Delhi, India

Background

Neurosurgical procedures require smooth extubation because coughing and hemodynamic changes can increase intracranial pressure (ICP) resulting in adverse postoperative outcomes. Our study aimed to see the efficacy and safety of preservative-free 0.5% topical ropivacaine for preventing emergence response in patients undergoing supratentorial tumor surgeries.

Methods

Seventy-two elective supratentorial tumor surgery patients were taken for this double-blinded randomization-controlled study. Patients were assigned to the ropivacaine(R) or normal saline(S) group. Incidence and severity of cough were taken during extubation as the primary outcome and hemodynamic parameters (HR, SBP, DBP, and MAP) along with time for emergence, extubation, and recovery were taken as the secondary outcome.

Results

The incidence of cough and severity of cough was decreased with ropivacaine(R) as compared to the saline(S) group and was statistically significant ($p < 0.001$). The mean number of coughs in the ropivacaine group was 1.89±1.56 while it was 3.86±1.44 in the saline group. The cough severity was higher in the saline group of patients. The hemodynamic perturbation was also significantly lower in the ropivacaine group. Moreover, the time for emergence, extubation, and recovery time was significantly ($p < 0.001$) lower in the Ropivacaine group compared to the saline(S) group.

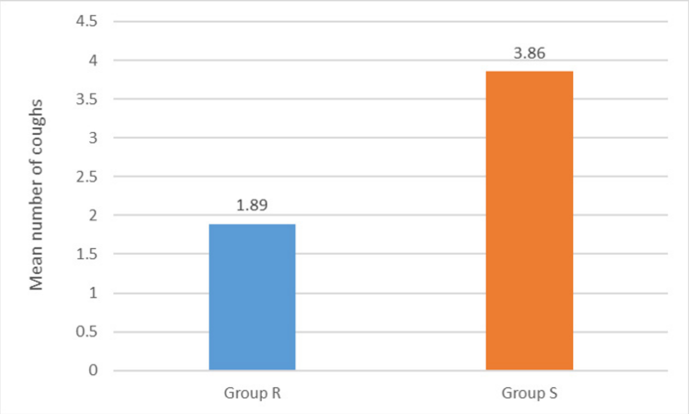
Conclusion

Our study found ropivacaine to be effective in ameliorating the extubation response and thus paving the way for a smooth emergence from neurosurgical surgeries.

2024-0155

Figure & Table

Figure 1. Mean number of cough



2024-0091

Comparison of operation time, vital signs, bleeding tendency, and recovery time according to anesthesia method in hip surgery patients

Je bog Yoo[1], Woo young In[2], Chang ok Pyo[3], Jeung hee Kwon[4], Min Ji Lee[5], Kyoung ok Kim[6], Mi Yu[7*]

1. College of Nursing, Gyeongsang National University, Republic of Korea
2. Post Anesthesia Care Unit, Yonsei University Heath system, Severance Hospital, Republic of Korea
3. Post Anesthesia Care Unit, Gangneung Asan Hospital, Republic of Korea
4. Anesthesiology, Yeungnam University Medical Center, Republic of Korea
5. Post Anesthesia Care Unit, Seoul National University Bundang Hospital, Republic of Korea
6. Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea
7. College of Nursing, Gyeongsang National University, Republic of Korea

Background

This study aimed to identify differences in surgical time, vital signs, bleeding tendency, and recovery time according to anesthesia method in hip surgery patients.

Methods

Data were collected from electronic medical records of patients aged 65 and older who underwent hip surgery at a single tertiary hospital in South Korea from March 2023 to February 2024. A total of 187 patients were included, 83 of whom received general anesthesia (GA) and 104 who received spinal anesthesia (SA). The data were analyzed using SPSS 27.0, employing descriptive statistics, Chi-square test, and independent t-test.

Results

Significant differences were observed between the two groups with regard to American Society of Anesthesiologists (ASA) classification, with 66.3%(55 patients) of the GA group classified as ASA 3 or higher, compared to 51%(53 patients) in the SA group(t=4.43, p=.038). There were also significant differences in surgical time(t=2.89, p=.004), postoperative diastolic blood pressure(t=2.23, p=.027), fluid volume(t=4.05, p<.001), blood transfusion volume(t=2.80, p=.007), blood transfusion status (t=5.13, p=.036), bleeding volume(t=2.27, p=.030), presence of bleeding(t=7.85, p=.008) and recovery time(t=-2.10, p=.037) between anesthesia groups. GA patients showed higher average surgical time, postoperative diastolic blood pressure, presence of bleeding, bleeding volume, need for transfusion, transfusion volume, and fluid volume, whereas SA patients had a higher average recovery time.

Conclusion

As a comparative analysis of patient condition according to anesthesia method in hip surgery, this study can help inform guidelines for anesthesia care and recovery among perianesthesia nurses.

2024-0091

Figure & Table

Table 1. General characteristics of subjects (n=187)

Variables	Categories	General anesthesia (n=83) n(%)/M±SD	Spinal anesthesia (n=104) n(%)/M±SD%	χ^2/t	*p*
Age (year)	65~74	30(36.2)	25(24.0)	3.27	.195
	75~84	29(34.9)	44(42.3)		
	≥85	24(28.9)	35(33.7)		
	Mean	79.24±8.16	80.19±7.48	−.83	.408
Sex	Male	27(32.5)	33(31.7)	.01	1.000†
	Female	56(67.5)	71(68.3)		
Number of comorbidity	No	3(3.6)	9(8.7)	1.95	.232†
	Yes	80(96.4)	95(91.3)		
	0	3(3.6)	9(8.7)	3.37	.337
	1	24(28.9)	33(31.7)		
	2	40(48.2)	39(37.5)		
	≥3	16(19.3)	23(22.1)		
	Mean	1.83±0.78	1.78±1.00	.40	.688
History of injury	No	64(77.1)	71(68.3)	1.80	.193†
	Yes	19(22.9)	33(31.7)		
Surgical history	No	15(18.1)	20(19.2)	.04	1.000†
	Yes	68(81.9)	84(80.9)		
ASA* score	Ⅰ~Ⅱ	28(33.7)	51(49.0)	4.43	.038†
	Ⅲ~Ⅳ	55(66.3)	53(51.0)		
Drinking	No	64(77.1)	85(81.7)	.61	.468†
	Yes	19(22.9)	19(18.3)		
Smoking	No	72(86.7)	94(90.0)	.61	.489†
	Yes	11(13.3)	10(9.6)		

† :Fisher exact test. *ASA=American society of anesthesiologist

Table 2. Differences according to the anesthesia method of Subjects (N=187)

Variables				General anesthesia (n=74) M±SD/n(%)				Spinal anesthesia (n=104) M±SD/n(%)				t/χ2				*p*			
Surgical time (min)				97.20±49.83				79.13±30.86				2.89				.004			
Vital sign				Pre	30min	1hr	1.5hr	Pre	30min	1hr	1.5hr	Pre	30min	1hr	1.5hr	Pre	30min	1hr	1.5hr
	SBP (mmHg)			155.49±25.81	117.02±27.2 8	108.64±25.06	109.62±23.12	151.42±23.45	117.42±26.18	102.52±18.88	106.98±15.90	.49	−.10	1.85	.83	.627	.919	.067	.411
	DBP (mmHg)			79.60±18.18	61.52±12.76	59.22±13.88	59.05±11.69	81.52±16.03	61.35±13.86	55.11±10.59	58.08±10.30	−.46	.09	2.23	.55	.646	.931	.027	.581
	HR (beat/min)			83.76±15.60	77.06±14.17	74.70±13.60	76.82±14.38	82.89±15.42	80.09±16.59	75.77±14.03	75.70±14.02	−.03	−1.32	−.53	.50	.980	.188	.599	.621
	BT(℃)			36.76±0.61	36.73±0.68	36.58±0.63	36.36±0.57	36.78± 0.50	36.69±0.60	36.47±0.56	36.69±0.60	−.65	.48	1.24	1.20	.519	.633	.217	.232
Bleeding tendency	Hb(g/dl)			11.55±1.44		9.92±1.24		11.56±1.70		10.13±1.49		−.068		−1.072		.946		.285	
	Fluid volume (mL)			1107.59±714.55				734.52±489.34				4.05				<.001			
	Blood transfusion			465.03±225.68				316.67±148.57				2.80				.007			
		No		54(65.1)				83(79.8)				5.13				.036			
		Yes		29(34.9)				21(20.2)											
	Estimated Blood loss			687.50±287.89				478.13±284.59				2.27				.030			
		No		47(56.6)				79(76.0)				7.85				.008			
		Yes		36(43.4)				25(24.0)											
		D-dimer (n=25)		1067.50±978.34(n=8)				2281.76±887.42 (n=17)				−3.09				.005			
		aPTT		31.34±7.84				29.62±4.57				1.88				.062			
			low	7(8.4)				13(12.5)											
			normal	70(84.3)				87(83.7)				1.70				.427			
			high	6(7.2)				4(3.8)											
	PT	PT (sec)		12.32±3.60				11.69±2.11				1.41				.162			
			low	0(0.0)				1(1.0)											
			normal	72(86.7)				96(92.3)				3.00				.223			
			high	11(13.3)				7(6.7)											
		PT (%)		92.20±18.53				95.75±14.93				−1.42				.159			
			low	10(12.0)				5(4.8)											
			normal	73(88.0)				97(93.3)				4.76				.093			
			high	0(0.0)				2(1.9)											
		PT (INR)		1.11±0.34				1.05±0.19				1.45				.149			
			low	0(0.0)				0(0.0)											
			normal	70(84.3)				96(92.3)				2.942				.105			
			high	13(15.7)				8(7.7)											
Recovery time (min)				54.05±23.34				64.24±41.86				−2.103				.037			

SBP=systolic blood pressure, DBP=diastolic blood pressure, HR=heart rate, BT=body temperature, Hb=serum hemoglobin, PT=prothrombin time.

2024-0036

Bispectral Index and General Anesthesia in Geriatric Patients

Gabriela Montolalu[1*], **Riyadh Firdaus**[1], **Bintang Pramodana**[1]

1. Anesthesiology and Intensive Care, Faculty of Medicine, Universitas Indonesia, Indonesia

Background

In geriatric patients, there are physiological and pharmacological changes, as well as increased comorbidities. During anesthesia, these changes may result in an accidental inappropriate depth if proper monitoring modalities are not used. This study aims to evaluate the effectiveness of BIS monitor to prevent inappropriate depth of hypnosis in geriatric patients under general anesthesia. As secondary outcomes, we evaluate burst suppression time, sevoflurane consumption, MAP decline after induction, and vasopressor use in both groups.

Methods

Forty-four geriatric patients receiving general anesthesia for surgery with duration more than 2 hours were enrolled in this randomized clinical trial. All subjectes had BIS probe and were divided into two groups: one with open-BIS monitor (OB) and the other with close-BIS monitor (CB). In the OB group, anesthetic agents were titrated based on BIS index while in the CB group based on clinical signs. Continuous recordings of BIS were obtained for both groups.

Results

Data collection was carried out consecutively from November 2023 to January 2024. Mean subjects' age was 66.40 ± 4.74 years old, most of the subjects in this study was female (70%), with ASA physical status II (60%), and low frailty score (87.5%). This study found duration of inappropriate depth of anesthesia (BIS < 40 or BIS > 60) are longer in the CB group (BIS < 40 12 (0-122) vs 21.5 (0-200) min, p value = 0.36; BIS > 60 8.5 (0-150) vs 30 (0-276) min, p value = 0.134). Without BIS monitor, practice in our centre tend to result in lighter anesthesia, which lowers sevoflurane consumption by 3.97 mL/hour in the CB group (p value = 0.015). The incidence of burst suppression was interestingly higher in the OB group (15.95 (0-138) vs 2.55 (0-17), p value = 0.341) but sample size was not calculated for this variable. Both MAP decline post induction and vasopressor use were comparable for both groups.

Conclusion

The use of BIS monitor did not significantly alter the duration of inappropriate depth of anesthesia and hemodynamic stability in geriatric patients when compared to conventional monitoring. However, reliance only on the index might result in paradoxically higher consumption of sevoflurane and increased incidence of burst suppression. Index's inaccuracy for geriatric population suggests the need for anesthesiologist to understand raw EEG although this requires further study in a prospective multi-center study.

2024-0036

Figure & Table

Table 1. Bispectral Index

Variable	**BIS Group (OB) (n = 20)**	**Control Group (CB) (n = 20)**	**p value**
Duration of BIS Index <40† (minute)	12 (0 – 122)	21.5 (0 – 200)	0.36
Duration of BIS Index >60† (minute)	8.5 (0 – 150)	30 (0 – 276)	0.134
Lowest BIS Index*	33.60 ± 6.48	32.20 ± 7.73	0.548
Highest BIS Index*	69.40 ± 8.31	73.20 ± 11.41	0.236

† Numerical data with abnormal distribution presented in Median (Minimum – Maximum)

* Numerical data with normal distribution presented in Mean ± Standard deviation

Table 2. Secondary Outcomes

Variable	**BIS Group (OB) (n = 20)**	**Control Group (CB) (n = 20)**	**p value**
Burst Suppression†	15.95 (0 – 138)	2.55 (0 – 17)	0.341
Sevoflurane Use* (mL/hour)	12.21 ± 4.78	8.24 ± 2.75	0.015
MAP Decline Post Induction* (mmHg)	33.15 ± 14.75	25.55 ± 12.79	0.09
Vasopressor Use			
Yes	12 (60)	14 (70)	0.507
No	8 (40)	6 (30)	

†Numerical data with abnormal distribution presented in Median (Minimum – Maximum)

*Numerical data with normal distribution presented in Mean ± Standard deviation

2024-0238

Effects of Intratracheal Lidocaine versus Intravenous Lidocaine among Adult patients under General Endotracheal Anesthesia in Decreasing Cough, Tachycardia and Increase in Blood Pressure during Extubation: A Systematic Review and Meta-analysis

Antonie kyna Lim[1*]

1. Anesthesiology, St. Luke's Medical Center Quezon City, Philippines

Background

Emergence is a passive process which occurs at the end stage of anesthesia with gradual recovery of consciousness after discontinuation of anesthetic agents. Some patients transition smoothly to an awake state with intact protective reflexes but some present with hyperactivity or hypoactivity. Coughing during emergence affects 40–76% of intubated patients. Respiratory complications after extubation are three times more common than during intubation. Coughing can lead to negative pressure pulmonary edema with an increase in intrathoracic, intraocular, intracranial and intraabdominal pressure. Complications such as wound dehiscence after laparotomy, intracerebral hemorrhage, and neck hematoma can occur thus smooth extubation is recommended. Strategies to reduce cough include use of lidocaine, opioids such as fentanyl and remifentanil, dexmedetomidine or extubation under deep anesthesia. Choosing between these techniques is determined by the experience of the anesthesiologist and risk factors of the patient. Lidocaine is a local anesthetic which blocks the sodium channels, suppressing cough reflex by its effect on the synaptic transmission and hemodynamic response by its central stimulant effect, peripheral vasodilatory effect, and direct myocardial depressant effect. It can be administered topically through the endotracheal tube, intravenously, or infusing it in ETT cuff instead of air.

Methods

A comprehensive literature search for randomized clinical trials published in the past 15 years was conducted. The following search terms were used: intravenous lidocaine, intratracheal lidocaine, cough, heart rate, blood pressure. Inclusion criteria included adult patients of ASA 1-2 population undergoing general anesthesia who are not of airway support preoperatively. Patients with history of sore throat, URTI, laryngeal or tracheal pathology, high risk of aspiration, anticipated difficult airway, hypertension on beta-blockers, asthma, history of tracheal or laryngeal surgery, COPD, or allergy to local anesthetics were excluded from the study.

Results

A total of 249 participants were included in the meta-analysis which is comprised of 3 randomized clinical trials. Patients were divided among IV lidocaine, IT lidocaine and control group or placebo. Grade I cough means no cough or mild cough only during removal of ETT. Grade II cough indicates coughing while breathing regularly. Grade III cough indicated bouts of coughing before regular breathing is established. This study suggest that IT lidocaine is superior in reducing grade 2 cough but is equally effective with IV lidocaine in reducing grade 1 and grade 3 cough. The average systolic blood pressure and heart rate in patients receiving IV lidocaine and IT lidocaine were significantly lower compared to patients given placebo from 1 minute to 5 minutes post-extubation. However, the differences in BP and HR were not statistically significant between the IT and IV lidocaine groups.

Conclusion

Both IT and IV lidocaine were effective in reducing cough during extubation and showed benefit of attenuating hemodynamic response to extubation such as decreasing hypertension and tachycardia.

2024-0238

Figure & Table

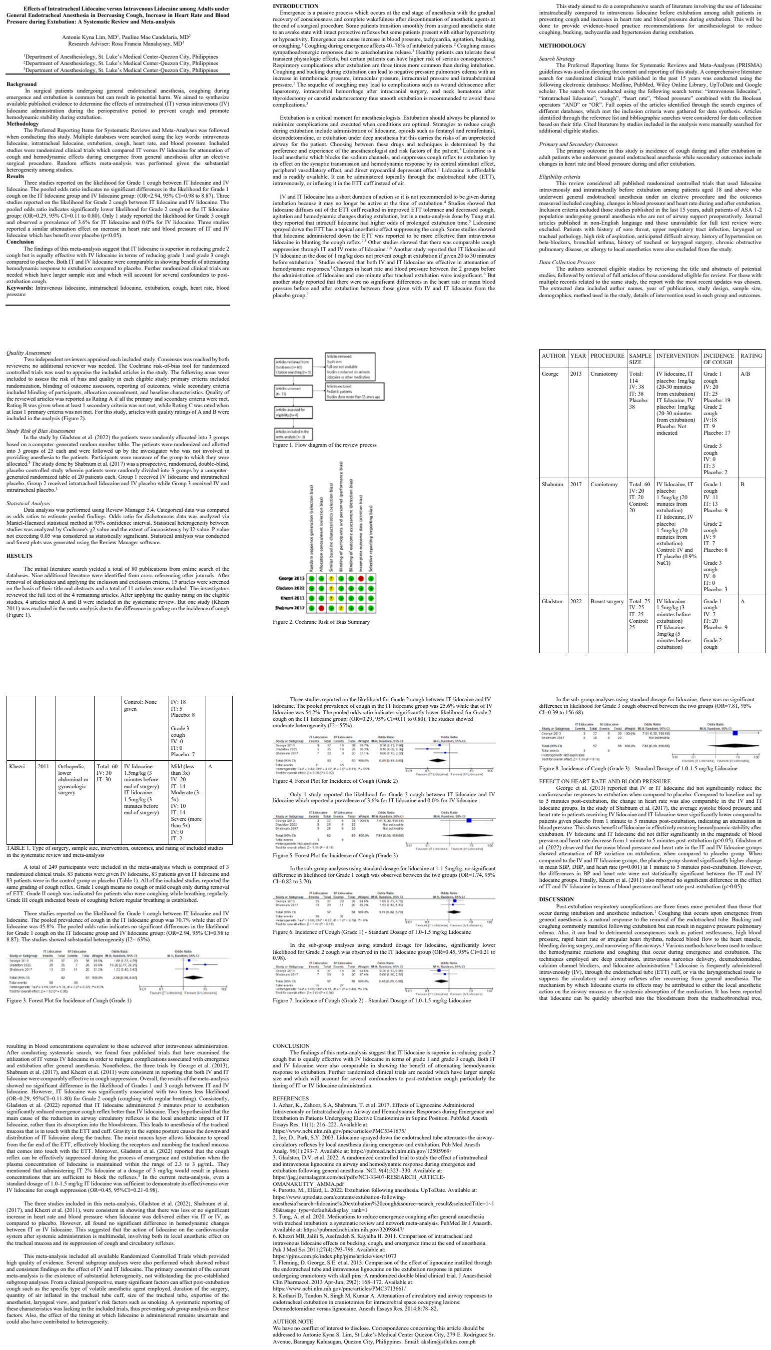


Figure 1. Effects of Intratracheal Lidocaine versus Intravenous Lidocaine among Adults under General Endotracheal Anesthesia in Decreasing Cough

2024-0284

An Analgesic Efficacy Of Intrathecal Dexmedetomidine Versus Intrathecal Morphine As Adjuvants To Bupivacaine In Patients Undergoing Total Laparoscopic Hysterectomy:
A Randomised Parallel-group Double-blind Non-inferiority Trial

Harsha Suvarna[1*]

1. Anaesthesiology, Pain Medicine, Critical Care, All India Institute of medical sciences, New Delhi, India

Background

Pain, a distressing sensation linked to actual or potential tissue injury, is often underestimated in minimally invasive surgeries like Total Laparoscopic Hysterectomy (TLH) leading to insufficient analgesia, prolonging recovery, increasing opioid use, and reducing patient satisfaction. Effective post-operative pain management is crucial for faster recovery, early mobilization, prevention of chronic pain and improved patient outcomes.

Objective: Our study aimed to compare the analgesic effects of Intrathecal dexmedetomidine vs. Intrathecal morphine as adjuvants to bupivacaine in patients undergoing TLH by comparing the cumulative postoperative PCA fentanyl consumption in 24 hours. Secondary objectives of our study includes- time for first analgesia, Numeric Rated Scale(NRS) at regular intervals, patient satisfaction score and adverse events.

Methods

Based on previous studies, clinically acceptable non inferiority margin was defined as 20% and 96 patients aged between 25 and 65 years, ASA1-2, undergoing TLH were recruited, with 48 patients each in intrathecal dexmedetomidine group(ITD) and intrathecal morphine group (ITM) using sequentially numbered opaque envelop technique(SNOSE). 5mcg of dexmedetomidine and 200mcg of morphine were given in the respective groups with 5mg of 0.5% bupivacaine in L3-4 space with 25G Quincke's needle prior administering general anaesthesia. Postoperatively patient controlled analgesia(PCA) was given with fentanyl for 24 hours.

Results

Cumulative postoperative PCA fentanyl consumption in 24 hrs and time for first analgesic requirement was significantly higher in ITD group compared to ITM. No significant differences were noted in NRS, adverse events like respiratory depression, pruritis, nausea/vomiting between the two groups.

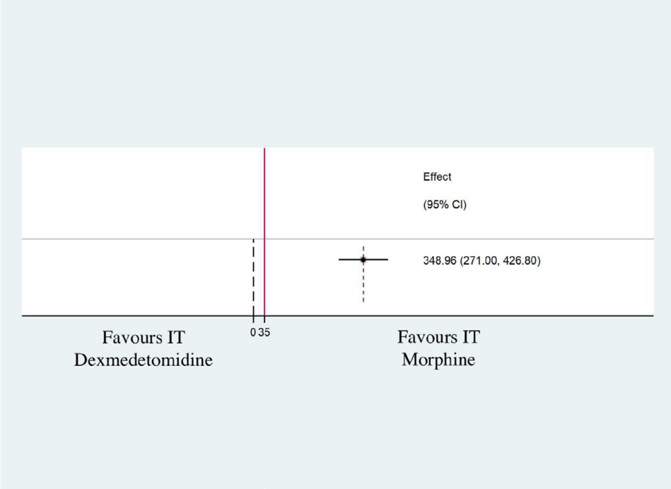
Conclusion

Intrathecal dexmedetomidine(5mcg) is inferior to intrathecal morphine(200mcg) as analgesic in patients undergoing TLH, but time for first analgesic requirement was longer with dexmedetomidine.

2024-0284

Figure & Table

Figure 1.



2024-0281

Comparison of ultrasound guided double-injection vs triple injection technique of intertruncal approach of supraclavicular brachial plexus block: A randomised non-inferiority trial

Sriraam Swaminathan[1*]

1. Department of Anaesthesiology, Pain Medicine and Critical care, All India Institute of Medical Sciences, New Delhi, India

Background

The intertruncal approach of the supraclavicular block offers better block dynamics and faster onset of surgical anaesthesia and success rate comparable to other approaches like corner pocket approach. However, there are no studies comparing the two techniques of intertruncal approach (double-injection technique vs triple-injection technique). Our study aimed to assess the efficacy of the ultrasound guided double versus triple-injection techniques of intertruncal approach of supraclavicular block in hand, wrist, forearm and elbow surgeries by comparing the proportion of patients with complete sensory blockade at 20 minutes. Secondary objectives include procedure time, NRS scores, patient satisfaction scores and onset time, diaphragmatic excursion and adverse events were assessed.

Methods

Based on the previous studies and a clinically acceptable non-inferiority margin defined as 20%, 94 patients between 18 - 75 years, ASA I- III, undergoing upper limb surgeries were randomised into two groups: double-injection group(DI, n=47) and triple-injection group (TI, n=47). Both groups received 25 ml of 0.5 % bupivacaine. In DI group, 10ml of LA was injected in the plane between the lower and the middle trunks and 15ml of LA in the plane between middle and upper trunks. In TI group, 10 ml of LA injected in the plane between the lower and middle trunks, 7.5 ml of LA in the plane between middle and the upper trunks and 7.5 ml of LA between upper and pre-vertebral fascia. Serial brachial plexus blockade assessement done. Baseline diaphragmatic excursion and post injection noted.

Results

The rate of complete sensory block at 20 minutes was comparable in both groups. The proportion of patients with complete motor and composite blockade was significantly higher in the triple injection group at 25 minutes. Onset was quicker in TI group. The procedure time, NRS scores, patient satisfaction scores and onset time of rebound pain were comparable in both the two groups. The incidence of partial hemidiaphragmatic paralysis comparable in both the groups with no cases of complete paralysis.

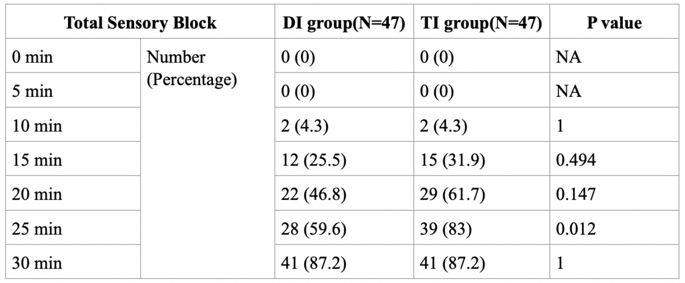
Conclusion

The double injection technique of the intertruncal approach for the supraclavicular block is non-inferior to the triple injection technique of the same approach.

2024-0281

Figure & Table

Figure 1.



Total Sensory Block		DI group(N=47)	TI group(N=47)	P value
0 min	Number (Percentage)	0 (0)	0 (0)	NA
5 min		0 (0)	0 (0)	NA
10 min		2 (4.3)	2 (4.3)	1
15 min		12 (25.5)	15 (31.9)	0.494
20 min		22 (46.8)	29 (61.7)	0.147
25 min		28 (59.6)	39 (83)	0.012
30 min		41 (87.2)	41 (87.2)	1

2024-0078

Comparison of Acute Postoperative Pain Between Preemptive Ultrasound-Guided Pectoral Nerve Block and Intraoperative Subpectoral Plane Block in Patients Undergoing Mastectomy

Sivaporn Pondeenana[1], **Khwanchai Wanjerdkit**[1], **Chawisachon Nonsri**[2], **Rawee Jongkongkawutthi**[2*]

1. Department of Surgery, Faculty of medicine, Naresuan University, Thailand
2. Department of Anesthesiology, Faculty of medicine, Naresuan University, Thailand

Background

Subpectoral plane block is an effective postoperative pain control strategy for patients undergoing mastectomy. Preemptive analgesia is also recognized as a key component of multimodal pain management strategies. This study aims to compare the efficacy of preemptive ultrasound-guided pectoral nerve block (PEC block) with Intraoperative subpectoral plane block.

Methods

In a randomized controlled trial, 30 patients undergoing mastectomy with general anesthesia were allocated into two groups: Group A received preemptive ultrasound-guided PEC block with 10 ml of 0.25% bupivacaine mixed with 1% lidocaine with adrenaline 1:200,000 for PEC I and 20 ml for PEC II, Group B received intraoperative subpectoral plane block with 10 ml of same mixture between the pectoralis muscles and 20 ml along the serratus muscle. The primary outcome was pain intensity using a visual analogue scale (VAS) over 72 hours postoperatively. The secondary outcomes were cumulative morphine consumption over 72 hours postoperatively and total anesthetic time.

Results

There was no significant difference in mean VAS pain scores between the groups over 72 hours postoperatively. The total morphine consumption showed no significant difference between the groups over 72 hours but trended to lower in group B during the first 24 hour postoperatively. Anesthetic time was significantly shorter in group B (111±3.54 min) compared to the group A (140±2.84 min, p < 0.001).

Conclusion

The preemptive ultrasound-guided PEC block does not provide superior postoperative pain control and reduced morphine consumption compared to intraoperative subpectoral plane block. Additionally, preemptive ultrasound-guided PEC block result in a longer anesthetic time which should be considered.

2024-0078

Figure & Table

Table1. Comparison of all measured outcomes between two groups

	Group A (n=15)	**Group B (n=15)**	**P-value**
Anesthetic time (minute)	140 ± 2.84	111 ± 3.54	**<0.001***
Complication, n (%)			
No complication	15 (100%)	15 (100%)	1.000
Occur Complication	0	0	1.000
Morphine consumption (mg)			
0-24 hours	3.13 ± 1.29	1.15 ± 0.45	0.249
24-48 hours	1.53 ± 0.69	1.06 ± 0.43	0.570
48-72 hours	0.73 ± 0.34	1.20 ± 0.59	0.503
VAS pain score (mean±sd)			
At 4 h	2.73 ± 2.46	2.93 ± 0.22	0.701
At 8 h	2.86 ± 0.56	2.46 ± 0.40	0.566
At 12 h	2.26 ± 2.18	2.26 ± 1.66	0.780
At 16 h	1.80 ± 1.78	2.06 ± 2.08	0.709
At 20 h	2.00 ± 0.34	1.20 ± 0.31	0.093
At 24 h	1.53 ± 0.26	1.20 ± 0.78	0.386
At 28 h	1.26 ± 0.27	1.07 ± 0.27	0.600
At 32 h	1.73 ± 0.32	0.93 ± 0.21	0.043
At 36 h	1.13 ± 0.29	0.80 ± 0.22	0.370
At 40 h	1.13 ± 0.25	0.93 ± 0.21	0.229
At 44 h	1.17 ± 0.93	1.13 ± 0.24	0.238
At 48 h	1.67 ± 0.32	0.93 ± 0.21	0.063
At 52 h	1.53 ± 0.32	1.06 ± 0.27	0.274
At 56 h	1.13 ± 0.30	1.40 ± 0.24	0.863
At 60 h	1.20 ± 0.24	1.20 ± 0.24	1.000
At 64 h	1.33 ± 0.27	1.47 ± 0.38	0.776
At 68 h	1.00 ± 0.22	0.73 ± 0.15	0.326
At 72 h	0.80 ± 0.22	0.73 ± 0.18	0.818

Data are presented with mean ± SD., except complication.

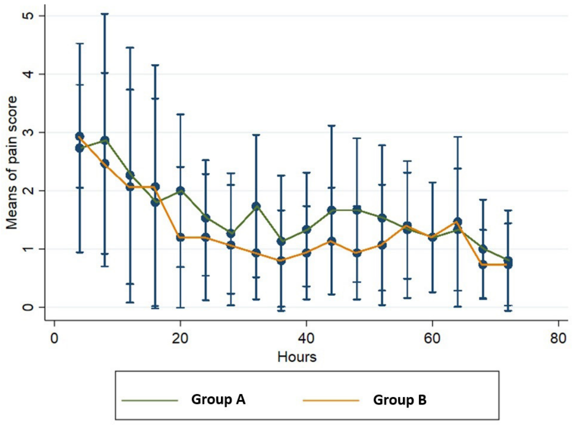
Group A = Preemptive ultrasound-guided pectoral nerve block

Group B = Intraoperative subpectoral plane block

NRS = Numeric rating scale

* = statistically significant (p<0.05)

Figure 1. Postoperative VAS pain scores of group A and B during 4-72 hours after surgery



2024-0074

Analgesic Efficacy of Ultrasound-Guided Triple-Level Erector Spinae Plane Block Versus Triple-Level Costotransverse Foramen Block in Patients Undergoing Percutaneous Nephrolithotomy Surgery: A randomized parallel-group double-blind non-inferiority trial

Niharika Das[1*], Virender Mohan[1]

1. Anaesthesiology, All India Institute of Medical Sciences, New Delhi, India

Background

The postoperative pain in PCNL (T10 to L1) is mainly visceral due to dilatation of the renal capsule and the pelvicalyceal system, the parenchymal tract, due to the irritation by the nephrostomy tube, or due to inadvertent intercostal nerve injury. The incision site, and tract for PCNL is in the 10th or 11th intercostal space or the subcostal area.

Costotransverse foramen block, a novel block is now considered as 'paravertebral blocks by proxy' due to its anatomic proximity to paravertebral space but safer than thoracic paravertebral block as it does not require penetration of the superior costotransverse ligament to place the injectate behind the pleura. Triple level erector spinae plane block was placed for the first time in our study. The aim of the study was to assess and compare the postoperative analgesic efficacy of ultrasound-guided triple-level erector spinae plane block and ultrasound-guided triple-level costotransverse foramen block in patients undergoing percutaneous nephrolithotomy surgery under general anesthesia. The primary objective was to assess cumulative morphine consumption in 24 hours.

Methods

This prospective randomized, double-blind, non-inferiority trial was conducted after institutional ethics committee approval. 50 patients scheduled for PCNL were included in the trial. Patients received either triple-level USG-ESPB or triple-level USG-CTFB. 7ml of 0.375% Ropivacaine at each level (21ml.) was injected for either block before induction of anaesthesia in the prone position under standard ASA monitoring in the preoperative area. Total cumulative morphine consumption in 24 hours, intraoperative analgesic requirement, time for the first analgesic, and 11-point NRS at various intervals for 24 hours were noted.

Results

Although mean intraoperative fentanyl consumption was not included as a primary/secondary outcome in ESPB group was 139.4 ± 28.44 mcg which was significantly lower than that in CTFB (154.6 ± 20.91 mcg) (P =0.037). Median cumulative morphine consumption in 24 hours was 7mg (4-11.75 mg) and 7mg (3-11 mg) in the ESPB and the CTPB groups, respectively (P=0.26). The mean time for the first analgesic requirement in the postoperative period in ESPB group was 189.8 ± 80.2 minutes and 199.6 ± 79.8 minutes in the CTFB group (P=0.66). No significant difference in the median NRS scores at rest and at movement at various time-intervals were observed. No adverse event was observed.

Conclusion

Our study demonstrated that in patients undergoing Percutaneous Nephrolithotomy, triple-level USG-ESPB is not inferior to triple Level USG-CTFB in providing postoperative analgesia.

2024-0074

Figure & Table

Figure 1.

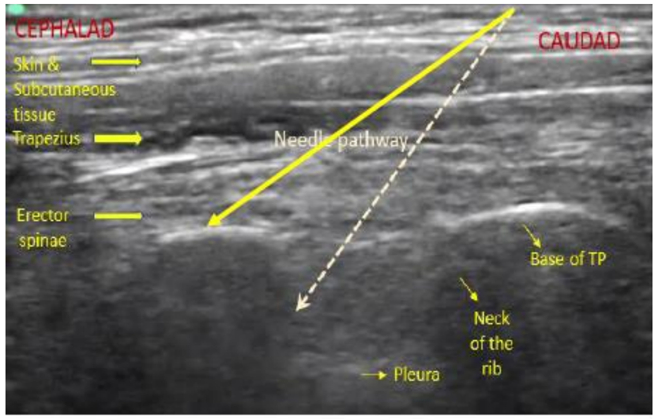


Figure 6 (a): Transition from rib to tip of transverse process can be noted as rounded to square hypoechoic shadow. A dual shadow of the neck of the rib can also be noted. Yellow line shows needle trajectory for ESPB. Dotted line shows the needle trajectory for Costotransverse foramen block

Figure 2.

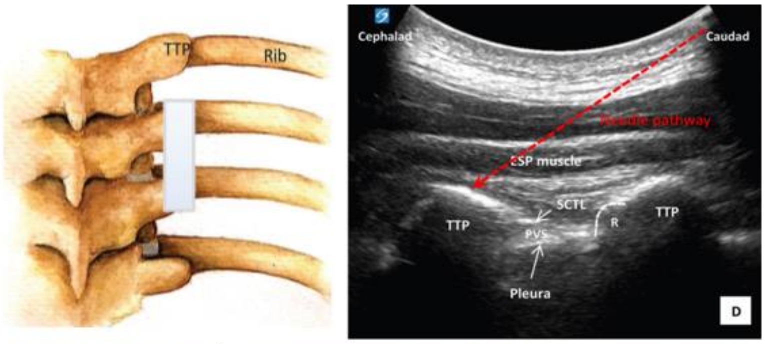


Figure 5 (a): For ESPB, linear/curvilinear ultrasound probe is placed at the level of tip of transverse process in para-sagittal plane. Dotted red line shows the needle pathway for erector spinae block. Tip of needle should lie between the tip of transverse process and fascia of erector spinae muscle. (6)

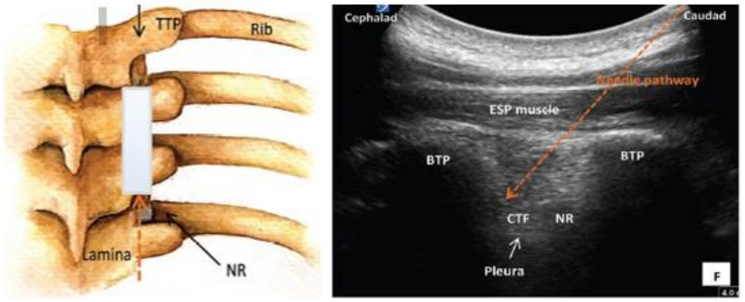


Figure 5(b): For CTFB, linear/curvilinear ultrasound probe is placed at the level of base of transverse process. The needle tip is directed towards the antero-inferior aspect of the base of the TP. (6)

2024-0267

The Effective Dose of Spinal Nalbuphine Combined with Adductor Canal Block for Enhancing Postoperative Analgesia after Total Knee Arthroplasty: A Randomized Controlled Trial

Apirak Tewaritruangsri[1], Inthiporn Kositanurit[1*], Chawisachon Nonsri[1], Kornthip Jeephet[3],
Piti Rattanaprichavej[2], Artit Laoruengthana[2]

1. Department of Anesthesiology, Naresuan University, Thailand
2. Department of Orthopaedics, Naresuan University, Thailand
3. Clinical epidemiology and clinical statistics unit, Naresuan University, Thailand

Background

Adductor canal block was performed to control pain after total knee arthroplasty (TKA), but it did not include posterior knee pain. We added intrathecal nalbuphine for controlled pain combined with adductor canal block—a comparison between low and high doses. We aim to assess the efficacy of different doses and the side effects.

Methods

We performed the prospective randomized controlled trial in patients undergoing TKA who received an intrathecal nalbuphine dose of 0.8 mg compared with 1.2 mg added to the adductor canal block. The primary outcome was a numeric rating scale (NRS) at rest and movement at different times. The secondary outcome was opioid consumption and side effects.

Results

Forty-two (42) patients were included. NRS at rest was significantly lower in nalbuphine high dose group at 6, 12, 24, and 48 hours postoperatively. NRS at movement was considerably lower in nalbuphine high dose group at 6 and 36 hours postoperatively. Opioid consumption was significantly lower in both the low and high dose nalbuphine group from 24 hours postoperatively onwards. The side effects included nausea, vomiting, drowsiness, respiratory depression and shivering were not significant.

Conclusion

Intrathecal nalbuphine can reduce pain after TKA when combined with adductor canal block, especially in high dose (1.2 mg). Nausea and vomiting may occur in the early postoperative period but are not significant.

2024-0267

Figure & Table

Table 1. Pain scores at rest

	Group A (n=14)	Group B (n=14)	Group C (n=14)	p-value
NRS at rest				
6h	4.64±1.86	4.14±1.10 (1.000)	2.57±0.40 (0.015*)	0.014*
12h	4.43±1.74	3.43±1.34 (0.277)	2.71±0.40 (0.016*)	0.019*
24h	3.71±1.20	3.36±1.55 (1.000)	2.29±0.37 (0.029*)	0.026*
36h	3.57±1.45	2.86±0.39 (0.612)	2.21±0.39 (0.056)	0.061
48h	3.28±1.86	2.07±1.09 (0.146)	1.50±0.36 (0.014*)	0.015*
72h	2.57±0.44	1.86±0.46 (0.721)	1.29±0.37 (0.114)	0.113

* = statistically significant (p<0.05)

Figure 1. Pain scores at rest

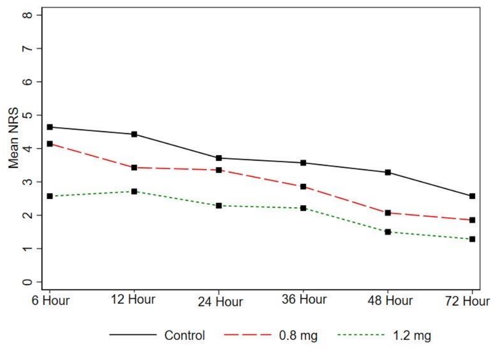
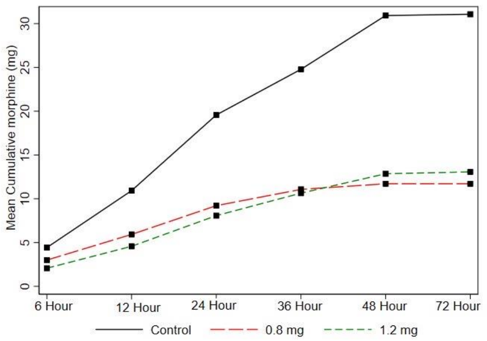


Table 2. Cumulative opioid consumptions

	Group A (n=14)	Group B (n=14)	Group C (n=14)	p-value
Cumulative morphine (mg)				
6h	4.42±1.53	3.00±1.38 (1.000)	2.07±0.93 (0.630)	0.446
12h	10.93±2.76	5.93±1.91 (0.257)	4.57±0.90 (0.092)	0.074
24h	19.57±3.41	9.21±2.36 (0.017*)	8.07±1.29 (0.007*)	0.004*
36h	24.79±4.09	11.07±2.59 (0.006*)	10.64±1.37 (0.004*)	0.002*
48h	30.93±4.41	11.71±2.59 (<0.001*)	12.86±1.76 (0.001*)	<0.001*
72h	31.07±4.40	11.71±2.59 (<0.001*)	13.07±1.69 (0.001*)	<0.001*

* = statistically significant (p<0.05)

Figure 2. Cumulative opioid consumptions



2024-0015

Evaluating the Efficacy of Intraoperative Nefopam on Postoperative Pain, Opioid Consumption, and Recovery Quality Following Single-Port Robotic Cholecystectomy with Parietal Pain Block

Soeyon Lee[1], Hyunsik Chung[1], Joonpyo Jeon[1], Hosik Moon[1], Meeyoung Chung[1], Changjae Kim[1], Min suk Chae[2*]

1. Anesthesiology and Pain Medicine, Eunpyeong St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea
2. Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea

Background

This investigation examines the effects of incorporating nefopam, a non-opioid analgesic, into a multimodal analgesia regimen on postoperative pain, opioid consumption, and recovery quality in patients undergoing single-port robot-assisted laparoscopic cholecystectomy (RALC) complemented with a parietal pain block. This study addresses the pressing need for effective postoperative pain management strategies.

Methods

A cohort of forty patients scheduled for elective single-port RALC was divided into two groups through randomization: one received nefopam and the other normal saline intravenously. All patients were provided with parietal pain relief via a rectus sheath block (RSB). The primary measures included postoperative pain assessed through the Numeric Rating Scale (NRS) at three sites: the right upper quadrant (RUQ), umbilicus, and shoulder. Secondary outcomes involved monitoring opioid consumption and evaluating recovery quality with the QoR-15K questionnaire.

Results

The study population had an average age of 48.3 years and a mean body mass index (BMI) of 26.2 kg/m^2, with no significant differences in demographic or intraoperative variables between the two groups. Notably, the nefopam group reported significantly lower pain scores in the RUQ than the control group, whereas pain scores at the umbilicus and shoulder remained similar across groups. Furthermore, the nefopam group required less rescue fentanyl in both the Post Anesthesia Care Unit (PACU) and the ward. While nefopam appeared to reduce symptoms of nausea and vomiting effectively, the overall scores for recovery quality, as per the QoR-15K questionnaire, were similar between the two groups.

Conclusion

Incorporating nefopam into the analgesia protocol for single-port RALC with a parietal pain block significantly diminishes RUQ pain and reduces the necessity for opioids postoperatively. Although it does not significantly enhance the effect of RSB on umbilicus or shoulder pain, nefopam contributes to better management of postoperative nausea and vomiting. These findings highlight the value of nefopam in the analgesic strategy for patients undergoing this surgical procedure, indicating its potential to improve postoperative care by mitigating pain and minimizing opioid requirements.

2024-0015

Figure & Table

Table 1. Comparison of the postoperative pain outcomes between patients with and without nefopam

Group	without nefopam	with nefopam	*p*
n	20	20	
Peak NRS score in the PACU			
RUQ pain	9 (8 - 10)	5 (3 - 6)	<0.001
Umbilicus pain	2 (1 - 5)	1 (1 - 2)	0.1
Shoulder pain	2 (1 - 3)	1 (1 - 2)	0.127
Rescue fentanyl in the PACU (mcg)	50 (50 - 100)	0 (0 - 50)	0.002
Rescue fentanyl in the ward (mcg)	100 (50 - 100)	50 (25 - 94)	0.02

Abbreviations: NRS, numeric rating scale; PACU, post-anesthesia care unit; RUQ, right upper quadrant
Values are expressed as median (interquartile).

Table 2. Comparison of the global and subdimension scores from the Quality of Recovery-15 Questionnaire on postoperative day 1 between patients with and without nefopam

Group	without nefopam	with nefopam	*p*
n	20	20	
Total QoR-15 score (points)	93 (72 - 119)	106 (69 - 134)	0.482
1 Able to breathe easy	9 (5 - 10)	7 (5 - 10)	0.813
2 Been able to enjoy food	5 (0 - 9)	5 (1 - 10)	0.564
3 Feeling rested	6 (3 - 9)	8 (5 - 10)	0.434
4 Have had a good sleep	6 (2 - 9)	7 (2 - 10)	0.87
5 Able to look after personal toilet and hygiene unaided	10 (4 - 10)	10 (4 - 10)	0.977
6 Able to communicate with family or friends	10 (5 - 10)	10 (4 - 10)	0.678
7 Getting support from hospital doctors and nurses	10 (9 - 10)	10 (9 - 10)	0.633
8 Able to return to work or usual home activities	5 (2 - 10)	6 (2 - 10)	0.858
9 Feeling comfortable and in control	7 (4 - 9)	8 (5 - 10)	0.373
10 Having a feeling of general well-being	6 (3 - 9)	7 (4 - 10)	0.228
11 Moderate pain	4 (2 - 6)	4 (2 - 6)	0.681
12 Severe pain	4 (2 - 5)	4 (2 - 10)	0.337
13 Nausea or vomiting	10 (7 - 10)	10 (10 - 10)	0.006
14 Feeling worried or anxious	7 (3 - 10)	9 (5 - 10)	0.23
15 Feeling sad or depressed	7 (5 - 10)	10 (4 - 10)	0.36

Abbreviations: QoR, quality of recovery
Values are expressed as median (interquartile).

2024-0275

Intra-Operative Morphine versus Intra-Operative Fentanyl on Time to Home Discharge for Day-Case GI Endoscopy: A Natural Experiment

Phonkrit Soontornwit[1], Atipong Pathanasethpong[1*]

1. Department of Anesthesiology, Khon Kaen University, Thailand

Background

As day-case surgeries become increasingly common, quick turnovers become increasingly important. At Srinagarind Hospital, day-case gastrointestinal (GI) endoscopic patients typically receive intravenous fentanyl as part of the sedation regiment, favored due to its short onset and duration. However, recurring fentanyl shortages necessitate the occasional use of morphine, which has a longer onset and duration. This situation raises concerns about potential impacts on recovery time, discharge delays, and operating room efficiency. The present study aimed to assess whether the use of morphine led to delayed recovery and discharge compared to fentanyl in patients undergoing day-case GI endoscopy.

Methods

This study employed a retrospective observational design with a natural experiment framework. Due to unpredictable shortages, morphine was occasionally used instead of fentanyl without any other changes in terms of patients, caregivers, and medical care. This setup allowed comparison between two treatment groups—Fentanyl Group (F) and Morphine Group (G)—under otherwise similar conditions. Data were sourced from pre-anesthetic evaluations, intra-operative, and PACU records at Srinagarind Hospital, Khon Kaen University, from January 2021 to January 2022. The primary outcome was the time from PACU arrival to achieving a Post Anesthetic Discharge Score (PAD score) of 9 or more, denoting fitness for discharge. Secondary outcomes included the sub-categories of the PAD score: vital signs, post-anesthetic activities, PONV, pain scores, and surgical bleeding. Statistical analyses involved survival analysis and Kaplan-Meier estimation to assess survival curves, while T-tests ensured demographic data distribution consistency across groups.

Results

A total of 442 patients met the study's criteria, 286 in the Fentanyl Group and 156 in the Morphine Group. At 75 minutes postoperative, the proportion of patients in the Fentanyl Group that had achieved a PAD score of 9 or more was higher than the Morphine Group with statistical significance ($P<0.0001$). However, at 90 minutes postoperative and later time points, there was no statistically significant difference between the two groups regarding the proportion of patients that had achieved a PAD score of 9 or more. Of the sub-categories of the PAD score, patients in the Fentanyl Group achieved full marks on vital signs ($P<0.0001$) and activity ($P<0.00021$) sooner than the Morphine Group. However, no significant differences were observed as to when patients in the two groups achieved full marks on postoperative nausea and vomiting ($P=0.81$), pain ($P=0.62$), and surgical bleeding ($P=0.16$).

Conclusion

Patients undergoing elective day-case GI endoscopy with intra-operative fentanyl administration achieved faster recovery time and reduced PACU stay compared to those with intra-operative morphine at 75 minutes postoperative, but not at later time points.

2024-0160

Comparison of Cerebral Vasodilatory effects of Sevoflurane, Isoflurane and Desflurane in patients undergoing surgery for supratentorial lesions under general anaesthesia

Sudhir Venkataramaiah[1*], Mayank Arora[1]

1. Neuroanaesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bangalore, India

Background

Volatile anaesthetics have a direct vasodilatory effect on cerebral vasculature with increasing concentration, leading to increased cerebral blood flow and brain volume. This study aimed at comparing cerebral vasodilatory effects of isoflurane, sevoflurane, and desflurane in supratentorial lesions. Transcranial Doppler provides an indirect measure of CBF by measuring blood flow velocity in Middle Cerebral artery (FVMCA). Change in FVMCA is directly proportional to change in CBF. Near Infrared Spectroscopy has been used to monitor Regional Cerebral Oxygen Saturation (rSO2), based on the assumption that the brain's oxygen content is positively related to cerebral blood flow.

Methods

In this Prospective Randomised study, 123 patients aged 18 to 60 years, with unilateral supratentorial lesion and ASA Grade 1 or 2 were selected and randomly divided into 3 groups of 41 patients each to receive Isoflurane, Sevoflurane or Desflurane. FVMCA, PI and rSO2 were measured bilaterally (Tumour and Normal side) Pre-Induction and 15 minutes after reaching 1 MAC steady state anaesthesia.

Results

On both Normal and Tumour side, all the 3 Inhalational agents caused statistically significant increase in FVMCA and rSO2 ($p<0.001$). On Normal side, Increase in PI was statistically significant in Desflurane ($p<0.001$) and Sevoflurane group ($p=0.031$). On Tumour side, Increase in PI was statistically significant in Isoflurane Group ($p=0.005$).

On Normal side, Desflurane caused significantly more increase in FVMCA and rSO2 than Sevoflurane and Isoflurane ($p<0.001$). On Tumour side, Desflurane caused significantly more increase in FVMCA and rSO2 than Isoflurane ($p<0.001$), and significantly more increase in FVMCA than Sevoflurane. ($p=0.003$). Sevoflurane caused significantly more increase in FVMCA and rSO2 than Isoflurane on both Normal ($p<0.001$ and $p=0.042$, respectively) and Tumour side ($p=0.024$ and $p=0.028$, respectively).

Conclusion

Isoflurane appears to be the most suitable Inhalational agent in surgery for supratentorial lesions due to minimum Cerebral Haemodynamic effects as compared to Sevoflurane and Desflurane.

2024-0160

Figure & Table

Figure 1. FMCA between

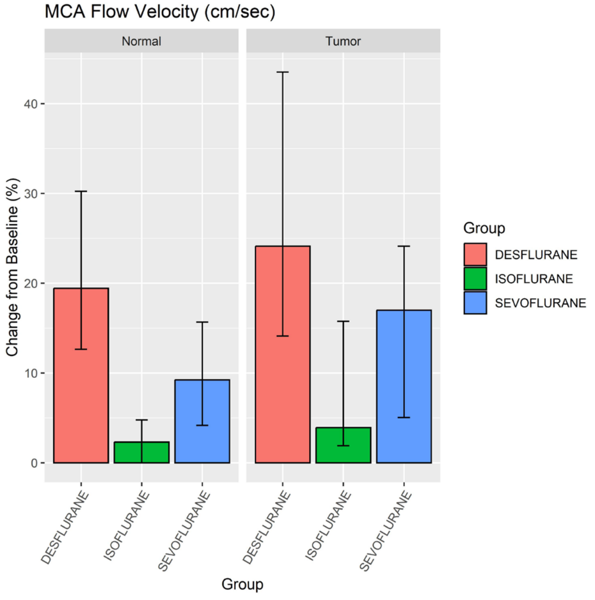
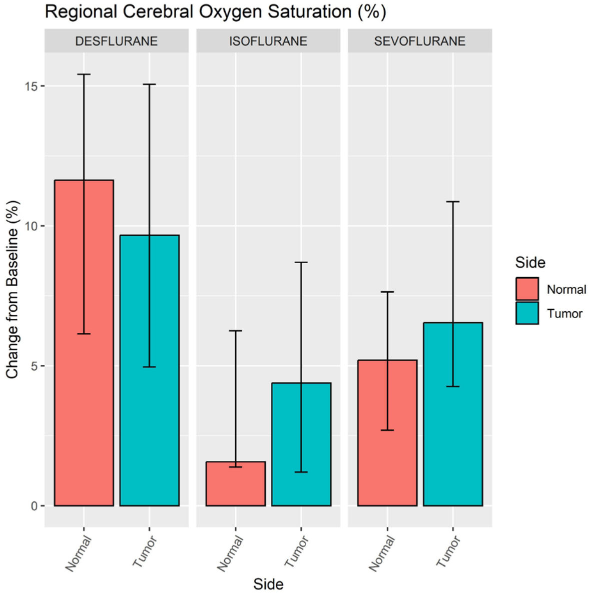


Figure 2. rSO2 SideDiff



2024-0053

Effect of Sugammadex versus Neostigmine reversal on lung aeration score after operative fixation of cervical spine: a prospective, double blinded, randomized control trial

Sumit Roy chowdhury[1*], Ashish Bindra[1], Gyninder Pal singh[1], Charu Mahajan[1], Maroof Ahmad khan[2]

1. Department of Neuroanesthesiology and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Department of Biostatistics, All India Institute of Medical Sciences, New Delhi, India

Background

Traumatic cervical spine injury (tCSI) increases the risk of post-operative pulmonary complications (POPC) after surgical fixation. Residual neuromuscular blockade (NMB) significantly contributes to the development of POPC. Reversal of Rocuronium induced NMB with Sugammadex results into faster and superior quality of neuromuscular recovery. Preliminary evidence suggests that Sugammadex reversal may reduce POPC in abdominal and thoracic surgeries. Pulmonary atelectasis, retained airway secretions, aspiration related changes, airway obstruction resulting from residual NMB leads to interstitial syndrome, eventually leading to an increased number of B-lines in the lung ultrasound. B-lines based, post-operative ultrasonographic lung aeration score (LAS) predicts development of POPC. This trial compared the effect of Sugammadex versus Neostigmine reversal on LAS at 24 hours after surgery.

Methods

In this prospective, double blinded, single-center trial, participants undergoing elective fixation of tCSI were randomly allocated into Sugammadex (S)[n=38] or Neostigmine (N)[n=37] reversal. Primary outcome was LAS at 24 hours. Secondary outcomes included extubation in the operation theatre, POPC, ICU (intensive care unit) days, hospital stay after the surgery, ventilator days, tracheostomy, and in-hospital mortality.

Results

Mean (SD) age was 39.68(12.23) years and 41.55(13.69) years in the N and S group respectively. Baseline American society of anaesthesiologists physical status, American Spinal Injury Association (ASIA) impairment scale were comparable between the groups. There was no significant difference in LAS at 24 hours [median(range) LAS- 2(0-18) N group, 2(0-19) S group] (p=0.63) or any other secondary outcomes. Incidence of POPC was 27.03% (N group) and 26.32% (S group). Exploratory analysis did not find any difference in the outcomes depending on the level [High- C1-4 vs Low- C5-7] or severity [ASIA- A, B vs C, D, E] of spinal injury. LAS of 4 at 24 hours predicted development of POPC in 7 days with 80% sensitivity and 87.27% specificity [Area under receiver operator characteristics curve- 0.9032].

Conclusion

In tCSI, Sugammadex reversal did not offer any significant advantage over Neostigmine reversal. Early and better reversal properties of Sugammadex may not translate into meaningful outcome benefit.

2024-0053

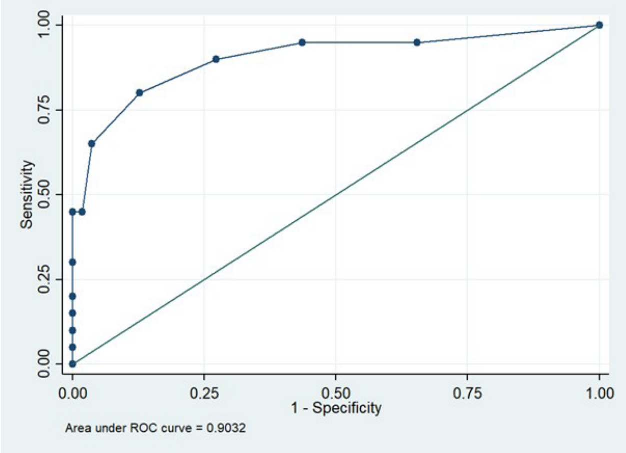
Figure & Table

Table 1. Comparison of secondary outcome parameters between the Neostigmine and Sugammadex group

Parameter	Neostigmine(n=37)	Sugammadex (n=38)	P value
Extubation on table [n(%)]	17(45.95%)	22(57.89%)	0.30
Mortality [n(%)]	5(13.51%)	2(5.26%)	0.26
Tracheostomy [n(%)]	7(18.92%)	8(21.05%)	0.81
POPC [n(%)]	10(27.03%)	10(26.32%)	0.94
ICU days[median(min,max)]	1(0,30)	1(0,14)	0.73
Ventilator days [median(min,max)]	1(0,26)	0(0,14)	0.41
Hospital stay [median(min,max)]	5(1,63)	4.5(2,54)	0.57

ICU- intensive care unit, POPC- post operative pulmonary complications, min- minimum, max- maximum

Figure 1. Receiver operating characteristic (ROC) curve showing the ability of post-operative lung aeration score at 24 hours to predict development of post-operative pulmonary complications within 7 days



2024-0296

Effects on the optic nerve sheath diameter in patients undergoing laparoscopic cholecystectomy maintained with Desflurane v/s Propofol.

Anik Goel[1], A Aleem[1*], Shilpi Verma[1], Neeraj Srivastava[1]

1. Anesthesiology and Critical Care, All India Institute of Medical Sciences Raebareli, Uttar Pradesh, India

Background

Laparoscopic surgeries raise intra-abdominal pressure (IAP) with CO2 pneumoperitoneum, which can increase intracranial pressure (ICP) due to CO2 retention and cerebral vasodilation. Monitoring ICP during these procedures is crucial due to its potential adverse effects, but current methods are invasive and not widely available. Optic nerve sheath diameter (ONSD) is a reliable, non-invasive indicator of raised ICP, reflecting changes in ICP due to its direct connection to the intracranial subarachnoid space. Propofol and Desflurane are commonly used anesthetic agents with differing effects on cerebral physiology. This study aimed to compare the effects of Propofol and Desflurane on ICP, as indicated by changes in ONSD, and evaluate hemodynamic changes in patients undergoing laparoscopic cholecystectomy.

Methods

This non-inferiority randomized controlled trial was conducted at AIIMS Raebareli over 1.5 years. A total of 146 patients, aged 18-60 years, ASA grade I or II, scheduled for elective laparoscopic cholecystectomy, were randomly assigned to two groups: Group P (Propofol) and Group D (Desflurane), with 73 patients each. Exclusion criteria included ophthalmological diseases, coagulopathy, cerebrovascular diseases, systemic infections, pregnancy, abnormal liver and kidney functions. ONSD measurements were taken at eight time points: before induction (T0), at induction (T1), and at 10-minute intervals up to 60 minutes post-induction (T2-T7), and finally in the postoperative ward (T8). ONSD was measured using ultrasound with a 5-13 MHz linear probe, 3 mm behind the papilla in both globes. Statistical analysis was conducted using SPSS version 24.0, with p-values < 0.05 considered significant.

Results

Baseline parameters, including age, gender distribution, and BMI, were generally comparable between the groups, with a slight but significant difference in BMI. ONSD measurements on both the right and left sides as well as overall were significantly lower in Group P compared to Group D from T1 through T7 (p = 0.001), indicating a lesser increase in ICP in patients maintained with Propofol when compared to Desflurane. By T8, the differences in ONSD between the groups were no longer significant.

Conclusion

This study shows that patients maintained with Propofol during laparoscopic cholecystectomy had significantly lower ONSD measurements, indicating reduced intracranial pressure, compared to those maintained with Desflurane. While Propofol is known for lowering ICP, its use may be more effective in this context. Conversely, Desflurane appeared to maintain higher intracranial pressures. These findings highlight the importance of anaesthetic selection, particularly in patients with intracranial pathology.

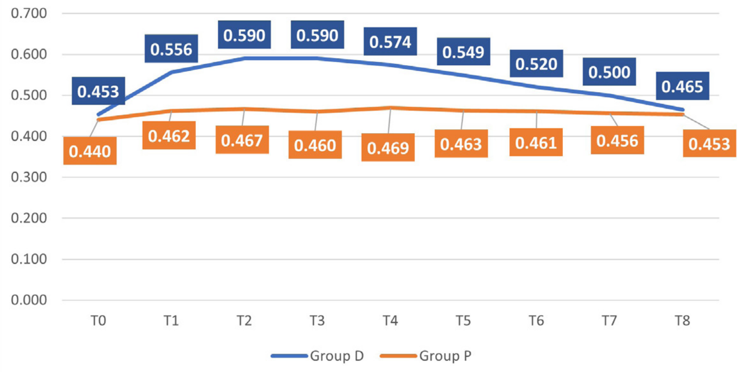
2024-0296

Figure & Table

Table 1. Comparison of ONSD Average (mm) between the two groups

Time Points	Group D	Group P	p-value
T0	0.453 ± 0.073	0.440 ± 0.059	0.305
T1	0.556 ± 0.101	0.462 ± 0.063	**0.001**
T2	0.590 ± 0.088	0.467 ± 0.054	**0.001**
T3	0.590 ± 0.088	0.460 ± 0.055	**0.001**
T4	0.574 ± 0.087	0.469 ± 0.054	**0.001**
T5	0.549 ± 0.094	0.463 ± 0.051	**0.001**
T6	0.520 ± 0.085	0.461 ± 0.054	**0.001**
T7	0.500 ± 0.082	0.456 ± 0.054	**0.001**
T8	0.465 ± 0.076	0.453 ± 0.051	0.329

Figure 1. Comparison of ONSD Average (mm) between the two groups



2024-0054

Point-of-care ultrasound to identify frailty and predict outcomes in patients with traumatic brain injury: A prospective observational study

Nipun Gupta[1*], Charu Mahajan[1], Niraj Kumar[1], Hirok Roy[1]

1. Department of Neuroanesthesiology and Critical Care, AIIMS New Delhi, India

Background

Frailty is associated with unfavourable outcomes after traumatic brain injury (TBI) but no specific instrument for assessment has been defined in these patients. Quadriceps Depth (QD) via point-of-care ultrasound (USG) can identify frailty and predict postoperative outcomes. We hypothesize that QD can identify frailty in Indian patients with TBI and can predict outcome. The primary objective was to discriminate between frail and non-frail patients using QD measured by USG in TBI patients. Secondary objectives were to assess if USG-measured frailty predicts three-month extended Glasgow outcome scale score (GOS-E), length of ICU/ hospital stay, and in-hospital mortality.

Methods

This prospective observational study included adult TBI patients admitted to the AIIMS Trauma Centre ICU within 24 hours of injury, over a period of one year. Frailty was assessed using the 30-point CENTRE-TBI frailty index (0-1) at ICU admission and patients were dichotomised into frail (> 0.2) and not frail (≤ 0.2). Three consecutive measurements of the right leg QD were taken using a curvilinear USG transducer. These measurements were conducted at the time of ICU admission on patients in a supine position with their upper bodies elevated at a 30° angle and legs extended. The three measurements were then averaged. Patients were followed for three months, recording length of ICU/hospital stay, in-hospital mortality, and three-month GOS-E.

Results

This study included a total of 95 patients. (Table 1) No patient had a CENTRE-TBI frailty index > 0.2, thus no patient could be classified frail as per CENTRE-TBI frailty index. On correlation analysis QD negatively correlated with in-hospital mortality ($r = -0.37$, $p = 0.0008$), however no meaningful correlation was obtained with length of ICU/hospital stay and GOS-E. On regression analysis, controlling the effect of admission Glasgow Coma Scale, severity of TBI, admission Pupil Reactivity score, Computed tomography Rotterdam Score and age, QD was found to be significantly associated with in-hospital mortality (OR = 3.43, 95% CI = 1.2 - 9.68). ROC Curve analysis for QD predicting in-hospital mortality had an AUC of 0.76, with an optimal cut-off of 2.6 cm. (Figure 1)

Conclusion

Our findings suggest that QD is a reliable prognostic marker for in-hospital mortality in TBI. CENTRE-TBI frailty index still needs to be validated in Indian patients.

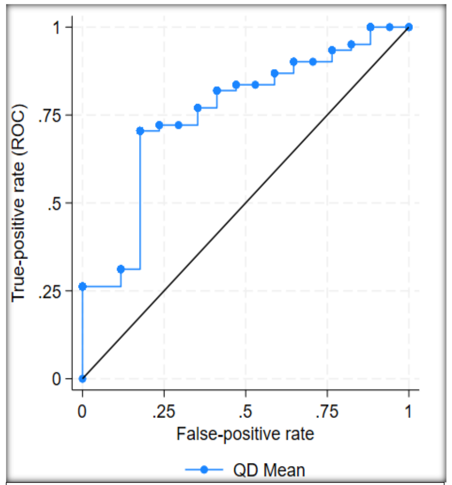
2024-0054

Figure & Table

Table 1. Patient Characteristics

Participant Characteristics		Descriptive Analysis	p-Value
Age (years), mean (SD)		38.34 (18.37)	-
Male, n (%)		84 (88.42)	-
Mechanism of Injury, n (%)	Road Traffic Accident	77 (81.05)	-
	Assault	2 (2.11)	
	Fall	16 (16.84)	
No associated Injury, n (%)		88 (92.63)	-
Rotterdam CT Score, median (IQR)		3 (3-4)	-
Admission GCS, median (IQR)		7 (4-9)	-
TBI Severity, n (%)	Severe	63 (66.32)	-
	Moderate	32 (33.68)	
Pupil Reactivity Score, n (%)	0	69 (72.63)	-
	1	17 (17.89)	
	2	9 (9.47)	
CENTRE – TBI Frailty Index, mean (SD)	Total (n=95)	0.07 (0.043)	-
	> 65 years (n=13)	0.093 (0.043)	0.04*
	18-65 years (n=82)	0.067 (0.042)	
Quadriceps Depth(cm), mean (SD)	Total (n=95)	2.68 (0.78)	-
	> 65 years (n=13)	2.21 (0.61)	0.01*
	18-65 years (n=82)	2.76 (0.78)	
Waist Hip Ratio, mean (SD)		0.94 (0.67)	-
Length of ICU Stay (days), median (IQR) (n=80)		5 (2-6)	-
Length of Hospital Stay (days), median (IQR) (n=78)		10 (7-15)	-
In hospital mortality, n (%) (n=78)	No	61 (78.21)	-
	Yes	17 (21.79)	

Figure 1. ROC Analysis for In-hospital Mortality and Quadriceps Depth



Area under ROC curve = 0.76, Empirical Optimal cut-point = 2.6 cm, Sensitivity = 82.35 % (56.57 % to 96.20%), Specificity = 70.49% (57.43 % to 81.48 %), Positive Predictive Value = 43.75 % (33.24 % to 54.85 %) and Negative Predictive Value = 93.48 % (83.52 % to 97.59 %)

2024-0320

“Systemic Immune Inflammatory Markers as independent predictors of outcomes in Acute Cerebral Injury: Taking A Step Back To Catapult”

Archana Sharma[1*], Rohini Surve[1], Dhritiman Chakrabarti[1], Kavin Devani[2]
1. Neuroanesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bengaluru, India
2. Neurosurgery, National Institute of Mental Health and Neurosciences, Bengaluru, India

Background

Acute cerebral injury is a leading cause of fatality and infirmity globally. A systemic inflammatory response follows such insult, playing an essential role in cerebral damage as inflammatory cells recruited to ischemic brain tissue amplify inflammation. To develop objective methods for characterizing acute brain insult, we identified some biomarkers that mirror the patient's immune response and ongoing inflammatory response to prognosticate outcome of a patient. Through this study, we evaluated the correlation of these markers with outcome of patients with acute brain injury.

Methods

Retrospectively, we identified 3832 adult patients admitted to our institution over 03 years for acute brain injury (stroke, TBI, SAH). After receiving approval and waiver of consent from IRB, patients' demographic details, diagnosis, on-admission complete hemogram (neutrophils, monocytes, lymphocytes, platelets), blood glucose levels and serum albumin were noted, along with their outcomes. The markers were categorized as:

Raw variables - Neutrophils, Monocytes, Lymphocytes, Platelets, Blood Glucose, Serum Albumin

Ratio variables: derived from raw variables

- NLR (Neutrophil/lymphocyte ratio),
- LMR (Lymphocyte/Monocyte ratio)
- PLR (Platelets/Lymphocyte ratio)
- SII (Systemic immune inflammation index: Platelets × Neutrophils/ Lymphocytes)
- SIRI (Systemic Inflammation Response Index: Monocyte × Neutrophils/ Lymphocytes),
- AISI (Aggregate Index of Systemic Inflammation: Neutrophils × Platelets × Monocytes / Lymphocytes),
- LGI (Leuko-glycemic index: lymphocyte × glucose/1000),
- NPAR (Neutrophils/albumin ratio)

Results

3168 patients were analysed after excluding missing data where 745 patients had a poor outcome (mortality). Univariate logistic regression showed that among raw variables neutrophils, lymphocytes, platelets, glucose, and albumin and among the ratios, NLR, PLR, SII, SIRI, NPAR, and LGI were predictors of poor outcome(p<0.001). Multivariate regression showed that raised neutrophils, platelets, lymphocytes, glucose and albumin among raw variables and NLR, SII, LGI and NPAR among ratio variables were independent predictors of poor outcome(p<0.001). The ROC curve showed an AUC of 0.84 and 0.82 for raw and ratio variables, respectively. The predictive probability model showed a sensitivity of 97% and PPV of 90% for both variables.

Conclusion

These subtle yet pragmatic markers have a prognostic value in acute cerebral injury patients as they reflect neurological insults and pathological shifts that result in unfavourable outcomes. Being the earliest part of investigations, sparing the need for any separate test or imaging and readily comprehensible to sentinel medical personnel, they may help to impart aggressive management at the initial stages of an insult.

2024-0320

Figure & Table

Figure 1. Systemic inflammatory markers

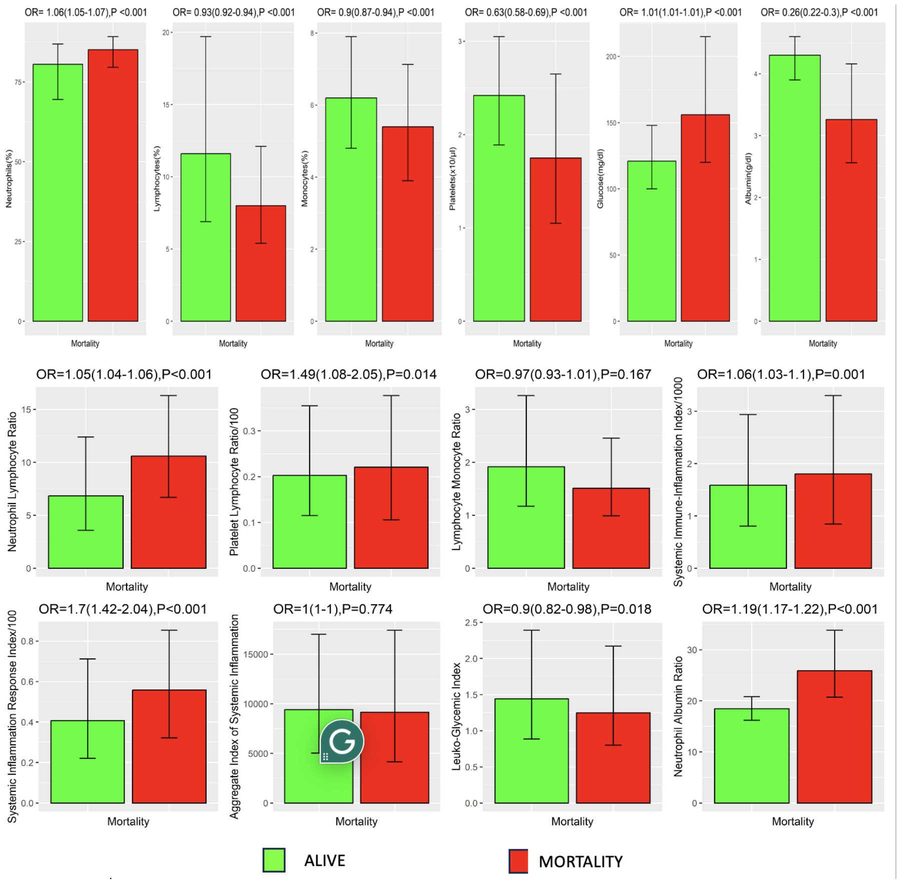
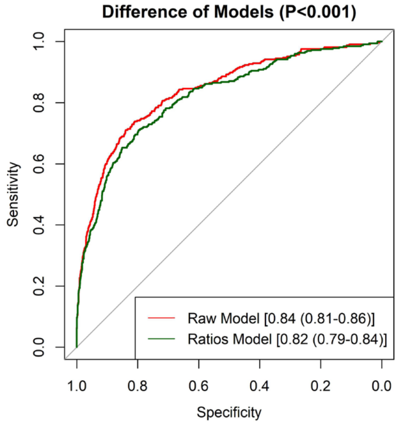


Figure 2. Sysytemic inflammatory markers ROC curve



2024-0235

Comparison of point-of-care haemoglobin monitoring in elective major neurosurgery patients

Bharath S[1*], Radhakrishnan M[1], Shwethashri K r[1]

1. Neuroanaesthesia & Neurocritical Care, National Institute of Mental Health and Neurosciences, India

Background

Major neurosurgeries have rapid fluid shifts, massive blood loss and transfusions, which require reliable haemoglobin (Hb) estimation at the bedside. (1,2) This study compared the noninvasive, continuous spectrophotometric method (SpHb) and Point-of-care (HCueHb) with laboratory Hb (LabHb) at different time points during elective neurosurgical procedures.

Methods

In this prospective observational cohort study, 47 Adult patients undergoing elective neurosurgery with anticipated blood loss of > 15% of estimated blood volume were recruited. The Masimo Radical-7 sensor was attached to the finger to monitor SpHb. An arterial cannula was inserted on the same hand and was used to sample blood for HCueHb and LabHb at baseline after induction, before transfusion and at the end of surgery. Bland-Altman analysis was used to determine the level of agreement between SpHb and HCueHb with LabHb.

Results

Twenty-six patients received blood transfusions. One hundred and nineteen datasets (HCueHb, SpHb, and LabHb) were analysed. The mean Hb values were 10.9 ± 1.7g/dl (SpHb), 11 ± 1.9g/dl (HCueHb), and 11.4 ± 1.8g/dl (LabHb). The mean difference between HCueHb to LabHb (0.43g/dl)and SpHb to LabHb (0.3g/dl) was significant at baseline ($p<0.001$). The mean difference was lower with SpHb before transfusion.

Conclusion

Both SpHb and HCueHb values were similar to LabHb within the clinical context (<0.5g/dl). SpHb performed better with anaemia.

2024-0235

Figure & Table

Table 1. Hemoglobin observed and comparison of mean differences between SpHb, HCueHb and Lab Hb

Hemodynamic state	SpHb*	HCueHb*	LabHb*	LabHb - SpHb$^{\#}$	p-value	LabHb - HCueHb$^{\#}$	p-value
Total (n=119)	10.9 ± 1.7	11 ± 1.9	11.4 ± 1.8	0.4 (0.2-0.6)	<0.001	0.4 (0.2-0.5)	<0.001
Baseline (n=47)	11.7 ± 1.5	11.8 ± 1.8	12.1 ± 1.7	0.43 (0.1-0.8)	0.014	0.3 (0.11-0.46)	0.002
Before transfusion (n=26)	9.7 ± 1.5	9.4 ± 1.7	10 ± 1.8	0.2 (-0.3-0.7)	0.360	0.7(0.2-1.2)	0.032
End of surgery (n=46)	10.9 ± 1.4	11.1 ± 1.4	11.3 ± 1.4	0.5 (0.2-0.8)	0.006	0.3 (0.02-0.5)	0.036

* - Mean ± Std Dev in g/dl; $^{\#}$ - mean difference (95% confidence intervals) in g/dl.

2024-0209

Delayed gastric emptying due to raised intracranial pressure in neurosurgical patients: An Association or just a Coincidence

Suresh kumar Singhal[1], **Renu Bala**[1], **Shveta Jindal**[1*]

1. Anaesthesiology and Critical care, Pt. BD Sharma, Postgraduate Institute Of Medical Sciences, Rohtak, Haryana, India

Background

The incidence of delayed gastric emptying is around 45-50% in TBI patients. It leads to difficulty in starting RT feed, risks of aspiration and ultimately poor patient prognosis. Ultrasound is increasingly used in intensive care units. The study was aimed to evaluate gastric emptying in neurosurgical versus non-neurosurgical patients by gastric ultrasound and assess its correlation with optic nerve sheath diameter(ONSD) as noninvasive indicator of ICP.

Methods

The present prospective, observational, comparative, open-labelled study was performed in ICU of our department after obtaining approval from institutional ethics committee and CTRI registration. Twenty adult neurosurgical patients of either sex (Group I) and equal number of patients with pulmonary pathology as control cohort (Group II) admitted to our ICU and receiving enteral feed were enrolled. Six hours after last feed, 300ml of water was administered through RT. Gastric ultrasound was done at various intervals and gastric volume, gastric emptying was calculated. Ocular ultrasound was performed and ONSD measured.

Results

The demographic profile was comparable in two groups. Delayed gastric emptying was noted in group I and it showed significant association with ONSD by univariate (p<0.001) as well as multivariate analysis (p=0.02).

Conclusion

Neurosurgical patients exhibited delayed gastric emptying as compared to non-neurosurgical patients and raised ICP is the likely cause of it. However, more prospective studies with large sample size will unfold varied aspects of gastric emptying especially after various feeding regimen.

2024-0209

Figure & Table

Table 1. Gastric & Ocular ultrasound characteristics. [GV,GER,ONSD expressed as mean(SD) while others as number(percentage)]

		Group I (n=20)	Group II(n=20)	P value
GV(ml)	T0	18.57(13.05)	15.28(12.21)	0.41
	T1	56.52(20.91)	26.83(17.03)	<0.001
	T2	32.30(13.2)	20.80(15.36)	0.01
GER(%)		33.8(13.29)	58.24(9.8)	<0.001
Perlas grade At T2	0	0	7(35%)	<0.001
	1	4(20%)	13(65%)	
	2	16(80%)	0	
Delayed GE	Yes	16(80%)	2(10%)	<0.001
	No	4(20%)	18(90%)	
ONSD (mm)		5.2(0.25)	4.32(0.34)	<0.001

GV-gastric volume; GER-gastric emptying rate; GE-gastric emptying; ONSD-optic nerve sheath diameter;T0-baseline; T1-2hrs after feed; T2-3hrs after feed;

2024-0339

Comparison of i-gel versus Proseal Laryngeal Mask Airway in Elective Procedures of Short Duration Requiring General Anaesthesia without Muscle Relaxants

Vinuth k Murthy[1*]

1. Department of Anaesthesia, ESIC Medical College Pgimsr & Mh, India

Background

Supraglottic airway devices (SADs) have been widely used as an alternative to tracheal intubation during general anaesthesia. They are easily inserted, better tolerated, with fewer haemodynamic changes and decreased airway morbidity. The Proseal Laryngeal Mask Airway (PLMA) and the i-gel airway are the two SADs which provide higher airway leak pressures than the classic LMA. Both these devices have separate channels for gastric tube insertion and are recommended for spontaneous as well as controlled ventilation.

Methods

A prospective randomized study was conducted on 76 patients who were posted for various elective short duration surgical / diagnostic procedures under general anaesthesia. They were randomly divided by closed envelope method into two groups of 38 patients each, Group I (i-gel) and Group P (PLMA). All the patients were induced with general anaesthesia and the planned supraglottic airway was inserted with head in neutral position. Ease of insertion, number of insertion attempts and incidence of adverse effects were assessed.

Results

There was no statistically significant difference between the two groups in terms of ease of insertion, number of insertion attempts and incidence of adverse effects but there was significant statistical difference in the mean duration of insertion between the two groups.

Conclusion

Insertion of i-gel was significantly easier and more rapid than insertion of PLMA. Both supraglottic airway devices are ideal and can be recommended as effective alternatives to endotracheal tube for short duration surgeries under general anaesthesia without muscle relaxation.

2024-0202

The association between perioperative hemodialysis timing and postoperative complications

Leerang Lim[1], Christine Kang[2], Hannah Lee[1], Ho geol Ryu[1,2*]

1. Anesthesiology and Pain Medicine, Seoul National University, Republic of Korea
2. Critical Care Medicine, Seoul National University Hospital, Republic of Korea

Background

End-stage renal disease (ESRD) patients undergoing surgery are at high risk for perioperative complications. The timing of preoperative hemodialysis (HD) has been considered an important factor, but the optimal timing remains unclear. Various expert groups have recommended different approaches, but supporting evidence is limited.

Recently, a large US study found an association between preoperative HD timing and postoperative mortality, but did not adjust for important intraoperative factors such as blood loss or transfusion. This study aimed to analyze the impact of preoperative HD timing on postoperative complications, to provide evidence for recommendations for optimal HD timing.

Methods

Adult ESRD patients who underwent scheduled HD within 3 days prior to surgery were included. Patients undergoing same-day surgery, kidney transplant, or requiring cardiopulmonary bypass were excluded. Relevant patient and surgical characteristics were collected, including demographics, comorbidities, surgical risk, and intraoperative factors.

The primary outcome was the association between a composite of ICU admission, mechanical ventilation, and continuous kidney replacement therapy (CKRT) within 7 days after surgery, and in-hospital mortality, and preoperative HD timing.

Results

A total of 1,935 patients were analyzed. There were no differences in baseline characteristics across the groups. But surgical risk or several intra-operative characteristics were differed between groups. (Table 1)

The composite outcome, discharge to ICU, ICU admission, and need for mechanical ventilation within 7 days after surgery were significantly higher in HD in the day of surgery before surgery group. However, in-hospital mortality did not differ.

Multivariable analysis showed HD in the day of surgery before surgery was significantly associated with increased risk of the composite outcome, postoperative discharge to ICU, and ICU admission with 7 days after surgery, compared to HD 2-3 days before the surgery, after adjusting for confounders like surgical risk or intraoperative variables (Figure 1). In a subgroup analysis of patients who underwent general anesthesia, performing HD on the day of surgery before the surgery showed a higher risk for composite outcomes compared to performing HD 2-3 days before surgery.

Conclusion

Preoperative HD timing impacts postoperative complications. HD on the day of surgery before surgery was associated with higher risks of postoperative complications compared to 2-3 days prior. Optimal HD timing should be considered to mitigate hemodynamic instability or electrolyte disturbances during the perioperative period.

2024-0202

Figure & Table

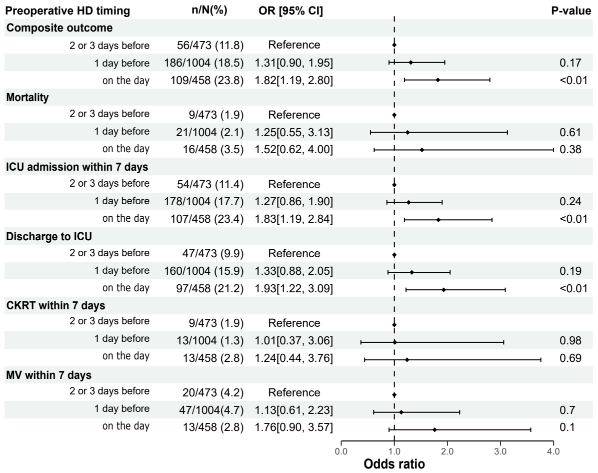
Table 1. Baseline characteristics

	Op day (N=458)	1 day before (N=1004)	2,3 days before (N=473)	*P*-value
Age, yr	61.0 (50.0-70.0)	62.0 (51.0-70.0)	62.0 (49.0-70.0)	0.34
Sex (F/M)	197/261	412/592	219/254	0.16
Height, cm	162.0(154.9-169.0)	162.5(156.0-169.4)	161.4(155.0-168.6)	0.10
Weight, kg	59.0 (52.0-66.8)	58.6 (51.9-67.6)	58.1 (51.5-66.4)	0.46
Comorbidities				
Hypertension	314 (68.6%)	749 (74.6%)	339 (71.7%)	0.05
Diabetes mellitus	208 (45.4%)	433 (43.1%)	194 (41.0%)	0.40
Cerebrovascular disease	46 (10.0%)	122 (12.2%)	39 (8.2%)	0.07
Congestive heart failure	27 (5.9%)	61 (6.1%)	18 (3.8%)	0.18
Coronary artery disease	82 (17.9%)	162 (16.1%)	70 (14.8%)	0.45
High risk surgery	127 (27.7%)	324 (32.3%)	102 (21.6%)	<0.001
RCRI				<0.01
1	192 (41.9%)	427 (42.5%)	246 (52.0%)	
2	202 (44.1%)	391 (38.9%)	177 (37.4%)	
3	52 (11.4%)	156 (15.5%)	42 (8.9%)	
4	10 (2.2%)	26 (2.6%)	7 (1.5%)	
5	2 (0.4%)	2 (0.2%)	1 (0.2%)	
6	0	2 (0.2%)	0	
ASA classification				0.48
3	446 (97.4%)	975 (97.1%)	460 (97.3%)	
4	11 (2.4%)	29 (2.9%)	13 (2.7%)	
5	1 (0.2%)	0 (0.0%)	0 (0.0%)	
Anesthesia type				<0.001
General	325 (71.0%)	727 (72.4%)	293 (61.9%)	
Neuraxial	65 (14.2%)	123 (12.3%)	31 (6.6%)	
MAC	50 (10.9%)	142 (14.1%)	140 (29.6%)	
Regional	18 (3.9%)	12 (1.2%)	9 (1.9%)	
Operation duration, min	80.0 (50.0-123.0)	84.0(50.0-130.5)	85.0(50.0-125.0)	0.63
Anesthesia duration, min	115.0 (80.0-160.0)	120.0 (80.0-170.0)	115.0 (80.0-160.0)	0.52
Infused fluid volume, mL	350.0 (150.0-800.0)	360.0 (150.0-800.0)	250.0 (100.0-600.0)	<0.001
Estimated blood loss, mL	30.0 (0-200.0)	30.0 (0-200.0)	0 (0-100.0)	<0.001
Preoperative hemoglobin level, g/dL	10.4 (9.5-11.3)	10.8 (9.8-11.7)	10.7 (9.5-11.7)	<0.001
Preoperative albumin level, g/dL	3.6 (3.1- 4.1)	3.7 (3.3- 4.1)	3.7 (3.2- 4.1)	0.05

Data are presented as median (IQR) or n (%).

RCRI, revised cardiac risk index; ASA-PS, American Society of Anesthesiology-Physical Status; MAC, monitored anesthesia care;

Figure 1.



Preoperative HD timing	n/N(%)	OR [95% CI]	P-value
Composite outcome			
2 or 3 days before	56/473 (11.8)	Reference	
1 day before	186/1004 (18.5)	1.31[0.90, 1.95]	0.17
on the day	109/458 (23.8)	1.82[1.19, 2.80]	<0.01
Mortality			
2 or 3 days before	9/473 (1.9)	Reference	
1 day before	21/1004 (2.1)	1.25[0.55, 3.13]	0.61
on the day	16/458 (3.5)	1.52[0.62, 4.00]	0.38
ICU admission within 7 days			
2 or 3 days before	54/473 (11.4)	Reference	
1 day before	178/1004 (17.7)	1.27[0.86, 1.90]	0.24
on the day	107/458 (23.4)	1.83[1.19, 2.84]	<0.01
Discharge to ICU			
2 or 3 days before	47/473 (9.9)	Reference	
1 day before	160/1004 (15.9)	1.33[0.88, 2.05]	0.19
on the day	97/458 (21.2)	1.93[1.22, 3.09]	<0.01
CKRT within 7 days			
2 or 3 days before	9/473 (1.9)	Reference	
1 day before	13/1004 (1.3)	1.01[0.37, 3.06]	0.98
on the day	13/458 (2.8)	1.24[0.44, 3.76]	0.69
MV within 7 days			
2 or 3 days before	20/473 (4.2)	Reference	
1 day before	47/1004(4.7)	1.13[0.61, 2.23]	0.7
on the day	13/458 (2.8)	1.76[0.90, 3.57]	0.1

2024-0285

Effect of bed height on laryngoscopy force and operator ergonomics during simulated endotracheal intubation

Ja Eun Lee[1], Kwan young Hong[1], Chisong Chung[1], Jeong-jin Min[1*]

1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Republic of Korea

Background

Excessive force during laryngoscopy for endotracheal intubation can result in injury to airway soft tissues and hemodynamic stress responses. In this randomized controlled trial on simulated intubation, we aimed to evaluate the effect of bed height on laryngoscopy force and operator ergonomics.

Methods

Fifty operators with varying levels of experience were enrolled to intubate an airway mannequin at two different bed heights— anterior superior iliac spine (level A) and xyphoid process (level X) of each operator—in a randomized sequence. The laryngoscopy force measured with a Pliance® pressure sensor attached to the surface of the Macintosh laryngoscopy blade, intubation characteristics, and ergonomic score based on the Rapid Entire Body Assessment tool were compared between the two bed heights (level A vs. X).

Results

Peak and impulse laryngoscopy forces were significantly lower at xyphoid (level X) compared to the lower bed height (level A) (peak force: 36.06 ± 9.77 N vs. 33.74 ± 8.69 N, P = 0.049; impulse force: 251.82 ± 106.06 N vs. 224.18 ± 86.48, P = 0.005). Laryngeal view (Cormack-Lehane grade) and subjective comfort were also better at level X (P = 0.0024 and P < 0.001, respectively). The ergonomic score was higher at the lower bed height (level A, P < 0.001), indicating a more strenuous work posture.

Conclusion

Bed height at xyphoid level reduced laryngoscopy force while improving laryngeal view and ergonomic comfort. Adjusting the bed height before endotracheal intubation can improve the operating environment, which in turn may contribute to safety of both patient and operator.

2024-0285

Figure & Table

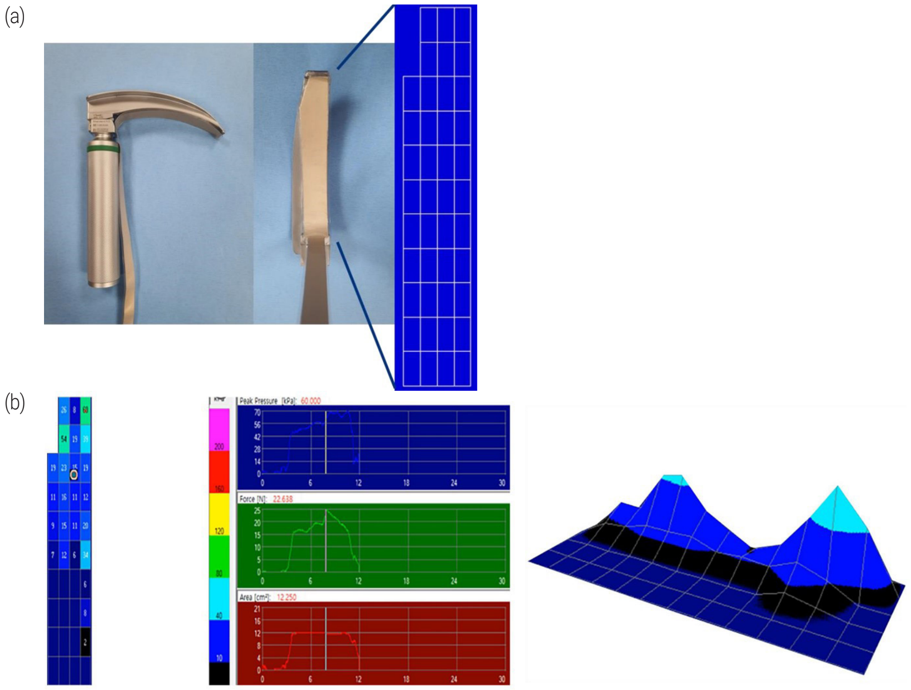
Table 1. Laryngoscopy force, intubation characteristics, and ergonomic score according to the bed height

	ASIS	Xyphoid	Estimate (SE)	95% CI	*P*-value
Peak force [N]	36.06 ± 9.77	33.74 ± 8.69	2.38 (1.21)	0.01, 4.76	0.049*
Average force [N]	16.88 ± 5.23	15.73 ± 4.08	1.19 (0.65)	-0.08, 2.46	0.066
Impulse force [N]	251.82 ± 106.06	224.18 ± 86.48	37.45 (13.22)	11.54, 63.36	0.0046†
Laryngeal view grade[a]	2 [1-2]	1 [1-2]	-0.33 (0.11)	-0.54, -0.11	0.0024†
Subjective discomfort[b]	2 [1-3]	1 [1-2]	-0.58 (0.14)	-0.856, -0.30	<0.001‡
Final REBA score	8.32 ± 1.25	6.09 ± 1.47	-2.21 (0.21)	-2.63, -1.79	<0.001‡
REBA subscore for central body[c]	7.09 ± 1.01	5.44 ± 0.89	-1.65 (0.17)	-1.98, -1.32	<0.001‡
REBA subscore for left arm[d]	4.20 ± 0.88	4.02 ± 0.66	-0.17 (0.14)	-0.45, 0.11	0.234

Data are presented as mean ± standard deviation or median [interquartile range]. ASIS = anterior superior iliac spine; SE = standard error; CI = confidence interval. [a]Laryngeal view is based on Cormack-Lehane grading, and our numerical scale corresponds to each grade as follows: 1 = grade 1 / 2 = grade 2A / 3 = grade 2B / 4 = grade 3A / 5 = grade 3B / 6 = grade 4. [b]Subjective discomfort grade is as follows: 1 = no discomfort / 2 = slight discomfort / 3 = moderate discomfort / 4 = significant discomfort. For laryngoscopy force, generalized estimating equation (GEE) model was used with missing data treated with inverse probability weighting (IPW); n = 46 and 47 for ASIS and xyphoid, respectively. For laryngeal view grade and subjective discomfort, GEE model with an AR(1) working correlation structure was used; n = 44 and 45 for ASIS and xyphoid, respectively. [c]REBA subscore for central body is based on joint angles of neck, trunk, and knees. [d]REBA subscore for left arm (the laryngoscopy-lifting arm) is based on joint angles of left shoulder, elbow, and wrist. GEE model with an AR(1) working correlation structure was used; n = 44 and 45 for ASIS and xyphoid, respectively.

*,†,‡ denote P-values below 0.05, 0.01, 0.001, respectively.

Figure 1. Instrumentation for laryngoscopy force measurement. (a) Pliance® pressure sensor applied to the contact surface of Macintosh 3 blade. (b) Force data capture process and real-time display of pressure and force with visual assistance.



2024-0082

Pressure Support Ventilation and Electroencephalography-Guided Emergence to Prevent Unwanted Complications: A Randomized Controlled Trial

Sun-Kyung Park[1], Jayyoung Bae[1], Dong woo Han[1], Young Song[1*]

1. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Gangnam Severance Hospital, Republic of Korea

Background

In patients undergoing thyroid surgery under general anesthesia, coughing during emergence can lead to potentially harmful complications, such as neck hematoma. This study aims to assess whether pressure-support ventilation (PSV) and electroencephalogram (EEG)-guided emergence can reduce the risk of emergence cough and subsequently avoid these unwanted complications after thyroid surgery, compared to conventional emergence technique.

Methods

We randomly assigned 120 adult patients under 40 years old, scheduled for thyroid surgery, to either PSV and EEG-guided emergence group (intervention group) or conventional emergence group (control group). In the intervention group, PSV was applied from the start of subcutaneous suture until extubation. The attending anesthesiologist performed tracheal extubation after the age-adjusted minimum alveolar concentration (MAC) reached 0.2, and upon observing the 'zipper opening' pattern on the EEG spectrogram, which indicated the patient's recovery of consciousness. Additional criteria for extubation included the 95% spectral edge frequency reaching 23 Hz or higher and the patient state index being at least 64, both thresholds derived from our pilot study. In the control group, conventional full-awake extubation was performed. The co-primary outcomes were the incidence of emergence coughing and the lowest percutaneous oxygen saturation (SpO2) after emergence, with a non-inferiority margin set at 2%. Secondary outcomes included severity of emergence cough, the Richmond Agitation-Sedation Scale score immediately after extubation and upon post-anesthesia care unit (PACU) arrival, hoarseness, sore throat during PACU stay, surgeon satisfaction with emergence process, and patient satisfaction with emergence process.

Results

In the preliminary analysis of 52 patients, the incidence of emergence cough was significantly lower in the intervention group compared to the control group (22.2% vs. 95.3%; P<0.001). The mean lowest SpO2 during the emergence process was 97.9% (SD 1.4) in the intervention group vs. 97.7% (SD 2.0) in the control group (mean difference [95% CI], 0.23 [-0.92 to 1.39]), demonstrating non-inferiority. The severity of cough, assessed by the modified Minogue scale, was significantly lower in the intervention group (median [IQR], 1 [1–1] vs. 3 [2.5–4]; P<0.001). Sore throat during PACU stay was significantly less frequent in the intervention group (22.2% vs. 74.4%; P=0.009).

Conclusion

The interim analysis indicates that PSV and EEG-guided emergence can reduce emergence cough and provide noninferior lowest SpO2 during emergence process in patient undergoing thyroid surgery compared to conventional emergence technique.

2024-0082

Figure & Table

Table 1. Patients' demographics and baseline data

	Control (*n*=43)	Intervention (*n*=9)	*P* value
Age, year	35.0 (31.0–38.0)	39.0 (36.0–44.0)	0.021
Women, n (%)	37 (86.0)	8 (88.9)	1.000
Height, cm	161.9 (159.9–167.1)	165.0 (160.9–167.7)	0.586
Weight, kg	58.5 (52.1–71.3)	61.9 (57.4–65.9)	0.483
Body mass index, kg/m^2	22.3 (20.4–25.8)	23.7 (21.1–24.8)	0.781

Categorical data were compared using the χ^2 test and are presented as numbers and percentages. Continuous data were compared using the Wilcoxon rank-sum test and are presented as medians (interquartile ranges).

Table 2. Primary and secondary outcomes

	Control (*n*=43)	Intervention (*n*=9)	*P* value
Emergence cough, n	41 (95.3%)	2 (22.2%)	<0.001
Lowest SpO_2 after emergence	98 (97–99)	97 (97–99)	0.990
Severity of emergence coughing by modified Minogue scale	3 (2.5–4)	1 (1–1)	<0.001
Tube biting, n	1 (2.3%)	0	1.000
Hypoventilation after extubation, n	0	0	1.000
Surgeon's satisfaction regarding emergence process	8 (8–9)	10 (9–10)	0.030
RASS immediately after extubation	-1 (-1 to -1)	-1 (-2 to 0)	0.886
Cough at PACU, n	3 (7.0%)	0	0.976
RASS upon PACU arrival	0 (-1 to 0)	0 (-1 to 0)	0.409
Hoarseness, n	26 (60.5%)	3 (33.3%)	0.262
Sore throat, n	32 (74.4%)	2 (22.2%)	0.009
Patient satisfaction regarding emergence process	9 (8–9)	10 (9–10)	<0.001

Categorical data are presented as absolute numbers (percentages), and continuous data as medians (interquartile ranges).
Chi-square test was used to compare distributions, and Wilcoxon rank-sum test was used to compare medians.
Abbreviations: PACU, post-anesthesia care unit; RASS, Richmond Agitation-Sedation Scale.

2024-0323

Association of E-Health Literacy with Health Status in Older Surgical Patients

Pavida Srichant[3], Varalak Srinonprasert[2,3], Pawit Somnuke[1], Papob Chaiwatanodom[4],
Yollada Phungsiangdee[3], Arunotai Siriassawakul[1,3*]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
2. Division of Geriatric Medicine, Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
3. Siriraj Integrated Perioperative Geriatric Excellence Research Center, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
4. Department of Rehabilitation Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background

Thailand is moving to a fully aged society. Older people are more vulnerable to surgery and medical services compared to other age groups. To encourage healthy aging and self-reliance in the long term, ability to use technology should be emphasized. Therefore, eHealth literacy (eHEALS), i.e., ability to search for, understand, and evaluate health information from electronic sources, is crucial. The objectives of this study were: 1) to explore the level of eHEALS 2) to explore the relationship between the eHEALS and postoperative complications 3) to explore the association of demographic data, health perception and behavior on social media with the eHEALS of older patients undergoing surgery.

Methods

A cross-section study was conducted on patients aged 60 years and above who underwent all types of surgery and anesthesia at a University Hospital. The exclusion criteria included patients who were not able to communicate in Thai, and were not able to complete questionnaires. Data collected consisted of demographic data, eHEALS (8 items), health perception, search behavior on online/social media about health data, general self-efficacy scale, EQ-5D-5L, VAS and postoperative complications. The eHEALS were categories score < 26 as low health literacy and ≥ 26 is high health literacy. Descriptive statistics were performed to analyze data, multiple logistic regression was used to determine associations between variables.

Results

A total of 291 patients underwent surgery from December 2022 to May 2024 were included. The average age was 67 years, with 151 females and 140 males. The majority of surgical procedures was general surgery (120; 41.2%), and 204 patients (70.1%) received general anesthesia. The average eHEALS score was 18.93 (SD = 11.14). Of these patients, 194 (66.67%) had low eHEALS, and 13 (6.7%) with low eHEALS experienced postoperative complications. Patients with low e-health scores spend more days in the hospital compared to patients with high e-health scores. The median length of hospital stay for patients with low eHEALS was 4 days. In patients under 70 years old, frequently online/social media searches and often search behavior on online/social media about health data significantly contributed to an increased eHEALS.

Conclusion

Most older patients undergoing surgery who often search behavior on online/social media about health data will high their eHEALS. The institutions responsible for elderly care should enhance their ability to access health information through online and social media channels and apply knowledge to solve health problems effectively.

2024-0323

Figure & Table

Figure 1.

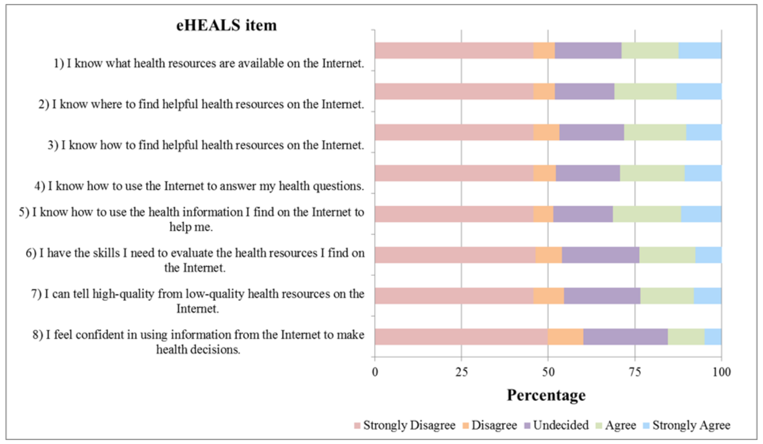


Table 1. Multiple logistic regression predicting eHEALS with dependent variables.

Model	odd	95% CI	Sig
Age			
60-69	3.61	0.962 to 13.56	**0.057***
70+	ref		
Status , n (%)			
single	ref		
separate/widowed/divorced	0.48	0.15 to 1.58	0.230
married/living as married	0.84	0.18 to 4.02	0.828
Income			
no income	ref		
< 15,000	0.62	0.18 to 2.131	0.448
≥ 15000	1.38	0.49 to 3.90	0.542
Uncertain income	2.98	0.39 to 22.78	0.292
Caretaker			
Have no caretaker	1.92	0.36 to 10.22	0.443
Have caretaker	ref		
ASA, n (%)			
ASA 1	ref		
ASA 2	0.29	0.034 to 2.541	0.266
ASA 3	0.13	0.01 to 1.45	0.097
Anesthesia technique			
GA	ref		
RA	0.49	0.13 to 1.90	0.303
Combine GA and RA	0.56	0.11 to 2.73	0.470
other	0.22	0.01 to 3.49	0.283
CCI point			
have a few comorbid	ref		
have a moderate comorbid	0.90	0.32 to 2.57	0.849
have a lot of comorbid	2.05	0.47 to 9.06	0.342
Frequency of searching on online/social media			
Rarely	ref		
Occasionally	1.896	0.66 to 5.46	0.236
Frequently	17.721	4.76 to 66.04	<0.001*
Health Perception			
Moderate level	ref		
High level	1.024	0.93 to 1.13	0.632
Search behavior on online/social media about health data			
Never	ref		
Sometimes	20.899	5.01 to 87.21	<0.001*
Often	18.80	2.574 to 137.31	0.004*

* Statistically significant P<0.05.

2024-0129

The Empirical Use of Antifungal in Non-Neutropenic Critical Care Patients: Associated Factors and Treatment Outcome

Vishaaliny Permalu[1,2], Mohd makmor Bakry[2], Aliza Alias[3], Yeh Han Poh[1*], Noornadia Noorzaidy[1]

1. Department of Anaesthesiology and Intensive Care, Sungai Buloh Hospital, Malaysia
2. Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Malaysia
3. Hospital Shah Alam, Ministry of Health, Malaysia

Background

Despite the lack of significant survival benefit, empirical antifungal treatment is often prolonged among patients in critical care units, leading to potential drug toxicity, emergence of resistant strains, and increased healthcare costs. This study aims to identify factors associated with prolonged empirical antifungal use and all-cause in-hospital mortality among critical care patients.

Methods

A retrospective cross-sectional study was conducted among patients admitted to the critical care units from October 2021 and February 2023. Patients prescribed with intravenous empirical antifungal were included. Major abdominal surgery, total parenteral nutrition, candida colonization, broad-spectrum antibiotics use, and length of critical care stay are among the factors analysed. Multivariable logistic regression was used to identify factors associated with the duration of antifungal treatment, while Chi-square test was used to analyse all-cause in-hospital mortality.

Results

A total of 102 patients were included in this study. The median length of critical care unit stay was 15 days (IQR 8, 21). The most commonly used antifungal was Fluconazole (79.4%). Of the patients, 64 (62.7%) received prolonged empirical antifungal treatment. Candida colonization was independently associated with prolonged empirical antifungal use (AOR = 3.125; 95% CI = 1.050 – 9.301; $p = 0.041$). All-cause in-hospital mortality was higher among patients who received prolonged antifungal treatment ($p = 0.026$).

Conclusion

Prolonged empirical antifungal use was prevalent among the studied patients with candida colonization emerging as a significant predictive factor. However, despite of prolonged antifungal use, higher mortality rate was observed among these patients, suggesting no survival benefit from its prolonged use.

2024-0083

Burnout, Personality Traits and Resilience Among anaesthesia personnel in Thailand

Napasorn Sakulteera[1], Sirirat Rattana-arpa[1], Pongtong Puranitee[2], Atipong Pathanasethpong3, Kasana Raksamani[1*]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
2. Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand
3. Department of Anesthesiology, Faculty of Medicine, Khon kaen University, Thailand

Background

Burnout is a psychological syndrome resulting from chronic workplace stress, leading to inefficient work processes, job dissatisfaction and negative health outcomes. Burnout rates are linked to personality traits, particularly those identified in the five-factor model. Resilience, the ability to recover from setbacks, plays a crucial role in coping with burnout. This research aimed to determine the prevalence of burnout and its association to personality traits and resilience among anesthesia personnel in Thailand.

Methods

A survey was conducted from April to June 2024, distributed to anesthesiologists and certified registeres nurse anesthetists (CRNA) in Thailand. The study used Maslach Burnout Inventory Human Services Survey (MBI-HSS) to assess burnout, Mini International Personality Item Pool(MINI-IPIP) to study the five-factor personality model, and Connor Davidson Resilience Scale (CD-RISC) to evaluate resilience. These constructs were surveyed through online questionnaires.

The primary research question was to assess the prevalence of anesthesia personnel at high risk for burnout. The high risk for burnout was defined as scoring at least 27 on the emotional exhaustion subscale and at least 10 on the depersonalization subscale of the MBI-HSS. Burnout syndrome was defined as demonstrating all three burnout dimensions. Secondary research questions aimed to identify the five-factor personality model and resilience scale, find associations among them, and determine the risk factors for high risk burnout.

Results

A total of 613 anesthesia personnel completed the survey, with 20 having missing data completely at random, 593 participants remained for analysis. 262 participants were determined to be at high risk for burnout. The mean scores for emotional exhaustion, depersonalization, and personal accomplishment were 37.44, 6.49, and 35.33 respectively.

The five-factor personality traits showed personnel with lower scores in openness (OR 0.83), conscientiousness (OR 0.73), extraversion (OR 0.73) and higher score in neuroticism (OR 2.72) were at high risk of burnout.

The resilience scale was divided to lowest (score 0-29), second (30-32), third (33-36) and top (37-40) quartile where lowest meaning the population shows hardiness corresponding to flexibility, self-efficacy, ability to regulate emotion, optimism and cognitive focus. Majority of high risk burnout anesthesia personnels were found to be in the lowest quartile, 76.3%.

Key independent risk factors for high risk burnout were associated with decreasing age and number of years working in this field and increasing number of shifts and working days per week. Personnels who had perception of burnout feelings and thoughts of leaving the job were also at high risk. CNRA had a higher rate of burnout compared to anesthesiologists (78.4% vs 21.6%, OR 1.29). Personnels working in public hospitals i.e. general, regional, community and university-affiliated hospitals were at higher risk of burnout compared to working in private hospitals (OR 1.71, 2.53, 2.03 and 2.11 respectively).

Conclusion

Anesthesia personnel in Thailand have high risk of burnout, with independent risk factors including age, working days, perception of burnout feelings, thoughts of leaving the job, and resilience scale.

2024-0312

Comparison of Pre-Oxygenation with Heated Humidified High Flow Nasal Cannula Vs. Standard technique for Induction of General Anaesthesia followed by Fiber-Optic Nasal Intubation in patients undergoing Head & Neck Onco-Surgery: A randomized Controlled Trial

Manisha Sahoo[1*], Brajesh Ratre[1], Balbir Kumar[1]

1. Onco-Anaesthesia and Palliative Medicine, Dr B.R.A.Irch, AIIMS, New Delhi, India

Background

Pre-oxygenation before tracheal intubation prolongs the time available for securing the airway before hypoxemia. Traditionally, ventilation is performed manually using an anatomical facemask (FM) after the patient loses consciousness till tracheal intubation. In anticipated difficult mask ventilation, facemask ventilation may not be feasible. High-Flow Nasal Cannula (HFNC) can deliver warm and humidified oxygen through a specially designed nasal cannula at 60L/min and prolong the apnoeic period. An anatomical face mask can deliver at 100% oxygen at 15L/min, maximum.

We hypothesized that an extended apneic period with pre-oxygenation via the HFNC compared to standard technique in these patients.

AIM AND OBJECTIVES:

We compared HFNC and FM for pre-oxygenation before anaesthesia induction and fibre-optic nasal intubation in head and neck onco-surgical patients.

Objectives were to compare both the groups for PaO2(primary), PaCO2, ABG, drop in saturation, time taken for intubation, hemodynamic changes and post-intubation EtCO2 and EtO2 changes.

Methods

This study was designed as a single centre, double blinded, parallel group, randomised controlled trial.

This study was pre-approved by our Institutional Ethics Committee with the Ethics No as- IEC-395/06.05.2022

Sample Size Calculation-

Based on previously published data[1] - pre-oxygenation achieved in terms of median PaO2-HFNC- 406 (362 - 446) mm Hg

FM- 335 (292 - 389) mm Hg

The estimated values of mean (SD) PaO2- HFNC- 339 (82.3) mm Hg

FM- 405 (71.3) mm Hg

Confidence interval(C.I)- 95%

Power- 80%

Calculated sample size- 37 participants per group

Total sample size- 74

74 consenting adult ASA I and II patients posted for head and neck surgery were randomised in a 1:1 ratio in either group- HFNC or FM. Standard ASA monitors were applied and an arterial cannula was secured under local anaesthesia for ABG- baseline, post-preoxygenation and post-relaxant to compare PaCO2. Standard General Anaesthesia(GA) induction was done for both groups. The time taken to perform fibre-optic intubation and desaturation was recorded. Standard statistical tests were applied as required.

Results

Normality of the data- Shapiro- Wilk test or Kolmogorov Smirnov test
Non parametric test: Mann Whitney U test
Student t-test- Non-Normal values
Chi-square test/Fisher's exact test- Association
"p- value" less than 0.05- Statistical Significance

Quantitative data- Mean + S. D. or Median (IQR)

PaO2, expressed as Mean(S.D.) was 344.3(143.5) and 334.7(167.6) mm Hg for HFNC and FM, respectively post Intubation. No significant difference for both primary and secondary outcomes were noted. Baseline data were similar in both the groups.

Conclusion

Both HFNC and FM are equally efficient for pre-oxygenation and fibre-optic nasal intubation.

Figure & Table

Figure 1.

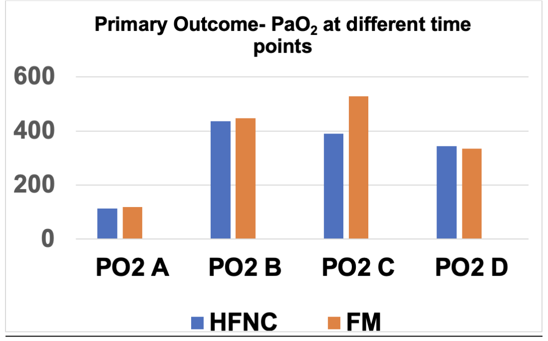


Figure 1- Depicts the comparison between PaO$_2$ achieved with HFNC vs FM at timepoints- A- Room air, B- Pre- Induction, post pre- oxygenation, C- Pre- Intubation, D- Post Induction

Table 1.

PARAMETERS Median (IQR)	**HFNC (N=37)**	**FM (N=37)**	**P- Value**
Time taken for intubation	**136 (110 – 160)**	**142 (122— 190)**	**0.239**
EtCO$_2$ Post Intubation	**48 (44 – 52)**	**40 (39 – 45)**	**0.353**
EtO$_2$ Post Intubation	**50 (40 – 58)**	**54 (41 – 66)**	**1.000**

Table 1- Shows the time taken for intubation, End-tidal Carbon dioxide and oxygen as will be displayed on the anesthesia machine screen post intubation for HFNC and FM. They are expressed as Median(Interquartile Range) as they were found to be non-parametric on Normality Test. They had no significant difference between them.

2024-0173

Effect of perioperative transdermal nicotine therapy on postoperative pain: A systematic review and meta-analysis.

Bharat Yalla[1], Puneet Khanna[1*]

1. Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Background

Effective pain management during the perioperative phase is essential not only for ensuring patient comfort but also for improving surgical outcomes and enabling a more seamless recovery process. Nicotine Replacement Therapy (NRT) has emerged as a potential intervention for managing perioperative pain and presents a novel approach for pain relief that is available in multiple forms. Among them, nicotine patches offer a slow and sustained release of nicotine, with peak concentrations occurring hours after application; however, their effectiveness remains inconclusive. This systematic review and meta-analysis aimed to determine the effect of a perioperative transdermal nicotine patch on postoperative pain in both smokers and non-smokers compared with a placebo.

Methods

A literature search was performed using electronic databases, such as PubMed, Google Scholar, Embase, Cochrane Reviews, MEDLINE, and the US Clinical Registry. Randomized controlled trials comparing the analgesic effect of a transdermal nicotine patch with a placebo for postoperative pain were included. The primary outcome was postoperative pain score (NRS-Numerical Rating Scale) at 24 h; secondary outcomes were time to first rescue analgesia, incidence of postoperative nausea and vomiting (PONV), and patient satisfaction. Inverse variance and Mantel-Haenszel statistical analysis methods were used for continuous and dichotomous data, respectively. All results were quantitatively analyzed using a random-effects model.

Results

Twelve studies with 735 patients were included in both groups and showed no significant difference in pain scores (NRS) at 24 h between the two groups, with an MD of -0.25 (95% CI -0.56 to 0.06, p<0.008; (I2=96%, p<0.00001). However, subgroup analysis, including smokers alone, showed a significant reduction in postoperative pain scores (NRS) at 24 h with an MD of of-0.56 (95% CI -0.62 to 0.51, p<0.00001), (I2=0%, p=0.54), and there was no significant difference in postoperative opioid consumption (morphine equivalent) MD -0.92 (95% CI -5.04 to 3.21, p=0.66); (I2=23%, p=0.27). Similarly, there were no significant differences in the time to first rescue analgesia, incidence of PONV, or patient satisfaction between the two groups.

Conclusion

The perioperative transdermal nicotine therapy significantly reduced postoperative pain scores in smokers but showed no significant difference in postoperative pain scores in non-smokers, time to first rescue analgesia, incidence of PONV, and patient satisfaction compared to placebo. However, further large, randomized controlled trials are required to support this finding in smokers.

2024-0173

Figure & Table

Figure 1. PRISMA 2009 Flow Diagram

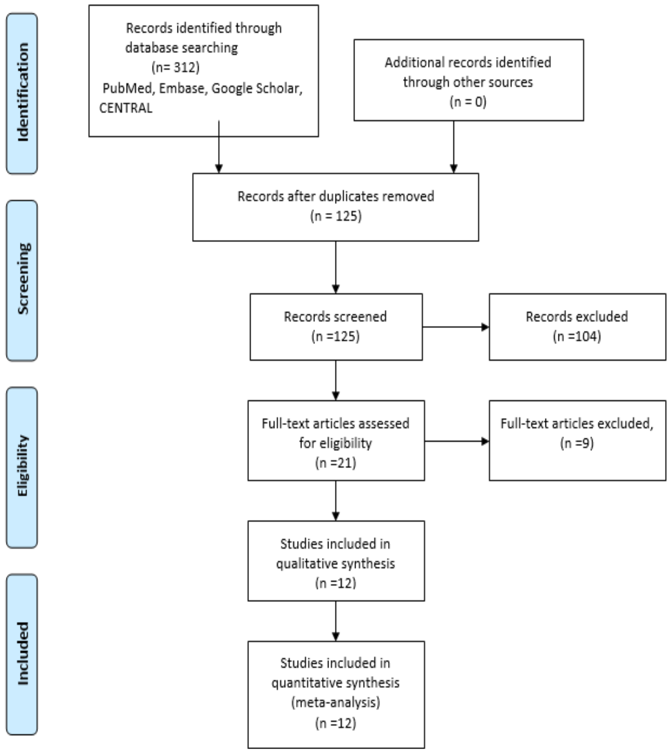
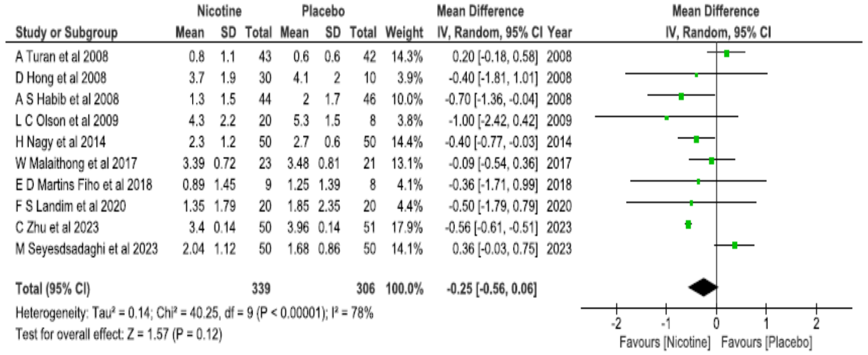

Identification
Screening
Eligibility
Included
Records identified through database searching (n= 312) PubMed, Embase, Google Scholar, CENTRAL
Additional records identified through other sources (n = 0)
Records after duplicates removed (n = 125)
Records screened (n =125)
Records excluded (n =104)
Full-text articles assessed for eligibility (n =21)
Full-text articles excluded, (n =9)
Studies included in qualitative synthesis (n =12)
Studies included in quantitative synthesis (meta-analysis) (n =12)

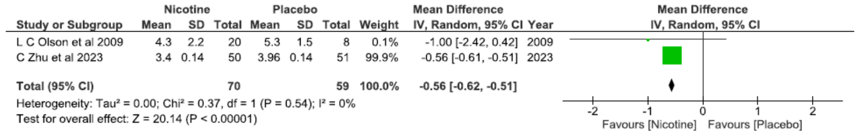
Figure 2A. Postoperative pain scores (NRS) at 24hr.



	Nicotine			Placebo				Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	Year
A Turan et al 2008	0.8	1.1	43	0.6	0.6	42	14.3%	0.20 [-0.18, 0.58]	2008
D Hong et al 2008	3.7	1.9	30	4.1	2	10	3.9%	-0.40 [-1.81, 1.01]	2008
A S Habib et al 2008	1.3	1.5	44	2	1.7	46	10.0%	-0.70 [-1.36, -0.04]	2008
L C Olson et al 2009	4.3	2.2	20	5.3	1.5	8	3.8%	-1.00 [-2.42, 0.42]	2009
H Nagy et al 2014	2.3	1.2	50	2.7	0.6	50	14.4%	-0.40 [-0.77, -0.03]	2014
W Malaithong et al 2017	3.39	0.72	23	3.48	0.81	21	13.1%	-0.09 [-0.54, 0.36]	2017
E D Martins Fiho et al 2018	0.89	1.45	9	1.25	1.39	8	4.1%	-0.36 [-1.71, 0.99]	2018
F S Landim et al 2020	1.35	1.79	20	1.85	2.35	20	4.4%	-0.50 [-1.79, 0.79]	2020
C Zhu et al 2023	3.4	0.14	50	3.96	0.14	51	17.9%	-0.56 [-0.61, -0.51]	2023
M Seyesdsadaghi et al 2023	2.04	1.12	50	1.68	0.86	50	14.1%	0.36 [-0.03, 0.75]	2023
Total (95% CI)			**339**			**306**	**100.0%**	**-0.25 [-0.56, 0.06]**	

Heterogeneity: $Tau^2 = 0.14$; $Chi^2 = 40.25$, df = 9 (P < 0.00001); $I^2 = 78\%$
Test for overall effect: Z = 1.57 (P = 0.12)

Figure 2B. Postoperative pain scores (NRS) in smokers alone at 24hr.



	Nicotine			Placebo				Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	Year
L C Olson et al 2009	4.3	2.2	20	5.3	1.5	8	0.1%	-1.00 [-2.42, 0.42]	2009
C Zhu et al 2023	3.4	0.14	50	3.96	0.14	51	99.9%	-0.56 [-0.61, -0.51]	2023
Total (95% CI)			**70**			**59**	**100.0%**	**-0.56 [-0.62, -0.51]**	

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.37$, df = 1 (P = 0.54); $I^2 = 0\%$
Test for overall effect: Z = 20.14 (P < 0.00001)

2024-0066

Continuous preperitoneal vs. thoracic epidural analgesia in open pancreaticoduodenectomy: A randomized controlled trial

Taeyup Kim[1], Jin-young Jang[2], Ho-jin Lee[1,3*]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
2. Department of Surgery and Cancer Research Institute, Seoul National University College of Medicine, Republic of Korea
3. Department of Anesthesiology and Pain Medicine, Seoul National University College of Medicine, Republic of Korea

Background

Thoracic epidural analgesia (TEA), once the standard for pain management in major abdominal surgeries, is associated with postoperative complications, making preperitoneal continuous wound infusion (CWI) a promising alternative. Thus, this study aimed to compare the effectiveness of CWI and TEA in managing postoperative pain after open pancreaticoduodenectomy (PD).

Methods

In a single-centre, randomised, open-label noninferiority trial, adult patients undergoing elective open PD were assigned to either CWI or TEA for pain management. The primary outcomes were mean pain scores at rest and during coughing on the first three days postoperatively, using an 11-point numeric rating scale (NRS), with a ≤1 point noninferiority margin. Secondary outcomes included pain scores on postoperative days (PODs) 1, 2, and 3; total opioid consumption; incidence of postoperative complications; quality of postoperative recovery; and length of hospital stay.

Results

Among the 131 patients analysed (CWI, n=67; TEA, n=64), CWI was noninferior to TEA in terms of mean pain scores at rest and during coughing (at rest, mean difference: 0.08, 95% CI: 0.69–0.54; during coughing, mean difference: 0.00, 95% CI: -0.61–0.60). Additionally, CWI demonstrated superior pain relief at rest and higher quality of recovery scores on POD 3. No other outcome measures, except total opioid consumption, postoperative hypotension, and time to the first passage of flatus, showed significant differences between the two groups.

Conclusion

CWI was noninferior to TEA during the early postoperative period and has emerged as a favourable alternative to TEA, offering better pain relief and enhanced recovery on POD 3.

2024-0066

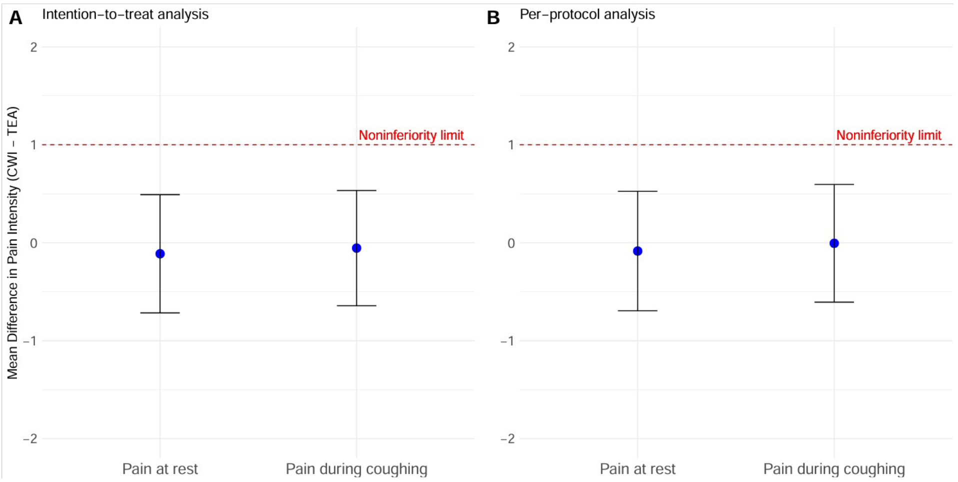
Figure & Table

Table 1. Postoperative outcomes other than postoperative pain

		CWI (n = 67)	TEA (n = 64)	Median difference or Relative risk (95% CI)	P value
QoR-15K (0–150)	POD 1	91.7. ± 24.9	94.0 ± 26.3	-2.2 (-11.1 to 6.6)	0.620
	POD 2	98.5 ± 23.3	101.6 ± 25.7	-3.1 (-11.6 to 5.4)	0.472
	POD 3	108.2 ± 23.3	96.6 ± 27.2	11.6 (2.8 to 20.4)	0.010
Postoperative nausea/vomiting		22 (32.8)	16 (25.0)	1.31 (0.76 to 2.27)	0.327
Postoperative hypotension		3 (4.5)	26 (40.6)	0.11 (0.04 to 0.35)	< 0.001
Postoperative sedation		5 (7.5)	2 (3.1)	2.39 (0.48 to 11.87)	0.287
Postoperative respiratory depression		4 (6.0)	3 (4.7)	1.27 (0.30 to 5.47)	0.745
Urinary retention		7 (10.4)	8 (12.5)	0.84 (0.32 to 2.17)	0.713
Time to passage of first flatus, hours		72.0 [59.0, 96.0]	57.5 [36.0, 80.5]	18 (6.0 to 29.0)	0.003
Postoperative length of hospital stays, days		9 [8, 15]	9 [8, 12]	0 (-1 to 1)	0.512
Major postoperative complications		17 (25.4)	14 (21.9)	1.16 (0.62 to 2.15)	0.639
Clinically relevant postoperative pancreatic fistula		9 (13.4)	5 (7.8)	1.72 (0.61 to 4.86)	0.306

The values are presented as the mean ± standard deviation or median [interquartile range] or number (%).
CWI, continuous wound infiltration; POD, postoperative day; QoR-15K, Korean version of Quality of Recovery-15; TEA, thoracic epidural analgesia

Figure 1.



2024-0245

Ultrasound guided supraclavicular vs costoclavicular brachial plexus block: Comparison of ipsilateral hemidiaphragmatic paresis in upper limb surgeries

Rashi Sarna[1*], Nidhi Bhatia[1], Ankur Kumar[1]

1. Anesthesia and Instensive Care, Post Graduate Institute of Medical Education and Research, India

Background

Costoclavicular brachial plexus block is emerging as a promising infraclavicular approach performed just below the clavicle. However, there are relatively little data regarding the hemidiaphragmatic paralysis (HDP) post CCB. We hypothesized that the incidence of HDP post CC block is lower than SCB. So, the current study compared the incidence of ipsilateral hemidiaphragmatic paresis, between a supraclavicular and costoclavicular BPB.

Methods

After receiving institutional ethics committee permission (INT/IEC/2020/SPL-345), this study was carried out in patients aged between 18 -65 years undergoing traumatic upper limb surgery. Sixty patients were randomly assigned to ultrasound-guided supraclavicular (SCB group) or costoclavicular (CCB group) block with 20 mL of 0.5% ropivacaine. Ipsilateral hemidiaphragmatic excursion was taken before and at 30 min after the BPB. Diaphragmatic excursion was measured using M-mode ultrasound during normal breathing, deep breathing and with the sniff manoeuvre. Ipsilateral PNP was defined as a reduction in hemidiaphragmatic excursion by at least 50% during deep breathing at 30 min after the BPB. The secondary objectives were block onset time, block Performance time, time to first rescue analgesia and 24 hour rescue analgesic consumption.

Results

In the present study, six patients in the SCB group and three patients in CCB group developed HDP following ultrasound-guided brachial plexus block with 20 mL of 0.5% ropivacaine denoting that the incidence of HDP in the SCB and CCB group was 20% and 10% respectively. 4 patients in SCB group and 2 patients in CCB group had sniff test positive. The block performance time was significantly shorter in Group II with mean + SD (11.08 + 1.35 minutes) in comparison to Group I (12.96 + 2.73 minutes). Block onset time, that is the onset of sensory and motor block was slightly faster in the CCB group. However, sensorimotor composite score of 14 was achieved before 30 minutes post-block in both groups. Post operative analgesic efficacy was similar in both the groups. Most of the patients had NRS score of less than 3 in the first 24 hours postoperatively. The mean 24 hour fentanyl consumption is comparable between the two groups with 85 ± 32.79 mcg in the CCB group and 93.57±30.65 mcg in the SCB group. The mean time to rescue analgesia was also comparable with the first dose being 8 hours in both the groups.

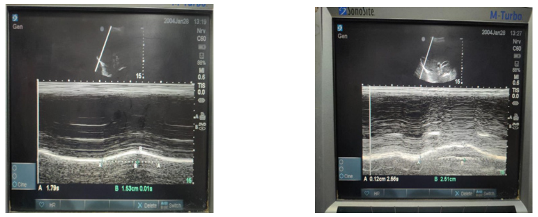
Conclusion

The rate of occurrence of HDP after CCB is comparable to that occurring after SCB. Also, when used as the only anaesthetic technique for forearm and hand procedures, the CCB strategy is similar to the conventional SCB in terms of block efficacy whilst the former exhibits earlier onset of sensory and motor blockade and requires a significantly shorter block performance time.

2024-0245

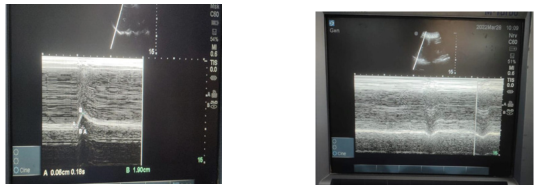
Figure & Table

Figure 1.



a) Diaphragmatic excurion during normal breathing

b) Deep breathing



c) Sniff test

d) Positive Sniff test

Table 1.

OBSERVATIONS AND RESULTS

Table showing demographics of the patients in the two groups

Variables		Group I(SCB)	Group II (CCB)	p- value
AGE (years)		34.3±12.5	35.1±12.3	0.804*
GENDER	MALE	28 (93.3%)	29(96.7%)	0.554**
	FEMALE	2 (6.7%)	1(3.3%)	
WEIGHT (kg)		71.3 ±11.1	71.0±11.5	0.918*
HEIGHT (cms)		167.8 ±4.9	168.8±4.9	0.433*
BMI (kg/m2)		25.3 ±3.3	24.8±3.0	0.583*
ASA	I	25 (83.3%)	22 (73.3%)	0.347**
	II	5 (16.7%)	8 (26.7%)	
Type of Surgery	FOREARM	7 (23.3%)	5(16.7%)	0.861**
	HAND	19(63.3%)	22(673.3%)	
	OTHER	1(3.3%)	1(3.3%)	
	WRIST	3(10.0%)	2(6.7%)	
Side of surgery	LEFT	12 (40%)	16(53.3%)	0.301**
	RIGHT	18(60%)	14(46.7%)	

*Significant at p<0.05; *-unpaired t test ,** chi square test*

Table 2.

Table showing ipsilateral hemidiaphragmatic excursion, and incidence of HDP

			Group I (SCB)	Group II (CCB)	p- value
Hemidiagphragmatic excursion	**Normal breathing**	**Preblock (cm)**	1.56+0.39	1.58+0.42	0.970
		Postblock (cm)	1.37+0.44	1.39+0.42	0.965
		Overall reduction (%)	12.87+15.1	11.52+13.72	0.976
	Deep breathing	**Preblock (cm)**	3.73+0.52	3.97+0.52	0.079
		Postblock (cm)	3.05+0.83	3.47+0.81	**0.031**
		Overall reduction (%)	18.28+19.91	12.62+17.18	0.433
	Paradoxical movement	**Preblock n**	0	0	-
		Postblock n (%)	4(13.3%)	2(6.7%)	0.671
Hemidiaphragmatic paresis n (%)			6(20%)	3(10%)	0.278

Categorical data are presented as a frequency (percentage) while continuous data as mean (SD) or median (interquartile range)

2024-0240

Effectiveness of enhanced recovery after surgery on postoperative recovery after minimally-invasive distal gastrectomy: An open-labeled randomized controlled study

Hae Kyeong Yoo[1], Hojin Lee[1*]
1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

Background

The effectiveness of the enhanced recovery after surgery (ERAS) program in gastric cancer surgery has been reported in several studies. However, the majority of these studies are grounded in the outdated ERAS guideline for gastrectomy published in 2014. Since then, there have been significant advancements in perioperative management. Therefore, our study aims to investigate the impact of a recent evidence-based, multidisciplinary ERAS program on the quality of early recovery after gastric cancer surgery.

Methods

In a single-center, open-label, randomized controlled trial, adult patients undergoing elective robotic or laparoscopic distal gastrectomy for gastric cancer were assigned to either ERAS or Conventional group. The primary outcome was the total score of the Quality of Recovery-15 (QoR-15) assessed at 24, 48, and 72 hours postoperatively. Differences between the two groups were evaluated using a linear mixed-effects model. We posited that an increase of at least 8 points in the QoR-15K scores at 24, 48, and 72 hours postoperatively would indicate a clinically significant improvement, consistent with the minimal clinically important difference (MCID, ≥ 8) for QoR-15. Secondary outcomes included pain scores at rest and during coughing; cumulative fentanyl consumption via intravenous patient-controlled analgesia; incidence of postoperative nausea and vomiting (PONV); and gastrointestinal dysfunction, as measured by the I-FEED score, all assessed at 24, 48, and 72 hours postoperatively.

Results

Among the 92 patients analyzed (ERAS, n=45; Conventional, n=47), the estimated difference in the postoperative QoR-15K total scores between the two groups during the first days was significantly larger than the MCID of the QoR-15 (mean difference: 16.0, 95% CI: 8.9–23.0, $P < 0.001$). Excluding the incidence of PONV, the ERAS group demonstrated statistically significant improvements in the other secondary outcomes.

Conclusion

Our evidence-based multidisciplinary ERAS program significantly improved the quality of early postoperative recovery after minimally invasive distal gastrectomy.

2024-0322

Comparitive evaluation of intravenous opioid (morphine) vs great auricular nerve block (using 0.25% bupivaciane with dexamethasone) for post operative analgesia in tympanomastoid surgeries

Manu Giri[1*]
1. Department of anesthesiology, Yashoda Hospital, India

Background

Only a few studies have been conducted comparing the efficacy of iv morphine with great auricular nerve(GAN) block for post operative analgesia in ear surgeries.Most of the studies performed on GAN block used landmark based techniques. With the introduction of ultrasound guided techniques, it offers potential advantages over the conventional method.

Methods

Conducted a prospective randomized controlled trial in patients undergoing tympanomastoid surgeries under general anaesthesia. Patients (male/female, ASA PS I & II) of the age group 18-65years were included in the study,were randomised into two groups, Group N (n-35)- Patients who received ultrasound guided GAN(great auricular nerve) block and Group M(n-35)-patients who received intravenous morphine. After induction of general anaesthesia and before incision ; patents in group N received ultrasound guided GAN block with Inj.bupivacaine 0.25% 4.5ml + Inj. dexamethasone 2mg 0.5ml, and patients in group m received iv morphine 0.1mg/kg. VAS score was used to assess pain in post operative period. At any point of time during the course of study, VAS of ≥4 was considered as the cut-off point. The time for analgesic was noted and the patient was administered.Duration of analgesia was calculated from the moment at which intervention (nerve block/ iv morphine) was done till the moment at which rescue analgesia was given.Number of patients requiring treatment for PONV in the post operative period (PONV impact scale score >4),in each group were recorded. We also observed for any complications of GAN block.

Results

Age, gender, ASA PS were comparable between both the groups (respective p values being 0.682, 0.632, 0.743)

- The mean value of duration of analgesia (from time of intervention till time of first rescue analgesia) in Group N had a mean of 8.46±1.481 hours and Group M had 4.71±0.884 hours, and showed a statistically significant difference (p value <0.001), thus proving Group N had a significantly better duration of post-operative analgesia than Group M
- Out of 35 patients in each group, 10 in group M and 4 in group N had PONV which required treatment. Though the incidence is more in morphine group, the difference is statistically insignificant (p value 0.073)
- We didn't observe any other complication due to the GAN block in our study group

Conclusion

Intraoperatively administered ultrasound guided GAN Block using 0.25% bupivacaine with dexamethasone offers significantly better duration of post-operative analgesia and has insignificantly lesser incidence of post-operative nausea and vomiting compared to intravenous morphine(0.1mg /kg),for tympanomastoid surgeries in adults. Administering the GAN block under ultrasound guidance may reduce the complications associated with it.

2024-0322

Figure & Table

Figure 1.

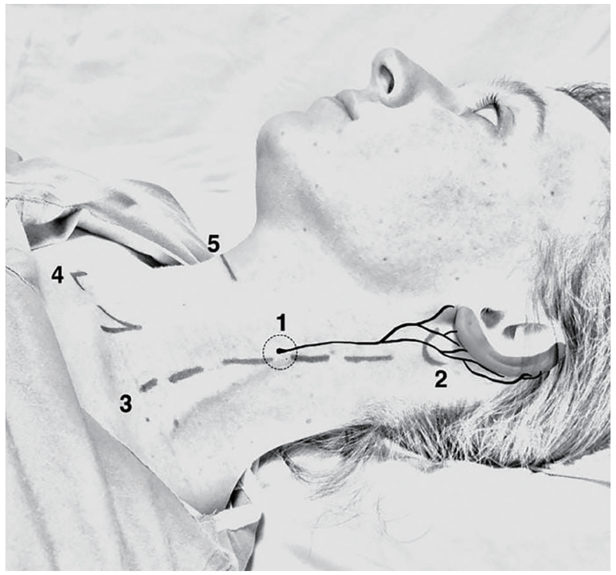
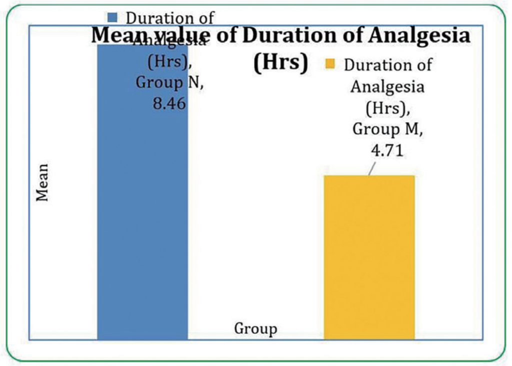


Figure 2. **DURATION OF ANALGESIA (Mean Value)**

Group	Duration of Analgesia (Hrs) Mean	Std. Deviation	P Value (t-test)
Group N	8.46	1.481	<0.001
Group M	4.71	0.884	

In a total of 70 participants included, the above table shows the mean value of duration of analgesia in Group N and Group M. Group N has a mean of 8.46±1.481 hours and Group S has 4.71±0.884 hours. The same has been represented graphically in table below.



2024-0204

"Comparative evaluation of analgesic efficacy of ultrasound guided Erector Spinae Plane block versus Intrathecal morphine in patients undergoing Percutaneous Nephrolithotomy": A prospective randomized pilot study

Ravinder kumar Pandey[1*], **Madhurjya Baishya**[1], **Vanlal Darlong**[1], **Jyotsna Punj**[1]

1. Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Background

PCNL – Minimally invasive procedure for renal & upper ureteric calculi treatment. Usage of nephrostomy tubes in post-op is associated with pain & prolonged hospital stay. Common modalities used for the control of PCNL pain are - nonsteroidal anti-inflammatory drugs, intravenous opioids, LA infiltration, neuraxial blocks and PVB

Existing research on erector spinae plane block and intrathecal morphine in patients undergoing percutaneous nephrolithotomy surgery is limited.

Methods

In this prospective, randomized study, 60 patients aged between 18 and 60 years were randomized into two groups (erector spinae plane block and intrathecal morphine). In the erector spinae plane block group, ultrasound-guided erector spinae plane block was performed, following which a mixture of 20 mL of 0.375% ropivacaine and 0.5 mcg/kg of clonidine was injected. In the intrathecal morphine group, 150 mcg preservative-free morphine with 2 mL of normal saline was administered intrathecally. The primary outcome was to evaluate the perioperative opioid consumption in the first 24 hours. The secondary outcomes were to evaluate hemodynamic response to surgical stimulus, visual analogue scale score, time to first analgesic requirement, postoperative nausea and vomiting, postoperative opioid consumption, urethral irritation, and incidence of drug-related adverse effects.

Statistical analysis: Demographic data were reported as mean ± SD or proportion. A tailed t-test was used for normally distributed continuous variables. Mann-Whitney U test was used for non-normally distributed variables. Categorical data was compared using Chi-squared or Fischer exact tests P-value of 0.05% was considered statistically significant.

Results

Total perioperative opioid consumption in the erector spinae plane block group was 355.0 (265.0, 485.0) lg and 240.0 (145.0, 370.0) lg in the intrathecal morphine group (P = 0.09). However, the patients in the erector spinae plane block group had significantly greater postoperative fentanyl consumption (235.0 [120.0, 345.0] lg) compared with those in the intrathecal morphine group (105.0 [30.0, 225.0] lg). There were no statistically significant differences noted for intraoperative opioid consumption, postoperative visual analogue scale score, time to first analgesic request, postoperative nausea and vomiting, and catheter irritation between the two groups.

Conclusion

Although no statistically significant difference in intraoperative opioid consumption was seen between the erector spinae plane block and intrathecal morphine groups, postoperative opioid consumption was significantly higher in the erector spinae plane block group than in the intrathecal morphine group in patients undergoing percutaneous nephrolithotomy surgery.

2024-0204

Figure & Table

Figure 1.

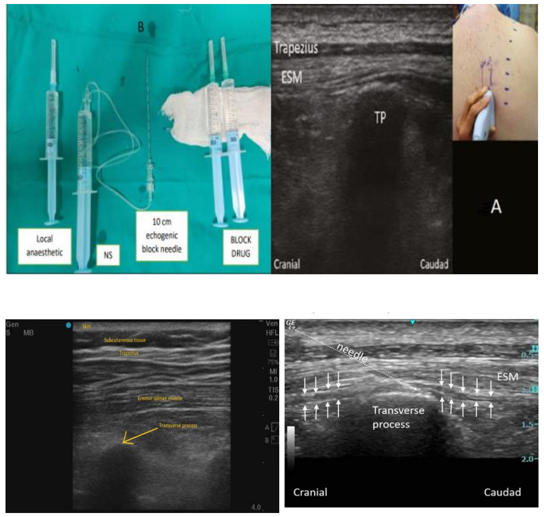


Table 1.

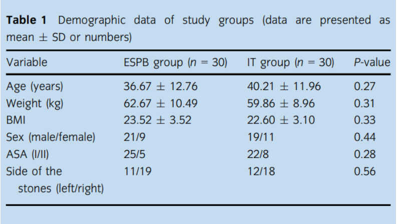


Table 1 Demographic data of study groups (data are presented as mean ± SD or numbers)

Variable	ESPB group (*n* = 30)	IT group (*n* = 30)	*P*-value
Age (years)	36.67 ± 12.76	40.21 ± 11.96	0.27
Weight (kg)	62.67 ± 10.49	59.86 ± 8.96	0.31
BMI	23.52 ± 3.52	22.60 ± 3.10	0.33
Sex (male/female)	21/9	19/11	0.44
ASA (I/II)	25/5	22/8	0.28
Side of the stones (left/right)	11/19	12/18	0.56

Table 2.

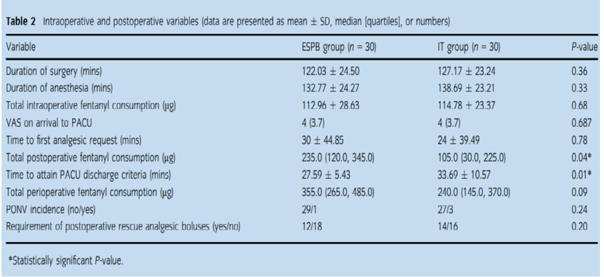
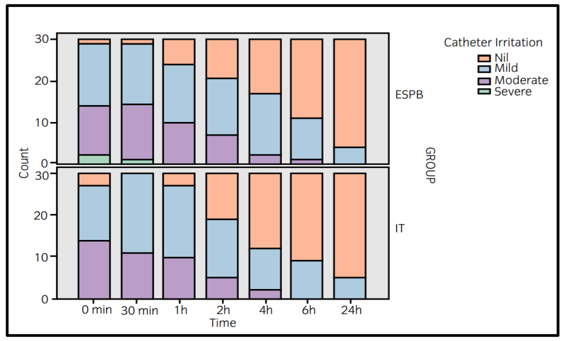


Table 2 Intraoperative and postoperative variables (data are presented as mean ± SD, median [quartiles], or numbers)

Variable	ESPB group (*n* = 30)	IT group (*n* = 30)	*P*-value
Duration of surgery (mins)	122.03 ± 24.50	127.17 ± 23.24	0.36
Duration of anesthesia (mins)	132.77 ± 24.27	138.69 ± 23.21	0.33
Total intraoperative fentanyl consumption (μg)	112.96 ± 28.63	114.78 ± 23.37	0.68
VAS on arrival to PACU	4 (3.7)	4 (3.7)	0.687
Time to first analgesic request (mins)	30 ± 44.85	24 ± 39.49	0.78
Total postoperative fentanyl consumption (μg)	235.0 (120.0, 345.0)	105.0 (30.0, 225.0)	0.04*
Time to attain PACU discharge criteria (mins)	27.59 ± 5.43	33.69 ± 10.57	0.01*
Total perioperative fentanyl consumption (μg)	355.0 (265.0, 485.0)	240.0 (145.0, 370.0)	0.09
PONV incidence (no/yes)	29/1	27/3	0.24
Requirement of postoperative rescue analgesic boluses (yes/no)	12/18	14/16	0.20

*Statistically significant *P*-value.

Figure 2.



2024-0260

Development of a novel virtual reality-based application as an adjunctive modality in chronic non-cancer pain management

Lydia Li[1*]

1. Anaesthesia, Singapore Health Services, Singapore

Background

Chronic Non-Cancer Pain (CNCP) is a highly prevalent condition with debilitating psychosocial effects. Despite this, CNCP remains poorly managed. With increasing interest in the use of Virtual Reality (VR) in chronic pain management, our study team developed a patient-centric VR prototype as an adjuvant pain management tool.

Methods

We conducted a multi-phase prospective qualitative study using purposive criterion sampling. Phases 1 (n=16) and 3 (n=14) included patients suffering from non-cancer chronic pain for more than three months, while phase 2 (n=8) involved healthcare professionals with more than six months experience in pain medicine. All participants were recruited from our institution's Chronic Pain Clinic, with the study conducted through semi-structured interviews.

Results

Thematic analyses of the participants interviewed in Phases 1 and 2, detailed in Figure 1, revealed barriers relating to affordability and accessing multidisciplinary treatment for CNCP patients. Seven educational VR modules were designed, applying mindfulness-based stress reduction and diaphragmatic breathing and relaxation as modes of pain distraction. Phase 3 participants partook in two 20-minute VR sessions and post-intervention interviews showed that participants generally perceived the VR modules to be easy to use and beneficial for pain management, as seen in Figure 2.

Conclusion

This study aimed to understand participants' perceptions toward a VR prototype as an adjuvant pain management tool. Although further assessments are needed to assess its effectiveness, our results validate the prototype as a promising adjunct in the multimodal management of CNCP, and its potential to increase accessibility to, and reduce the perceived stigma associated with psychotherapy.

2024-0260

Figure & Table

Figure 1. Themes identified in Phase 1 and 2, focusing on the barriers to healthcare access and perception of VR use. These two phases identified gaps and areas that VR modules may target in CNCP management.

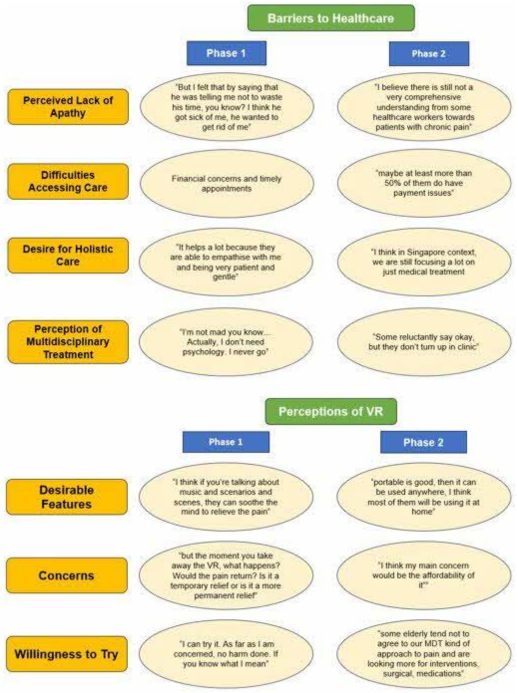
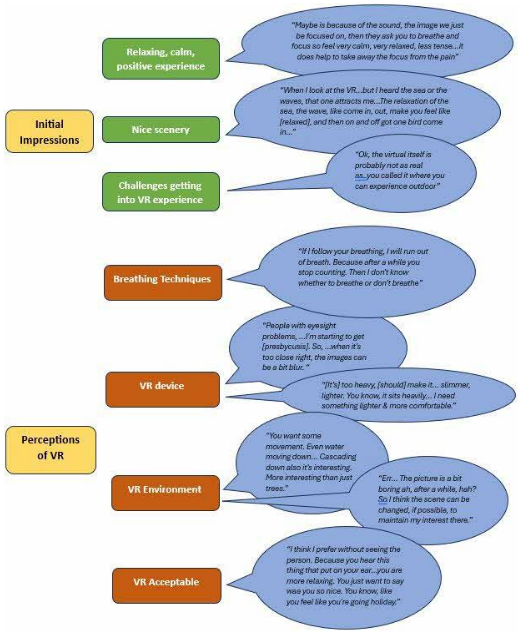

Barriers to Healthcare
Phase 1
Phase 2
Perceived Lack of Apathy
"But I felt that by saying that he was telling me not to waste his time, you know? I think he got sick of me, he wanted to get rid of me"
"I believe there is still not a very comprehensive understanding from some healthcare workers towards patients with chronic pain"
Difficulties Accessing Care
Financial concerns and timely appointments
"maybe at least more than 50% of them do have payment issues"
Desire for Holistic Care
"It helps a lot because they are able to empathise with me and being very patient and gentle"
"I think in Singapore context, we are still focusing a lot on just medical treatment
Perception of Multidisciplinary Treatment
"I'm not mad you know... Actually, I don't need psychology. I never go"
"Some reluctantly say okay, but they don't turn up in clinic"
Perceptions of VR
Phase 1
Phase 2
Desirable Features
"I think if you're talking about music and scenarios and scenes, they can soothe the mind to relieve the pain"
"portable is good, then it can be used anywhere, I think most of them will be using it at home"
Concerns
"but the moment you take away the VR, what happens? Would the pain return? Is it a temporary relief or is it a more permanent relief"
"I think my main concern would be the affordability of it""
Willingness to Try
"I can try it. As far as I am concerned, no harm done. If you know what I mean"
"some elderly tend not to agree to our MDT kind of approach to pain and are looking more for interventions, surgical, medications"

Figure 2. Phase 3 post-intervention thematic analysis, identifying beneficial areas and areas of improvement for the VR modules created


Initial Impressions
Relaxing, calm, positive experience
"Maybe is because of the sound, the image we just be focused on, then they ask you to breathe and focus so feel very calm, very relaxed, less tense...it does help to take away the focus from the pain"
Nice scenery
"When I look at the VR...but I heard the sea or the waves, that one attracts me...The relaxation of the sea, the wave, like come in, out, make you feel like [relaxed], and then on and off got one bird come in..."
Challenges getting into VR experience
"Ok, the virtual itself is probably not as real as..you called it where you can experience outdoor"
Perceptions of VR
Breathing Techniques
"If I follow your breathing, I will run out of breath. Because after a while you stop counting. Then I don't know whether to breathe or don't breathe"
VR device
"People with eyesight problems, ...I'm starting to get [presbycusis]. So, ...when it's too close right, the images can be a bit blur. "
"[It's] too heavy, [should] make it... slimmer, lighter. You know, it sits heavily... I need something lighter & more comfortable."
VR Environment
"You want some movement. Even water moving down... Cascading down also it's interesting. More interesting than just trees."
"Err... The picture is a bit boring ah, after a while, hah? So I think the scene can be changed, if possible, to maintain my interest there."
VR Acceptable
"I think I prefer without seeing the person. Because you hear this thing that put on your ear...you are more relaxing. You just want to say waa you so nice. You know, like you feel like you're going holiday."

2024-0097

Analgesic Properties of Nefopam after Uvulopalatopharyngoplasty in patients with Obstructive Sleep Apnea

Sriwimon Panyamee[1*]

1. Anesthesiology, Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

Background

Uvulopalatopharyngoplasty is one of the treatments provided for obstructive sleep apnea syndrome, which causes significant postoperative pain. These patients are not suitable for opioids due to the apnea risk. Nefopam is an alternative analgesic medication, with minimal side effects. We aimed to investigate the effects of nefopam in reducing postoperative pain and promoting better postoperative recovery after uvulopalatopharyngoplasty surgery.

Methods

This triple-blinded randomized controlled trial was conducted on 52 patients in a university-based hospital. All 52 patients were divided into either the nefopam group (20 mg during surgery, then 80 mg over 24 hours postoperatively) or the control group. The outcomes measured included morphine consumption in the first 24 hours postoperatively, numerical rating scale for pain during rest and swallowing up to 21 days after surgery, time to first analgesic administration and initiation of oral intake, patient satisfaction, and quality of life using the EQ-5D-5L questionnaire up to 14 days postoperatively.

Results

After exclusions, there were 51 participants in the research analysis. The morphine consumption within the first 24 hours postoperatively in the nefopam group and the control group was not significantly different (7.0 mg and 5.0 mg, respectively, $p=0.56$). Similarly, no significant differences were found in the pain scores, patient satisfaction, or quality of life questionnaire responses.

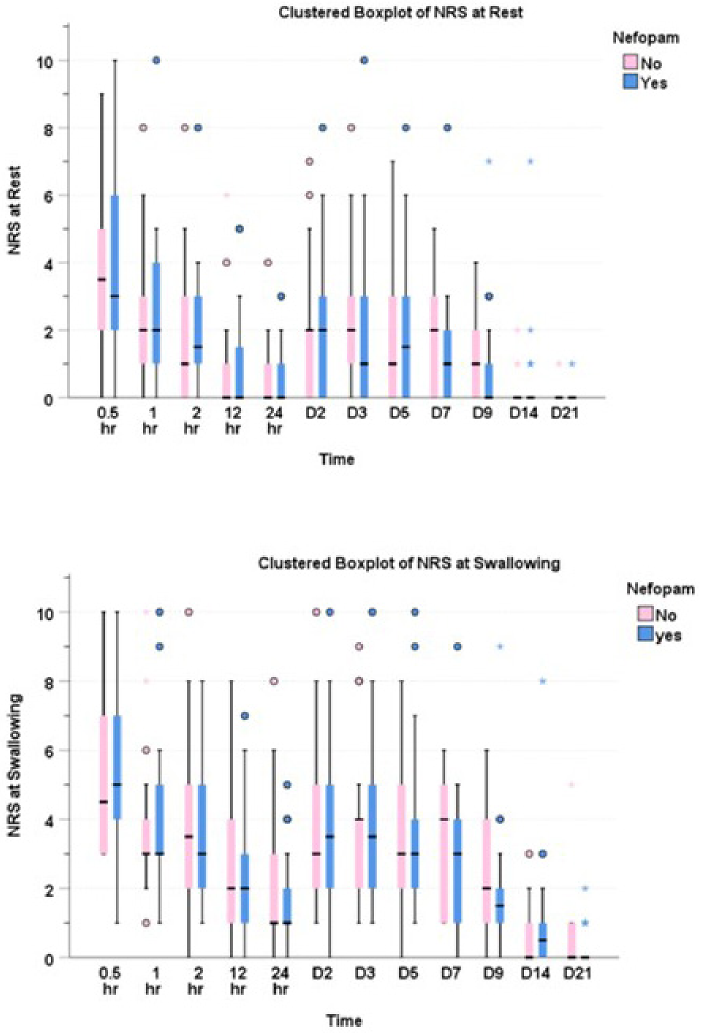
Conclusion

Nefopam did not significantly reduce morphine consumption, pain scores, or improve quality of life postoperatively in patients undergoing uvulopalatopharyngoplasty.

2024-0097

Figure & Table

Figure 1. Comparison of the median scores for the numeric rating scale of postoperative pain of the intervention (nefopam) and control (normal saline) groups during the study period. NRS = numeric rating scale



2024-0252

Validation of Korean version of Defense and Veterans Pain Rating Scale for assessment of postoperative pain: a prospective observational cohort study

Seungeun Choi[1], Taeyup Kim[1], Soo-hyuk Yoon[1], Ho-jin Lee[1*]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Seoul National University College of Medicine, Republic of Korea

Background

The Defense and Veterans Pain Rating Scale (DVPRS) is a multimodal pain assessment tool developed by the United States Army. It incorporates the Numeric Rating Scale (NRS) with descriptive words, colors, and facial expressions to enhance communication with patients. Additionally, it includes supplemental questions about pain interference with daily activities, sleep, mood, and stress. We hypothesized that the DVPRS would be an effective pain assessment tool for surgical patients and aimed to validate the Korean version of the DVPRS (K-DVPRS).

Methods

A total of 150 patients undergoing elective laparoscopic or robotic abdominal surgery lasting more than 1 hour participated in this study. The original English version of DVPRS 2.0 was translated into Korean (K-DVPRS) using a forward-backward translation method. The validity, reliability, and responsiveness of the K-DVPRS were evaluated. In addition, to assess the relationship between postoperative pain severity and early postoperative recovery, correlations between the EuroQoL-visual analogue scale (EQ-VAS) and EuroQol 5-dimensional 5-level (EQ-5D-5L) index scoresand the K-DVPRS were assessed.

Results

The K-DVPRS achieved a completion rate of 100% (147/147) on postoperative day 1 and 98.0% (144/147) on postoperative day 2. Convergent validity was confirmed by strong correlations between K-DVPRS and NRS pain scores at 24 and 48 hours postoperatively, with $\rho = 0.78$ at rest and $\rho = 0.77$ during coughing at 24 hours, and $\rho = 0.75$ for both at 48 hours (all $P < 0.001$). Construct validity was confirmed, as patients who underwent xmajor/complex surgeries reported significantly higher postoperative pain during coughing ($P < 0.001$) than patients who underwent major surgeries. The K-DVPRS showed good internal consistency at 24 and 48 hours postoperatively, with Cronbach's alpha values of 0.78 and 0.85, respectively. Test-retest reliability for the 24-hour postoperative assessment was high, with ICC values of 0.90 for pain at rest and 0.95 for pain during coughing. Responsiveness, indicated by Cliff's effect size, showed a significant pain reduction from preoperative to 24 hours postoperative, with effect sizes of −0.88 (rest) and −1.00 (coughing). Smaller effect sizes of 0.14 (rest) and 0.29 (coughing) were observed from 24 to 48 hours postoperative. The pain intensity at rest and during coughing, assessed by K-DVPRS at 24 and 48 hours, showed significant correlations with both EQ VAS and the EQ-5D-5L index.

Conclusion

The K-DVPRS is a valid, reliable, and responsive tool for accessing postoperative pain in Korean patients. The use of K-DVPRS is expected to be beneficial in postoperative pain management.

2024-0252

Figure & Table

Figure 1. K-DVPRS

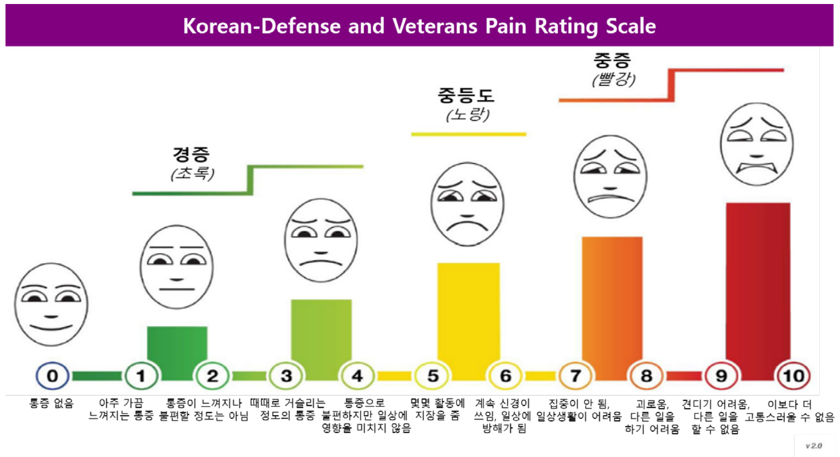

Korean-Defense and Veterans Pain Rating Scale
경증
(초록)
중등도
(노랑)
중증
(빨강)
0
1
2
3
4
5
6
7
8
9
10
통증 없음
아주 가끔 느껴지는 통증
통증이 느껴지나 불편할 정도는 아님
때때로 거슬리는 정도의 통증
통증으로 불편하지만 일상에 영향을 미치지 않음
몇몇 활동에 지장을 줌
계속 신경이 쓰임, 일상에 방해가 됨
집중이 안 됨, 일상생활이 어려움
괴로움, 다른 일을 하기 어려움
견디기 어려움, 다른 일을 할 수 없음
이보다 더 고통스러울 수 없음
v 2.0

Table 1. Correlation between the pain intensity assessed by the Numerical Rating Scale (NRS) and the Korean version of Defense and Veterans Pain Rating Scale (KDVPRS), EuroQoL visual analogue scale (EQ VAS) and the EuroQol 5-dimensional 5-level (EQ-5D-5L) index at 24 hours postoperatively

	NRS at rest	NRS during coughing	K-DVPRS at rest	K-DVPRS during coughing	EQ VAS	EQ-5D-5L index score
NRS at rest	-	0.62	0.78	0.40	−0.25	−0.24
NRS during coughing	0.62	-	0.52	0.77	−0.34	−0.38
K-DVPRS at rest	0.78	0.52	-	0.48	−0.30	−0.29
K-DVPRS during coughing	0.40	0.77	0.48	-	−0.42	−0.42
EQ VAS	−0.25	−0.34	−0.30	−0.42		0.42
EQ-5D-5L index score	−0.24	−0.38	−0.29	−0.42	0.42	-

All values have a p value < 0.01.

2024-0136

A smart device application for acute pain service in surgical patients at a tertiary hospital in South Korea: a prospective observational feasibility study

Soohyuk Yoon[1], Ho-jin Lee[1*]

1. Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

Background

Pain assessment and patient education are essential for successful postoperative pain management. However, the provision of personnel for performing these tasks is often insufficient. Recently, attempts have been made to implement smartphone applications for educating and monitoring surgical patients. We developed a smartphone application (app) for postoperative pain management, and conducted a feasibility study.

Methods

This single-center prospective observational study included 60 patients aged < 70 years who underwent elective surgery. This study evaluated the SmartAPS application, which offers tools for postoperative pain assessment and educational materials for pain management. The primary outcome was the active usage rate, defined as responding at least twice daily on postoperative days (PODs) 1 and 2. Additionally, we investigated patient satisfaction with the app and educational videos as well as any challenges encountered during use.

Results

Sixty patients were enrolled in the study and active app use was achieved in 56.7% of them. Response rates peaked at 85.0% for pain intensity and 83.3% for opioid-related side effects at 14:00 on POD 1 but dropped to 56.7% and 58.3%, respectively, at 18:00 on POD 2. Among the patients who responded to the survey regarding the app usage, 84.0% reported satisfaction with the app and 80% found it beneficial for managing postoperative pain. Furthermore, 92.0% did not encounter difficulties using the app, indicating a generally positive user experience.

Conclusion

Our findings support the utility of the SmartAPS application in acute pain services, highlighting its potential for improving postoperative pain management.

2024-0136

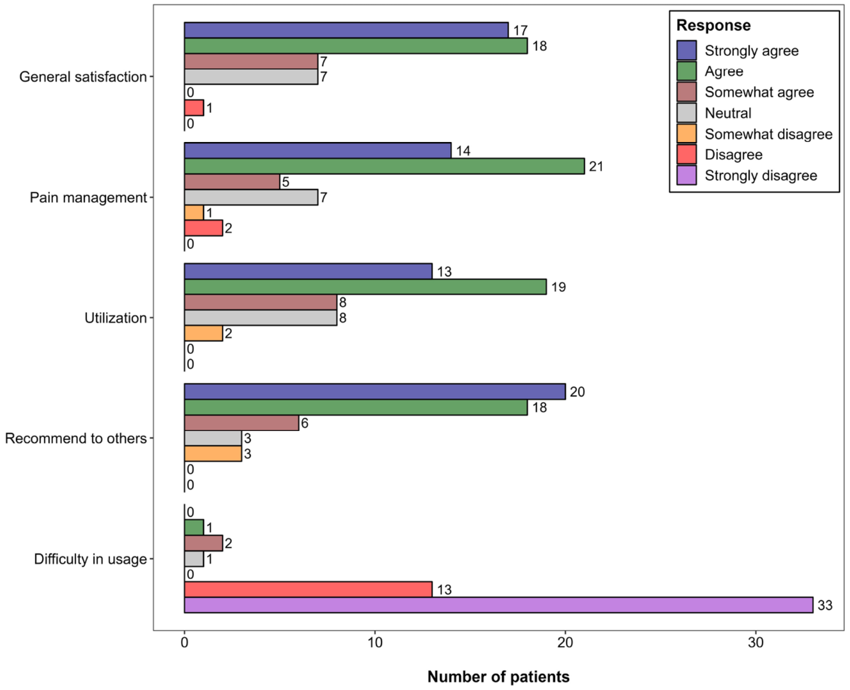
Figure & Table

Table 1. Response rate and content of responses to the assessments on application.

	Postoperative day 1			Postoperative day 2		
	10:00	14:00	18:00	10:00	14:00	18:00
Pain intensity						
Respondent	49 (81.7)	51 (85.0)	47 (78.3)	43 (71.7)	41 (68.3)	34 (56.7)
Pain at the time	5 (3, 6)	5 (3, 5.5)	4 (3, 5)	3 (2, 5)	3 (2, 4)	3 (2, 4)
Maximum pain	7 (5, 8)	6 (5, 8)	6 (5, 7)	4 (3.5, 6)	4 (3, 5)	4 (3, 5)
Opioid side effects						
Respondent	47 (78.3)	50 (83.3)	43 (71.7)	43 (71.7)	40 (66.7)	35 (58.3)
Nausea	24 (51.1)	17 (34.0)	11 (25.6)	9 (20.9)	7 (17.5)	3 (8.6)
Vomiting	8 (17.0)	5 (10.0)	3 (7.0)	0 (0)	0 (0)	0 (0)
Dizziness	28 (59.6)	26 (52.0)	15 (34.9)	12 (27.9)	11 (27.5)	6 (17.1)
Somnolence	23 (48.9)	20 (40.0)	14 (32.6)	10 (23.3)	11 (27.5)	6 (17.1)
Headache	15 (31.9)	14 (28.0)	9 (20.9)	9 (20.9)	10 (25.0)	8 (22.9)
Satisfaction on overall pain management						
Respondent	35 (58.3)					
Strongly satisfied	3 (8.6)					
Satisfied	17 (48.6)					
Neutral	8 (22.9)					
Dissatisfied	7 (20.0)					
Strongly dissatisfied	0 (0.0)					

Values are presented as numbers (%) or median (Q1, Q3).

Figure 1. SmartAPS



2024-0253

Radiographic predictors of difficult fiberscopic intubation under general anesthesia in patients with a cervical collar to simulate a difficult airway

Woo-young Jo[1], Hyongmin Oh[1*]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

Background

The predictors of difficult fiberscopic intubation have not been fully elucidated. This study focused on identifying the radiographic predictors of difficult fiberscopic intubation in patients wearing a cervical collar.

Methods

This retrospective study included patients who underwent orotracheal intubation using a flexible fiberscope while wearing a cervical collar. Easy fiberscopic intubation was defined as successful fiberscopic intubation within 120 s of the first attempt without peripheral oxygen saturation below 90%. The patients were divided into easy (n = 133) and difficult (n = 24) fiberscopic intubation groups. Demographic, mask ventilation-related, upper airway-related, and radiographic variables measured on sagittal images of preoperative cervical X-ray and magnetic resonance imaging were analyzed.

Results

Difficult fiberscopic intubation group had a smaller oral cavity area (2.1 [1.2–2.5] vs. 2.9 [2.1–3.7] cm^2, $p < 0.001$), higher tongue area divided by oral cavity area (9.3 [6.5–13.3] vs. 6.4 [4.6–8.3], $p < 0.001$), smaller epiglottis angle (33 ± 10 vs. 37 ± 8 °, $p = 0.02$), and longer skin–glottis distance (1.3 [1.1–1.6] vs. 1.1 [1.0–1.3] cm, $p = 0.004$). The ratio of tongue area to oral cavity area (odds ratio per 1 [95% confidence interval], 1.24 [1.09–1.40]) and the skin–glottis distance (odds ratio per 1 cm [95% confidence interval], 13.0 [2.69–62.4]) were independently associated with the difficulty in fiberscopic intubation.

Conclusion

High tongue area divided by oral cavity area and long skin–glottis distance are predictive of difficult fiberscopic intubation in patients wearing a cervical collar.

2024-0253

Figure & Table

Figure 1.

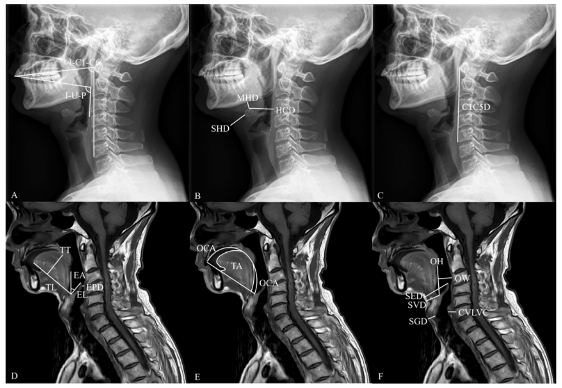


Table 1. Comparisons of radiographic indices between difficult and easy fiberscopic intubation groups.

Variable	Difficult fiberscopic intubation (n = 24)	Easy fiberscopic intubation (n = 133)	Difference in means, medians, or percentages (95% CI)	P value
X-ray				
I–U–P (°)	99 (93–107)	100 (94–105)	−1 (−5–3)	0.565
I–C1–C6 (°)	84.6 ± 6.4	82.5 ± 7.1	2.1 (−0.9–5.2)	0.172
SHD (cm)	2.3 (1.8–3.0)	2.2 (1.7–2.9)	0.9 (−2.8–4.8)	0.627
MHD (cm)	1.8 (1.3–2.7)	1.6 (1.1–2.2)	0.3 (−0.8–6.4)	0.119
HCD (cm)	4.3 ± 0.6	4.2 ± 0.6	0.1 (−0.2–0.3)	0.463
C1C5D (cm)	11.2 ± 0.9	11.0 ± 0.9	0.2 (−0.2–0.6)	0.385
MRI				
TL (cm)	7.3 (6.7–7.8)	7.0 (6.6–7.5)	0.2 (−0.1–0.6)	0.103
TH (cm)	3.3 ± 0.4	3.4 ± 0.4	−0.1 (−0.3–0.1)	0.424
TA (cm^2)	17.8 (15.3–20.0)	17.3 (15.2–19.1)	0.5 (−1.0–1.9)	0.453
OCA (cm^2)	2.1 (1.2–2.5)	2.9 (2.1–3.7)	−1.0 (−1.4−−0.5)	< 0.001
TA/OCA	9.3 (6.5–13.3)	6.4 (4.6–8.3)	3.0 (1.4–4.9)	< 0.001
EL (cm)	1.8 (1.5–2.1)	1.8 (1.6–2.1)	0.0 (−1.6–1.7)	0.981
EA (°)	33 ± 10	37 ± 8	−4 (−8−−1)	0.024
EPD (cm)	0.7 (0.5–0.8)	0.6 (0.5–0.9)	0.1 (−1.1–1.2)	0.897
OH (cm)	4.6 ± 1.2	4.5 ± 0.9	0.1 (−0.3–0.6)	0.496
OW (cm)	1.8 (1.5–2.1)	1.7 (1.5–2.1)	0.0 (−0.2–0.2)	0.830
CVLVC				0.858
C4	2 (8.3%)	6 (4.5%)	3.8% (−5.1%–22.7%)	0.353
C4/5	4 (16.7%)	18 (13.5%)	3.1% (−10.7%–24.5%)	0.749
C5	10 (41.7%)	64 (48.1%)	−6.5% (−28.4%–15.5%)	0.560
C5/6	6 (25.0%)	29 (21.8%)	3.2% (−15.1%–21.5%)	0.729
C6	2 (8.3%)	15 (11.3%)	−3.0% (−12.8%–16.3%)	1.000
C6/7	0 (0.0%)	0 (0.0%)	0.0% (−2.7%–14.3%)	Not applicable
C7	0 (0.0%)	1 (0.8%)	−0.8% (−4.1%–13.5%)	1.000
SGD (cm)	1.3 (1.1–1.6)	1.1 (1.0–1.3)	0.2 (0.1–0.3)	0.004
SVD (cm)	3.3 (2.9–3.5)	3.1 (2.7–3.5)	0.1 (−0.1–0.4)	0.217
SED (cm)	5.0 (4.6–5.5)	5.0 (4.5–5.4)	0.1 (−0.2–0.3)	0.615

Data were presented as mean ± standard deviation, median (interquartile range), or number (percentage). CI, confidence interval; I–U–P, incisor–uvula–posterior pharyngeal wall angle; I–C1–C6, incisor–C1–C6 angle; SHD, skin–hyoid distance; MHD, mandible–hyoid distance; HCD, hyoid–cervical vertebra distance; C1C5D, C1–C5 distance; MRI, magnetic resonance imaging; TL, tongue length; TT, tongue thickness; TA, tongue area; OCA, oral cavity area; EL, epiglottis length; EA, epiglottis angle; EPD, epiglottis–posterior pharyngeal wall distance; OH, oropharynx height; OW, oropharynx width; CVLVC, cervical vertebral level of vocal cords; SGD, skin–glottis distance; SVD, skin–vallecula distance; SED, skin–epiglottis distance

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2024-0088

A comparative study of intubation parameters between Blockbuster LMA and C-MAC video laryngoscope in patient with normal airway undergoing elective surgery:- A Randomised control trial

Babli Kumari[1*]

1. Anesthesiology, Ims, Bhu, Varanasi, India

Background

Airway management is a cornerstone in the field of anaesthesia practice. Failure to do so may lead to hypoxic brain damage and death within a few minutes. Tracheal intubation has been regarded as the gold standard in airway management(1). A number of different devices have evolved to assist with difficult airway management. Intubating LMA (Laryngeal Mask Airway) eg Blockbuster LMA are emerging as an alternative tool for securing the airway. Thus, it can be used as a rescue device in difficult intubation scenario(2).

Methods

The present study was approved by the Institutional Ethical Committee (IEC) and of AIIMS, Patna and written informed consent was taken from the participating patients. The trial was registered at the Clinical Trial Registry India (CTRI) [CTRI number - CTRI/2021/08/035862]. This single-centered Randomised Controlled Trial was conducted between 25th August 2021 - 31st June 2022. 204 participants, age group 18 – 55 years with American Society of Anesthesiologists (ASA) physical status and Modified mallampati (MMP) grade I and II planned for elective surgeries under general anesthesia were enrolled after randomisation in group A- C-Mac Videolaryngoscope group and Group B- Blockbuster LMA group. After giving general anesthesia, intubation was performed either with C-MAC VL (under direct vision) or Blockbuster LMA (blind intubation). The Primary objectives was to estimate the ease and success of intubation via Blockbuster LMA and C-MAC VL. The secondary objectives were to evaluate the number of attempts taken and time taken for successful intubation, intubation success rate in one attempt and overall intubation success rate and observe any post-operative complication after extubation from either device.

Results

The ease of insertion of the endotracheal tube was found to be easy in both the groups (p-value – 0.447). The overall success of intubation was 100% with C-MAC VL and 97% with Blockbuster LMA. The median time of intubation by Blockbuster was 17 seconds, whereas with Videolaryngoscope, it was 22 seconds, and the result was found to be significant (p-value – 0.001). The first attempt of successful intubation was 95.1% and 92.2% in Group A and Group B, respectively (p-value – 0.322). Post-operatively complication like sore throat and blood in the Endotracheal tube were compared, which was not comparable in both the groups.

Conclusion

We conclude that blind intubation with Blockbuster LMA is almost comparable to C-MAC VL for intubation in patients with MMP grades I and II.

2024-0088

Figure & Table

Figure 1. CONSORT diagram

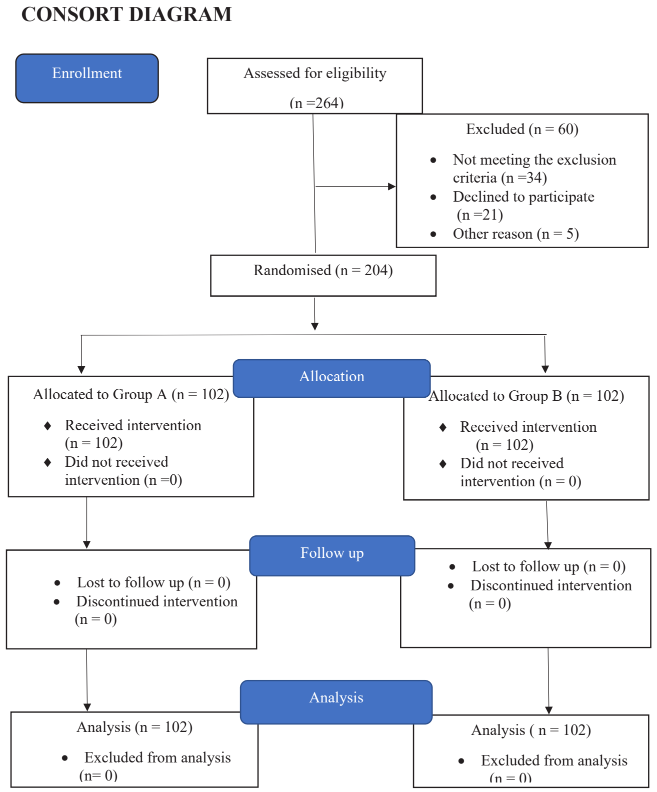
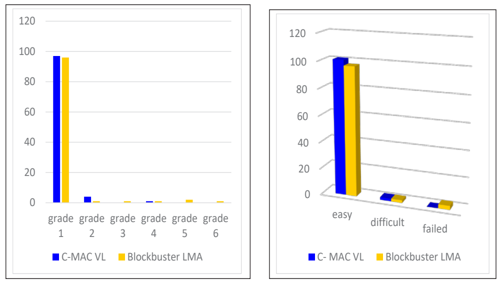
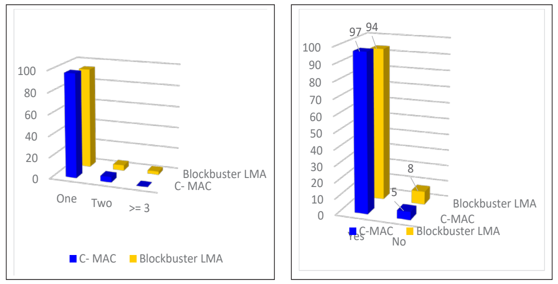

CONSORT DIAGRAM
Enrollment
Assessed for eligibility (n =264)
Excluded (n = 60)
Not meeting the exclusion criteria (n =34)
Declined to participate (n =21)
Other reason (n = 5)
Randomised (n = 204)
Allocation
Allocated to Group A (n = 102)
Received intervention (n = 102)
Did not received intervention (n =0)
Allocated to Group B (n = 102)
Received intervention (n = 102)
Did not received intervention (n = 0)
Follow up
Lost to follow up (n = 0)
Discontinued intervention (n = 0)
Lost to follow up (n = 0)
Discontinued intervention (n = 0)
Analysis
Analysis (n = 102)
Excluded from analysis (n= 0)
Analysis (n = 102)
Excluded from analysis (n = 0)

Figure 2. (a) Bar diagram showing different grade of ease of intubation, (b) Bar diagram comparing the ease of intubation in both the groups



(a) (b)

Figure 3. (a) Bar diagram showing the number of attempts required for intubation in the two groups, (b) Bar diagram comparing the first attempt success rate amongst the group



(a) (b)

2024-0088

Figure & Table

Table 1. Grade of ease of insertion of the endotracheal tube in the groups

Groups	Grade of ease of insertion of endotracheal tube						p-value
	1	2	3	4	5	6	
A (n= 102)	97 (95.1%)	4 (3.9%)	0	1 (1%)	0	0	0.447
B (n = 102)	96 (94.1%)	1 (1%)	1 (1%)	1 (1%)	2 (2%)	1 (1%)	
Total 204	193	5	1	2	2	1	

Values are reported as frequency and percentage in brackets. Frequency was compared with Fischer's exact test. Abbreviations: n – number of patients. Fischer's exact value – 5.36, p–value – 0.447.

Table 2. Results of secondary outcomes

SECONDARY OUTCOMES		GROUP A (n = 102)	GROUP B (n = 102)	P-VALUE
NUMBER OF ATTEMPTS	1	97 (95.1%)	94 (92.2%)	0.322
	2	5 (4.9%)	5 (4.9%)	
	3	0	0	
	>3	0	3 (2.9%)	
FIRST ATTEMPT INTUBATION SUCCESS	YES	97 (95.1%)	94 (92.2%)	0.390
	NO	5 (4.9%)	8 (7.8%)	
TIME OF INTUBATION	seconds(median)	22	17	0.001
	S.D.	7.5	27.5	
	95% C.I	12-75	13-190	
SORE THROAT POST EXTUBATION	YES	5 (4.9%)	8 (7.8%)	0.568
	NO	96 (94.1%)	94 (92.2%)	
	CANNOT BE ASSESSED	1 (1%)	0	
BLOOD STAIN IN ENDOTRACHEAL TUBE POST EXTUBATION	YES	2 (1.9%)	3 (2.9%)	0.621
	NO	100 (98.1%)	99 (97.1%)	

Values are reported as median, S.D. and 95% C.I or in frequency and percentage in brackets Abbreviations: n – number of patients, Group A – VL group, Group B- Blockbuster LMA group, S.D. – standard deviation, C.I.- confidence interval

2024-0014

Mortality associated risk factors among intensive care unit (ICU) patients requiring continuous renal replacement therapy(CRRT)

Akita Yvonne Koh[1*]

1. Anesthesia & Intensive Care, Queen Elizabeth Hospital, Malaysia

Background

Acute kidney injury (AKI) is a predominant part of multiple organ dysfunction syndromes with high mortality rate. Continuous renal replacement therapy(CRRT) is the most common RRT administered in Intensive care unit (ICU). The objective of this study was to assess clinical outcomes of AKI patients on CRRT in the ICU, estimate in-hospital mortality rates, and investigate mortality-related risk factors among ICU patients who had undergone CRRT.

Methods

A retrospective cohort analysis of 253 patients who underwent CRRT in ICU Hospital Queen Elizabeth between January 2021 and January 2024. We compared baseline characteristics of in-hospital survivors and non-survivors in this patient cohort. A subgroup analysis was done to identify mortality predictors between in-hospital survivors and non-survivors.

Results

The in-hospital mortality rate was 61.7%. When we divided these individuals into two groups (survivors and non-survivors), there was no significant difference in gender or comorbidities. The non-survivors had a greater mean age (54.95±15.04) than the survivor group (48.08±14.64). In terms of clinical conditions, non-survivors had a higher proportion of arrhythmias, cardiogenic shock, acute coronary syndrome (ACS) and acute respiratory distress syndrome (ARDS). Interestingly, fluid overload was shown to be more prevalent in the survivor group. Meanwhile, the median lactate level was significantly higher in the non-survivor group. Multivariate logistic regression analysis further revealed ARDS, high APACHE II score significantly increase risk of mortality with odds ratio (OR) 4.17, 95% confidence interval (CI) 1.24-4.04, P=0.021, and OR 1.50,95% CI (1.34-1.68), p<0.001 respectively.

Conclusion

We found a high in-hospital mortality rate following CRRT initiation. We also observed several mortality associated risk factors in patients undergoing CRRT. Fluid overload as an indicator of CRRT appears to be a better predictor of survival in patients receiving CRRT. Although these factors may not be used to determine CRRT initiation, they may still be useful in predicting mortality outcomes despite ongoing active CRRT treatment.

2024-0014

Figure & Table

Table 1. BASELINE CHARACTERISTICS OF STUDY PATIENTS UNDERGOING CRRT

	Total	Survivors, n=97	Non - survivors, n=156	p Value
Age	**52.3±0.96**	**48.08±14.64**	**54.95±15.04**	**<0.001** [a]
GENDER				
Male	158(62.5)	59(37.3)	99(62.7)	0.674 [b]
Female	95(37.5)	38(40.0)	57(60.0)	
COMORBIDITIES				
DM	92(36.4)	38(41.3)	54(58.7)	0.464 [b]
Hypertension	131(51.8)	51(38.9)	80(61.1)	0.841 [b]
Dyslipidaemia	53(20.94)	18(34.0)	35(66.0)	0.461 [b]
CKD	43(16.99)	22(51.27)	21(48.8)	0.058 [b]
IHD	12(4.74)	2(16.7)	10(83.3)	0.138 [c]
CLINICAL CONDITIONS				
GI Bleed	40(15.81)	11(27.5)	29(72.5)	0.124 [b]
Arrhythmias	**53(20.94)**	**13(24.5)**	**40(75.5)**	**0.020** [b]
Cardiogenic shock	**98(38.75)**	**22(22.4)**	**76(77.6)**	**<0.001** [b]
ACS	**75(30.0)**	**9(11.8)**	**67(88.2)**	**<0.001** [b]
ARDS	**56(22.13)**	**6(10.7)**	**50(89.3)**	**<0.001** [b]
Fluid overload	24(9.49)	16(66.7)	8(33.3)	0.003 [b]
Cardiac arrest	18(7.11)	6(33.3)	12(66.7)	0.650 [b]
SCORE				
APACHE II	**36.82±6.84**	**(31.04±6.26)**	**40.41±4.22**	**<0.001** [a]
SOFA	**15.57±3.44**	**13.85±3.86**	**16.64±2.66**	**<0.001** [a]
LABORATORY				
Haemoglobin(g/L)	9.55±2.57	9.52±2.58	9.57±2.57	0.867 [a]
Urea(mmol/L)	24.94±14.94	29.5±14.48	22.11±14.56	**<0.001** [a]
Bicarbonate(mmol/L)	15.19±5.66	16.12±5.27	14.61±5.84	0.504 [a]
Lactate(mmol/L)	**3.8±8.40**	**1.4±2.70**	**7.10±9.48**	**<0.001** [d]

Abbreviations: DM, Diabetes mellitus; CKD, Chronic kidney disease; IHD, Ischemic heart disease; GI, gastrointestinal; ARDS, Acute respiratory distress syndrome; ACS, acute coronary syndrome; SOFA, Sequential organ failure assessment; APACHE II, acute physiology and chronic health evaluation; OR, odds ratio; CI, confidence interval; [a] Independent t-test, Mean (SD);[b] Chi-square, n (%);[c] Fischer exact test, n (%)[d] Mann-Whitney test, Median (IQR),skewed to the right

Table 2. Logistic regression analysis for in-hospital mortality

	UNIVARIATE			MULTIVARIATE		
FACTORS	p value	OR	95% CI	P VALUE [a]	OR	95% CI
GI Bleed	0.128	1.78	0.84-3.76			
Arrhythmias	0.022	2.22	1.12-4.42			
Cardiogenic shock	<0.001	3.23	1.83-5.72			
ARDS	<0.001	7.15	2.93-17.45	0.021	4.17	1.24-14.04
Fluid overload	0.004	0.27	0.11-0.66			
ACS	<0.001	7.36	3.45-15.67			
Arrest	0.651	1.26	0.45-3.48			
None Vasopressor	<0.001	1.00		0.037	1.00	
1 vasopressor	0.119	1.97	0.84-4.62	0.006[b]	0.11	0.02-0.54
2 vasopressors	<0.001	7.47	2.82-19.0	0.066[b]	0.21	0.04-1.11
3 vasopressors	<0.001	6.75	2.33-19.5	0.016[b]	0.10	0.02-0.65
SOFA	<0.001	1.34	1.21-1.47			
APACHE II	<0.001	1.43	1.31-1.57	<0.001	1.50	1.34-1.68
Haemoglobin (g/L)	0.866	1.00	0.91-1.11			
Platelet (10^9/L)	0.059	0.99	0.99-1.00			
Bilirubin mmol/L	0.502	1.00	0.99-1.00			
Urea (mmol/L)	<0.001	0.96	0.94-0.98	0.037		0.94-1.00
Creatinine (mmol/L)	<0.001	0.99	0.99-0.99			
Potassium (mmol/L)	0.060	1.26	0.99-1.62			
PH	<0.001	0.004	0.000-0.031			
Bicarbonate(mmol/L)	0.041	0.95	0.91-0.99			
Lactate(mmol/L)	<0.001	1.23	1.14-1.32			

Abbreviations: GI, gastrointestinal; ARDS, Acute respiratory distress syndrome; ACS, acute coronary syndrome; SOFA, Sequential organ failure assessment; APACHE II, acute physiology and chronic health evaluation; OR, odds ratio; CI, confidence interval;
[a] Likelihood Ratio (LR) test [b] Wald test; The model has no interaction terms, no multicollinearity problem and no outliers.
Hosmer-Lemeshow goodness-of-fit test for both models were not significant (p=0.125);87.4% cases are predicted correctly for mortality and AUC of ROC is 92.5% (outstanding discrimination).

2024-0277

Prevention of hypercapnia by percutaneous carbon dioxide monitoring during sedation for endoscopic submucosal dissection: A randomized controlled trial, Preliminary report

Seungwon Lee[1], Ji won Choi[1*], In sun Chung[1], Justin sangwook Ko[1], Duk-kyung Kim[1]

1. Anesthesiology and Pain medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea

Background

Endoscopic submucosal dissection (ESD) requires highly skilled techniques because it carries the risk of perforation or bleeding that may result from a difficult tumor location or patient body movements. Therefore, generally, deep sedation and analgesic management are necessary during the procedure. Notably, respiratory complications during deep sedation have shown a higher tendency to manifest as hypercapnia rather than hypoxemia. Measuring end-tidal carbon dioxide in ESD patients presents challenges, hindering the monitoring of respiratory rate or depth. However, percutaneous carbon dioxide (PtCO2) monitoring devices have emerged, enabling continuous tracking of blood carbon dioxide level changes through the skin. When feasible, such devices provide a reference for carbon dioxide levels during procedural sedation. Therefore, this study aims to explore whether adjusting anesthesia depth based on PtCO2 monitoring devices, particularly for ESD procedures necessitating deep sedation, effectively mitigates the occurrence of hypercapnia.

Methods

The participants were categorized into two groups: a monitoring group (n=60) with a predefined goal of maintaining PtCO2 levels so they did not exceed a 20 mmHg increase above baseline, and a control group (n=60) where an anesthesiologist was unaware of PtCO2 values during the procedure. Hypercapnia was defined as PtCO2 exceeding baseline by more than 20 mmHg, and our primary outcome was the incidence of hypercapnia. Patient baseline characteristics, snoring presence, and anesthetic agent dosage were collected. Baseline PtCO2, mean PtCO2, max PtCO2, mean SpO2, and lowest SpO2 were gauged using monitoring devices.

Results

A total of 85 patients were included in the analysis, comprising 43 participants in the monitoring group and 42 in the control group. The monitoring group had a higher number of participants classified as high risk according to the STOP-BANG questionnaire, the difference was not statistically significant. Despite the monitoring group's efforts to prevent PtCO2 levels from rising more than 20 mmHg above baseline, hypercapnia was recorded in 25.6% (11/43) of cases in the monitoring group and 33.3% (14/42) in the control group, with no statistically significant difference between the groups (p = 0.433). However, the monitoring group had a statistically significant reduction in propofol dosage and a higher minimum SpO2 level in the recovery room. No noteworthy differences emerged between the two groups concerning peak CO2 values, mean oxygen saturation, or lowest oxygen saturation.

Conclusion

In this preliminary reports, monitoring of PtCO2 during deep sedation for ESD did not reduce the incidence of hypercapnia compared to control group, however, it reduced propofol consumption and improved oxygenation in the recovery room.

2024-0277

Figure & Table

Table 1. Baseline characteristics between the two groups.

	Monitoring group (n=43)	Control group (n=42)
Age (year)	66.3±8.1	65.7±9.5
Male, n (%)	34 (79.1)	36 (85.7)
BMI (kg/m^2)	24.8±2.7	25.4±2.7
ASA-PS classification (I/II/III)	6/27/10	5/25/12
Hypertension, n (%)	21 (48.8)	20 (47.6)
Diabetes mellitus, n (%)	7 (16.4)	9 (21.4)
Smoking, n (%)	5 (11.6)	7 (16.7)
Pulmonary disease, n (%)	4 (9.3)	2 (4.8)
COPD, n (%)	5 (11.6)	5 (11.9)
Snoring history, n (%)	24 (55.8)	23 (54.8)
STOP-BANG classification (low/moderate/high), n	14/10/19	13/19/10
Operators (1/2/3/4), n	17/17/2/7	13/20/4/5
Type of lesions (A/B/C), n	14/17/7	5/24/8

Table 2. Procedure- related variables and adverse events between the two groups.

	Monitoring group (n=43)	Control group (n=42)	p value
Intra-procedure			
Procedure time (minutes)	28 [21, 44]	33 [24.8, 42.5]	0.133
Midazolam (mg)	2 [2, 3]	2 [1.5, 3]	0.228
Propofol (mg)	128.8 [105.7, 162.6]	151.3 [122.3, 194.8]	0.026
Remifentanil (μg)	124.4 [105, 192.7]	151 [123.6, 190.8]	0.104
Baseline $PtCO_2$ (mmHg)	42.5 ± 3.8	41.9 ± 4.5	0.523
Maximum $PtCO_2$ (mmHg)	57.3 [53.5, 64.3]	58.3 [54.2, 68.8]	0.268
Incidence of hypercapnia, n (%)	11 (25.6)	14 (33.3)	0.433
Baseline SpO_2 (%)	97 [96, 98]	97 [97, 98]	0.164
Lowest SpO_2 (%)	99 [98, 100]	99 [96.8, 99]	0.297
Hypoxia ($SpO_2 < 90\%$), n (%)	2 (4.7)	3 (7.1)	0.676
$SpO_2 < 95\%$, n (%)	3 (7.0)	7 (16.7)	0.195
After procedure			
Satisfaction of operators (1-5), n	1/3/7/8/23	2/1/9/15/16	0.292
PACU stay time (minutes)	30 [30, 40]	35 [30, 45]	0.096
PACU lowest SpO_2 (%)	99 [97, 99]	97.5 [96, 99]	0.038
Atelectasis on chest X-ray, n (%)	3 (7.0)	5 (11.9)	0.483
Fever or pneumonia, n (%)	3 (7.0)	5 (11.9)	0.483

2024-0266

Comparison of Ultrasound-guided Short Axis-Dynamic Needle Tip Positioning (SA-DNTP) vs Long Axis In Plane (LAIP) technique for radial artery cannulation after structured simulated training

Siri Prabhushankar Hiriyur[1*]

1. Anaesthesiology, Pain medicine and Critical care, All India Institute of Medical Sciences, New Delhi, India

Background

Arterial cannulation is one of the frequently performed procedures in patients with anticipated massive blood loss, significant hemodynamic changes, or the requirement for frequent blood gas sampling in the perioperative period. The radial artery is preferred over other arteries as the hand has a dual arterial supply from the radial and ulnar arteries.

Ultrasonography (USG) is used as an aid for arterial cannulation to improve the success rate and lessen complications. Among USG approaches, Short Axis Out-Of-Plane (SA-OOP) and Long Axis In-Plane (LAIP) are commonly used. In the SA-OOP approach, an Ultrasound (USG) image of part of the shaft or the tip of the cannula in cross-section appears as a hyperechoic dot, whereas in the LAIP approach, the entire path of the needle can be visualised as a hyperechoic line.

USG-guided Short Axis-Dynamic Needle Tip Positioning (SA-DNTP) technique is modified from SA-OOP to focus on the tip of the cannula continuously. Hence, there is better control of the needle tip, lowering the chance of posterior wall puncture.

So far, all the studies are done by experienced anaesthesiologists. There are no studies that compare the two techniques for novice residents in clinical practice in terms of success rate, ease of learning, and learner confidence. Therefore, we conducted a study to compare the USG-guided SA-DNTP versus LAIP technique amongst novice residents after Structured Simulated Training. We hypothesised that the SA-DNTP technique had a higher first-attempt success rate for radial artery cannulation amongst novice anaesthesia residents as compared to the LAIP technique.

Methods

This prospective randomized parallel group trial was conducted after institute ethics committee approval. 42 novices were randomized into group SA-DNTP and group LAIP and given needling training on Blue phantom USG training model. After which, each participant was given 4 patients each to cannulate in their respective group. Total of 168 patients were cannulated, 84 in each group.

Results

Group SA-DNTP had a higher first-attempt success rate, overall success rate and comprehensive arterial cannulation score (CACS) than group LAIP. Group SA-DNTP had less time for cannulation, fewer attempts to cannulate, lesser incidence of posterior wall puncture and hematoma formation, and also lesser image acquisition time (IAT) than group LAIP. This is statistically significant.

Conclusion

Our study showed that group SA-DNTP demonstrated a higher rate of success on the first attempt with less complications. The results of the study indicate that the training methods employed were successful in imparting competency in USG guided radial artery cannulation. This may help optimize a curriculum that combines integrated simulation training with didactic lectures for radial artery cannulation.

2024-0266

Figure & Table

Figure 1. 1A: SA-DNTP technique, 1B: LAIP technique

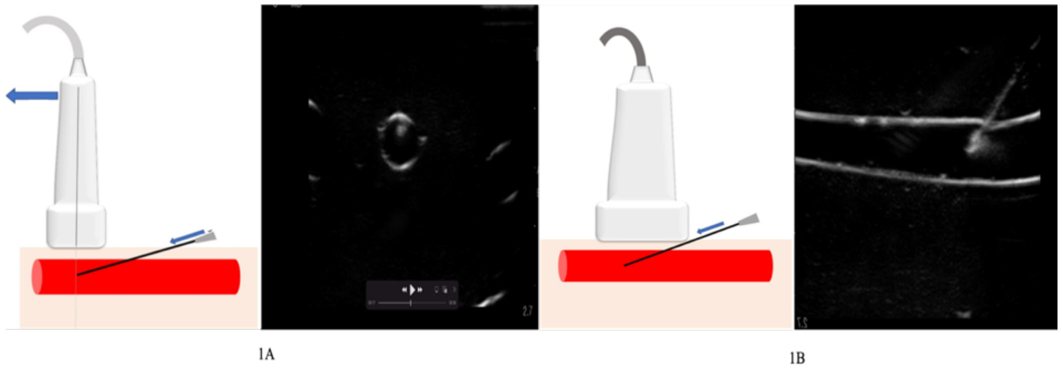


Table 1. Outcome parameters between Group SA-DNTP & Group LAIP

Parameters	SA-DNTP (n=84)	LAIP (n=84)	SIGNIFICANCE
First attempt success rate	70 (83.33%)	32 (38.09%)	p<0.0001
Overall success rate n (%)	79 (94.04%)	59 (70.23%)	p<0.0001
Number of attempts Median (IQR)	1 (1-1)	2 (1-2)	p<0.0001
Time to cannulation (Seconds) Median (IQR)	37.5 (27-55)	122.5 (69-154)	p<0.0001
Posterior wall puncture n (%)	11 (13.09%)	33 (39.28%)	p<0.0001
Hematoma n (%)	6 (7.14%)	23 (27.38%)	p<0.0001
CACS Median (IQR)	7 (6-8)	4 (2-6)	p<0.0001
IAT (seconds) Median (IQR)	12 (10-13)	34 (28-38)	p<0.0001

2024-0153

Hypotension prediction index monitoring to minimize intraoperative hypotension: a systematic review and meta-analysis of randomized controlled trials

Sriganesh Kamath[1*], Thomas Francis[1], Rajeeb Mishra[1], Dhritiman Chakrabarti[1]

1. Neuroanaesthesia and Neurocritical Care, National Institute of Mental Health and Neurosciences, Bengaluru, India

Background

Hypotension is a frequent complication in the intraoperative period. Intraoperative hypotension leads to poor perioperative outcomes. Few studies demonstrated decreased occurrence of intraoperative hypotension when recently introduced hypotension prediction tools such as the hypotension prediction index (HPI) were used. We conducted this systematic review and meta-analysis of randomized controlled trials (RCTs) to synthesize overall evidence regarding the use of HPI on intraoperative hypotension outcomes.

Methods

We searched electronic databases of PubMed, ProQuest, and Scopus from inception till 30 October 2023. The search strategy was refined for all databases with the support of an experienced librarian. No time or language restrictions were applied. Only RCTs were included. Two independent reviewers assessed the studies for selection in two stages and extracted the data from the included studies using Microsoft Excel. This systematic review is registered with PROSPERO (CRD42023478150). Risk of Bias (RoB) was assessed using Cochrane RoB tool 2 for RCTs. The data was analysed using Review Manager Software. The quality of evidence was assessed using the GRADE approach. Publication bias was assessed using a funnel plot and Egar's test.

Results

A total of 281 records were obtained, and after exclusion, eight eligible RCTs were finally included. [1-8] Inter-reviewer agreement was 91% (kappa=0.74). The RoB was low for five studies and some concerns for three studies. Significant differences were seen between HPI and no HPI groups for the time-weighted average of hypotension during surgery (mean difference [MD] -0.19 mmHg, 95% confidence interval [95% CI] -0.31 to -0.08, p=0.001), area under the hypotension threshold (MD -65.03 [mmHg X min], 95% CI -105.47 to -24.59, p=0.002), incidence of hypotension (risk ratio = 0.83, 95% CI 0.7 to 0.99, p=0.04), total hypotension duration (MD -12.07 minutes, 95% CI -17.49 to -6.66, p <0.001), and hypotension duration as a percentage of surgery time (MD -6.30%, 95% CI -10.23 to -2.38, p=0.002). (Figure 1) The certainty of evidence on GRADE assessment was low for three outcomes and moderate for two outcomes. (Figure 2) A significant publication bias was seen for the most commonly studied hypotension outcome, the hypotension duration, as seen by an asymmetrical funnel plot and statistically significant Eggar's test (p=0.001).

Conclusion

Available evidence supports the role of HPI in minimizing hypotension outcomes during surgery. The certainty of evidence on GRADE assessment, however, is low to moderate for studied outcomes.

2024-0153

Figure & Table

Figure 1. Forest plot for study outcomes

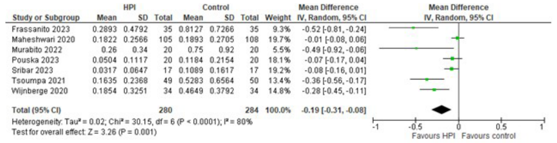


Figure 1b: Area under the hypotension threshold

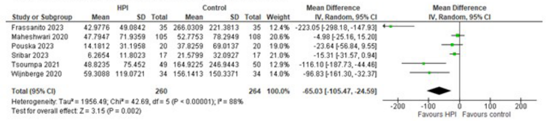


Figure 1c: Incidence of hypotension

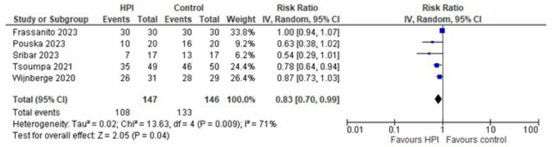


Figure 1d: Total hypotension duration

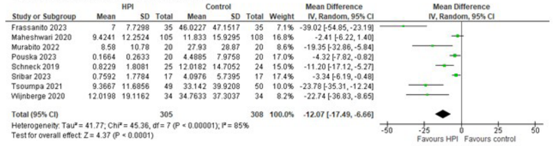


Figure 1e: Hypotension duration as a percentage of surgery time

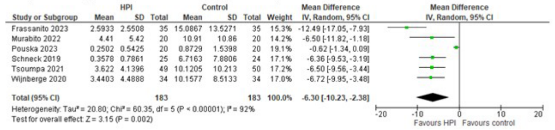
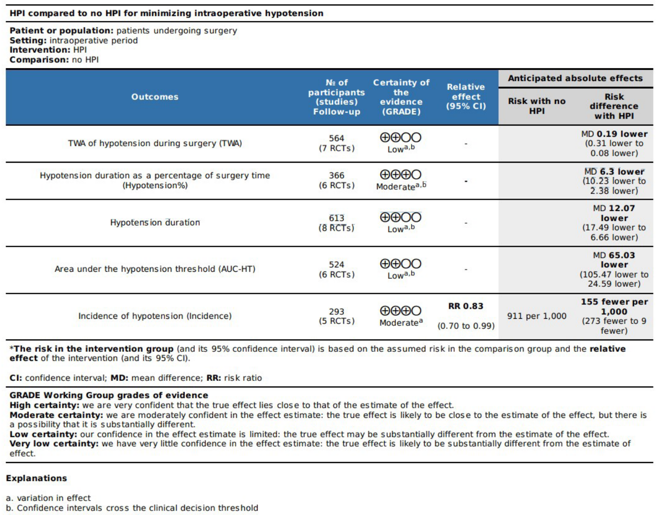


Figure 2. GRADE Table



HPI compared to no HPI for minimizing intraoperative hypotension

Patient or population: patients undergoing surgery
Setting: intraoperative period
Intervention: HPI
Comparison: no HPI

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with no HPI	Risk difference with HPI
TWA of hypotension during surgery (TWA)	564 (7 RCTs)	⊕⊕○○ Low[a,b]	-		MD **0.19 lower** (0.31 lower to 0.08 lower)
Hypotension duration as a percentage of surgery time (Hypotension%)	366 (6 RCTs)	⊕⊕⊕○ Moderate[a,b]	-		MD **6.3 lower** (10.23 lower to 2.38 lower)
Hypotension duration	613 (8 RCTs)	⊕⊕○○ Low[a,b]	-		MD **12.07 lower** (17.49 lower to 6.66 lower)
Area under the hypotension threshold (AUC-HT)	524 (6 RCTs)	⊕⊕○○ Low[a,b]	-		MD **65.03 lower** (105.47 lower to 24.59 lower)
Incidence of hypotension (Incidence)	293 (5 RCTs)	⊕⊕⊕○ Moderate[a]	**RR 0.83** (0.70 to 0.99)	911 per 1,000	**155 fewer per 1,000** (273 fewer to 9 fewer)

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **MD:** mean difference; **RR:** risk ratio

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations

a. variation in effect
b. Confidence intervals cross the clinical decision threshold

2024-0261

Comparison between pleth variability index (PVI) vs Rainbow PVI (RPVI) in non-cardiothoracic surgery: a retrospective study

Chahyun Oh[1,2], Boohwi Hong[1,2*]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Daejeon, Korea, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Daejeon, Korea, Republic of Korea

Background

Pleth variability index (PVI) often exhibits large fluctuations and has shown limited performance compared to its invasive counterpart, pulse pressure variation (PPV). Rainbow PVI (RPVI) is a multi-wavelength version of PVI designed to enhance performance. Currently, clinical data on the performance of RPVI is lacking.

Methods

This study retrospectively compared PVI and RPVI using PPV as the reference parameter. Continuous, synchronized intraoperative recordings of the three parameters were obtained from adult patients undergoing non-cardiothoracic surgery under general anesthesia and mechanical ventilation. The correlation, accuracy (bias), and precision (% error, calculated as 95% limit of agreement divided by the mean PPV) between PVI vs. PPV and RPVI vs. PPV were assessed, accounting for the nested data structure (i.e., multiple observations per subject). Additionally, the ability of both parameters to predict high PPV (>13%) was evaluated using receiver operating characteristic (ROC) analysis.

Results

A total of 201 hours of data, encompassing 12,062 data points from 88 subjects, was included in the final analysis. The correlation coefficients between PVI and PPV was 0.241 (95% CI, 0.223 to 0.259), whereas between RPVI and PPV was 0.511 (95% CI, 0.494 to 0.529) (Fig. 1). PVI exhibited a mean bias (PPV – PVI) of −2.6 (95% CI, −3.6 to −1.6) with an error of 126.8% (95% CI, 114.5 to 141.5%), while RPVI showed a mean bias (PPV – RPVI) of 2.5 (95% CI, 1.9 to 3.1) with an error of 80.3% (95% CI, 72.5 to 89.7%). PVI and RPVI showed area under the ROC curve of 0.663 (95% CI, 0.652 to 0.673) and 0.814 (95% CI, 0.806 to 0.823), respectively (p<0.001 for DeLong's test) (Table 1).

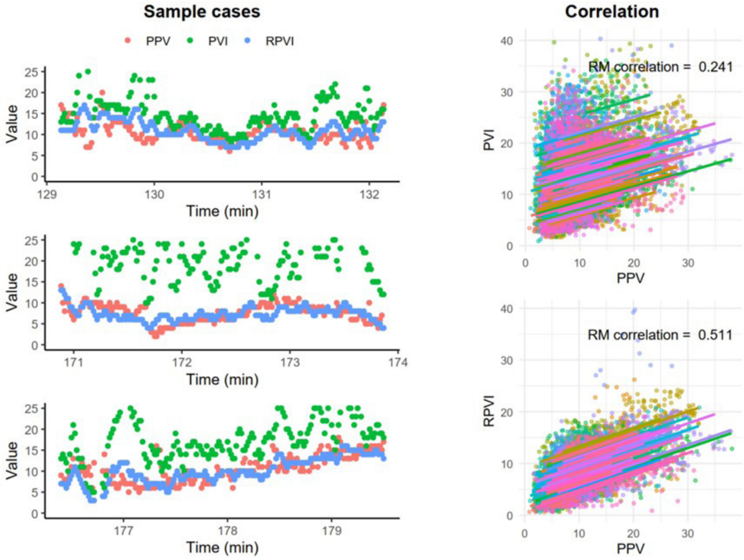
Conclusion

The RPVI demonstrated superior performance compared to the PVI, showing improved correlation and precision regarding PPV, as well as a higher predictive ability for PPV > 13%. However, RPVI cannot be considered a complete substitute for PPV, as it tends to underestimate PPV and has limited precision. Further studies are needed to verify RPVI's performance in predicting actual fluid responsiveness.

2024-0261

Figure & Table

Figure 1. Comparison of pleth variability index (PVI) and Rainbow PVI (RPVI) with pulse pressure variation (PPV) in sample cases and correlation analysis.



Note the improved repeated measures (RM) correlation between RPVI and PPV compared to the correlation between PVI and PPV.

Table 1. Performance metrics for pleth variability index (PVI) and Rainbow PVI (RPVI) in predicting pulse pressure variation (PPV) >13%

	PVI	RPVI
Cut-off	13.5	8.5
AUROC	0.663	0.814
(95% CI)	(0.652-0.673)	(0.806-0.823)
Sensitivity	0.641	0.805
(95% CI)	(0.623-0.658)	(0.790-0.819)
Specificity	0.617	0.659
(95% CI)	(0.608-0.627)	(0.649-0.668)
PPV	0.345	0.425
(95% CI)	(0.332-0.357)	(0.412-0.438)
NPV	0.846	0.915
(95% CI)	(0.837-0.854)	(0.908-0.922)
PLR	1.675	2.358
(95% CI)	(1.613-1.739)	(2.280-2.438)
NLR	0.582	0.297
(95% CI)	(0.553-0.612)	(0.275-0.320)
F1 score	0.449	0.556

Abbreviations: AUROC, area under the receiver operating characteristic curve; CI, confidence interval; PPV, positive predictive value; NPV, negative predictive value; PLR, positive likelihood ratio; NLR, negative likelihood ratio. PLR >2.0, and NLR <0.5 were considered clinically informative.

2024-0241

Effects of a biofeedback-based sleep aid smartphone application on perioperative sleep quality in breast cancer surgery patients: an open-label, randomized controlled trial

Hae Kyeong Yoo[1], Hojin Lee[1*]
1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

Background

This study aimed to investigate the effect of a novel biofeedback-based sleep aid smartphone application on enhancing sleep quality for surgical patients.

Methods

Divided into two parts, this study examined non-surgical volunteers with difficulty falling asleep (pilot study) and patients undergoing breast cancer surgery (randomized controlled trial [RCT]). In the pilot study, volunteers underwent sleep quality assessments on different days, with and without the smartphone application, using polysomnography and the Korean version of the Richards-Campbell Sleep Questionnaire (K-RCSQ). In the RCT, the surgical patients were randomly assigned to either the biofeedback group using the application or the control group, without the application. The primary outcome was the mean K-RCSQ score on the surgery night, and the secondary outcomes were the mean K-RCSQ score the night before surgery and the Korean version of the Quality of Recovery-15 score at 24 h postoperatively.

Results

In the pilot study, 10 of the 16 candidates were enrolled; among them, the use of the application significantly improved sleep quality, as evidenced by higher K-RCSQ scores (with use: 79.0 ± 8.2 vs. without use: 58.0 ± 9.2, $P < 0.001$). In the RCT, out of 134 screened patients, 65 were analyzed. The biofeedback group showed significantly higher K-RCSQ scores for preoperative sleep (biofeedback: 77.5 [67.0–81.0] vs. control: 66.0 [54.0–78.0], $P = 0.049$), but not on the day of surgery (biofeedback: 74.0 [60.0–83.0] vs. control: 68.0 [46.0–80.5], $P = 0.248$). No significant differences were found in postoperative recovery profiles.

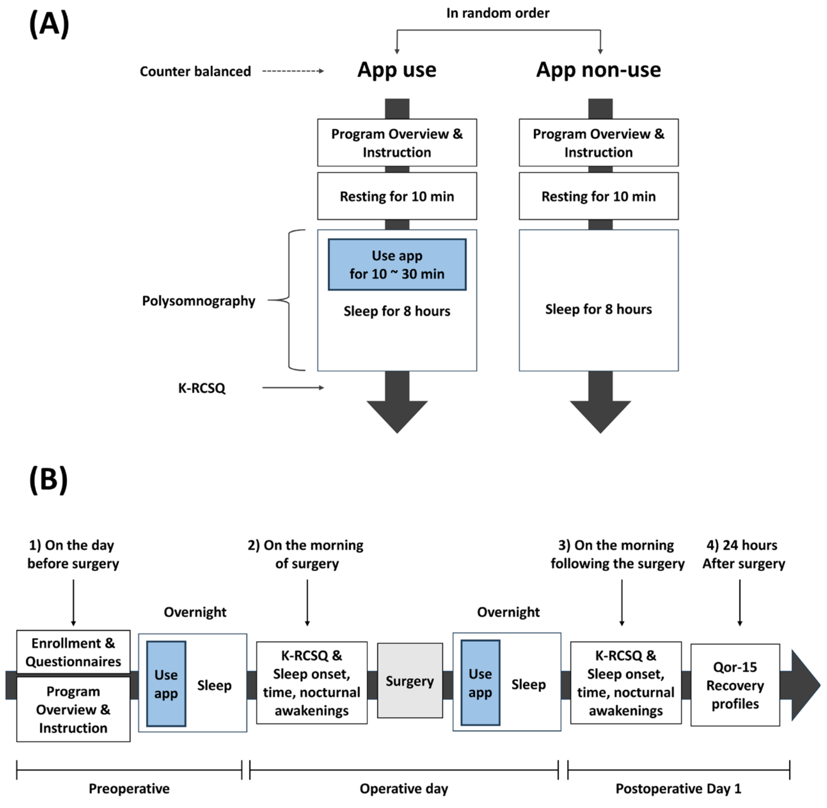
Conclusion

Our study demonstrated that a biofeedback-based sleep aid application, a noninvasive intervention, has the potential to improve sleep in surgical patients. Although the effect was marginal in this cohort of surgical patients, several factors that could influence perioperative sleep and diminish the effectiveness of the application were identified. Further research is warranted to address and overcome these barriers and fully assess the application's potential.

2024-0241

Figure & Table

Figure 1.


(A)
In random order
Counter balanced
App use
App non-use
Program Overview & Instruction
Program Overview & Instruction
Resting for 10 min
Resting for 10 min
Polysomnography
Use app for 10 ~ 30 min
Sleep for 8 hours
Sleep for 8 hours
K-RCSQ
(B)
1) On the day before surgery
2) On the morning of surgery
3) On the morning following the surgery
4) 24 hours After surgery
Overnight
Overnight
Enrollment & Questionnaires
Program Overview & Instruction
Use app
Sleep
K-RCSQ & Sleep onset, time, nocturnal awakenings
Surgery
Use app
Sleep
K-RCSQ & Sleep onset, time, nocturnal awakenings
Qor-15 Recovery profiles
Preoperative
Operative day
Postoperative Day 1

All procedures were identical across both groups, with the exception of app use (blue box)

2024-0241

Figure & Table

Table 1. An assessment of the sleep profile for the perioperative period

	Control group (n = 33)	Biofeedback group (n = 32)	Median difference (95% CI)	P-value
Evaluation of sleep on the night before surgery				
K-RCSQ mean score (0–100)	66.0 [54.0–79.0]	77.5 [65.5–81.5]	8 (0–18)	0.049
Sleep depth (0–100)	60.0 [50.0–80.0]	80.0 [70.0–80.0]	10 (0–20)	0.017
Falling asleep (0–100)	70.0 [55.0–85.0]	80.0 [60.0–90.0]	0 (-10–10)	0.555
Awakening (0–100)	60.0 [50.0–90.0]	80.0 [60.0–80.0]	10 (0–20)	0.161
Returning to sleep (0–100)	60.0 [50.0–80.0]	75.0 [70.0–87.5]	10 (0–20)	0.114
Overall sleep quality (0–100)	70.0 [50.0–80.0]	80.0 [70.0–90.0]	10 (0–20)	0.007
Total sleep time, hours	5.0 [4.0–6.0]	6.0 [5.5–6.5]	1 (0–1)	0.020
Sleep onset latency, min[#]	30.0 [20.0–40.0]	25.0 [20.0–40.0]	0 (-10–10)	0.787
Reasons for awakening during sleep[*]				
Hospital environment	26 (86.7)	20 (76.9)		0.487
Anxiety	5 (16.7)	4 (15.4)		1.000
Nocturia	6 (20.0)	9 (34.6)		0.218
Others[**]	2 (6.7)	1 (3.8)		1.000
Evaluation of sleep on the day of surgery				
K-RCSQ mean score (0–100)	68.0 [46.0–80.5]	74.0 [59.0–83.0]	6 (-4–16)	0.248
Sleep depth (0–100)	60.0 [50.0–80.0]	80.0 [60.0–90.0]	10 (0–20)	0.044
Falling asleep (0–100)	80.0 [50.0–90.0]	70.0 [50.0–90.0]	0 (-10–10)	0.525
Awakening (0–100)	60.0 [50.0–85.0]	70.0 [50.0–80.0]	0 (-10–20)	0.466
Returning to sleep (0–100)	70.0 [45.0–90.0]	75.0 [52.5–80.0]	0 (-10–10)	0.750
Overall sleep quality (0–100)	50.0 [35.0–80.0]	70.0 [60.0–90.0]	10 (0–30)	0.018
Total sleep time, hours	5.0 [4.0–6.0]	6.0 [5.0–6.8]	1 (0–1)	0.068
Sleep onset latency, min	30.0 [20.0–30.0]	20.0 [20.0–37.5]	0 (-10–10)	0.594
Reasons for awakening during sleep[†]				
Hospital environment	23 (74.2)	17 (65.4)		0.469
Pain	9 (29.0)	12 (46.2)		0.182
Nocturia	3 (9.7)	4 (15.4)		0.691
Others[‡]	2 (6.5)	0 (0.0)		0.495
24 hours after surgery				
QoR-15 (0–150)	124.0 [109.0–132.0]	126.0 [108–138.5]	3 (-7–13)	0.545
Pain intensity assessed by the NRS	3.0 [2.0–4.0]	3.0 [2.0–4.0]	0 (-1–1)	0.984

Data are presented as median [interquartile range] or number (%).

RCSQ, Richards-Campbell Sleep Questionnaire; QoR-15, Quality of recovery score-15; NRS, numerical rating scale

[#] Sleep onset latency was not investigated in one patient in the control group. Those who reported that it took more than 60 min to enter were analyzed, with a maximum value of 60 min.

[*] Patients who reported awakening during sleep were asked about their reasons, and multiple answers were allowed. Only patients who reported awakening during sleep were compared between the two groups. Of the 56 patients, 30 and 26 were included in the control and biofeedback groups, respectively.

[**] Other causes included nausea and vomiting and light sleep pattern.

[†] Patients who reported awakening during sleep were asked for their reasons, and multiple answers were allowed. Only patients who reported awakening during sleep were compared between the two groups. Of the 57 patients, 31 and 26 were included in the control and biofeedback groups, respectively.

[‡] Other causes included postoperative nausea and vomiting and light sleep pattern.

2024-0072

Effect of perioperative Analgesia Nociception Index (ANI) guided opioid administration on postoperative pain score, opioid consumption and endocrine stress response in paediatric patients undergoing cochlear implant surgery: A prospective randomized controlled trial

Gajalakshmi Sanjeevi[1*]

1. Anaesthesiology, Critical care and Pain medicine, All India Institute of Medical Sciences, India

Background

Objective: Our study aimed to compare the effects of ANI (Analgesia Nociception Index)-guided vs. hemodynamic parameter-guided intraoperative fentanyl administration on the FLACC scale score postoperatively in paediatric cochlear implant surgery. Our secondary outcomes were total perioperative fentanyl consumption, endocrine stress response during surgery, and incidence of emergence delirium.

Methods

Thirty patients aged between 2 and 12 years of age undergoing cochlear implant surgery were included after obtaining ethics committee approval and trial registration. The control group received IV fentanyl when heart rate and/or blood pressure increased >20% from the baseline and repeated every 5 minutes until they reached the baseline. In the ANI group, IV fentanyl was administered whenever the mean ANI was <50 and repeated every 5 minutes until the mean ANI was >50.

Results

Postoperative FLACC scale scores were similar between groups, with a maximum value of 7 and 9 in groups A and C, respectively. Postoperative analgesia requirements and postoperative fentanyl consumption were similar between the groups. Intraoperative and total fentanyl consumption were significantly higher in Group A compared to Group C. Total fentanyl boluses and intraoperative boluses were significantly higher in Group A compared to Group C. Cortisol levels after surgery were significantly reduced compared to the levels before surgery in both groups. There was no incidence of emergence delirium in both groups.

Conclusion

The results of our study showed no significant difference in postoperative pain scores or postoperative opioid consumption, whereas intraoperative opioid consumption was significantly higher in the ANI group in comparison to the control group. However, both groups demonstrated reduced cortisol levels, indicating effective attenuation of surgical stress.

2024-0211

Intraoperative temperature monitoring with (earphone-type) tympanic thermometer in comparison with esophageal and skin temperature: Prospective observational study

JungEun Sun[1], Young sang Cho[2], Sang hyun Lee[1], Duk kyung Kim[1], Jiwon Choi[1*]

1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea
2. Department of Otorhinolaryngology-Head and Neck Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea

Background

Reliable monitoring of body temperature is a prerequisite for perioperative managements. We compared the temperature measured in the tympanic membrane (Ttm) with esophagus (Te) and forehead skin (Ts) during general anesthesia.

Methods

The Ttm, Te and Ts were recorded at 10 min intervals for 90 min. The primary outcome was difference between Ttm and Te at 60 min. To confirm the tip location and safety of tympanic thermometer, patients were examined by an otologist.

Results

A total of 720 values from 24 patients were analyzed. Ttm vs. Te at 60 min was significantly different (36.47 ± 0.50°C vs. 35.85 ± 0.39°C, $p < 0.001$; respectively). Ttm was consistently higher than Te ($p < 0.001$) during all time points. During measurements, the bias and precision of Ttm vs. Te, Ts vs. Te and Ttm vs. Ts were as follows, respectively; 0.54 ± 0.41 (95% confidence interval [CI]: 0.49 to 0.59), 0.44 ± 0.38 (95% CI: 0.40 to 0.49), 0.10 ± 0.46 (95% CI: 0.05 to 0.15). The trend of Ttm vs. Te and Ts vs. Te were significantly different, whereas, Ttm and Ts was not different over time (ß, p value; -0.536, < 0.001; -0.440, < 0.001; 0.097, 0.841; respectively). In all cases, the tip of tympanic thermometer did not reach the TM, and abrasion of auditory canal occurred in 5 patients.

Conclusion

In this study, the tympanic thermometer provided an acceptable measurement of body temperature although caution is needed to avoid abrasion. It may be an alternative to other commonly used temperature measurements devices.

Figure & Table

Figure 1.

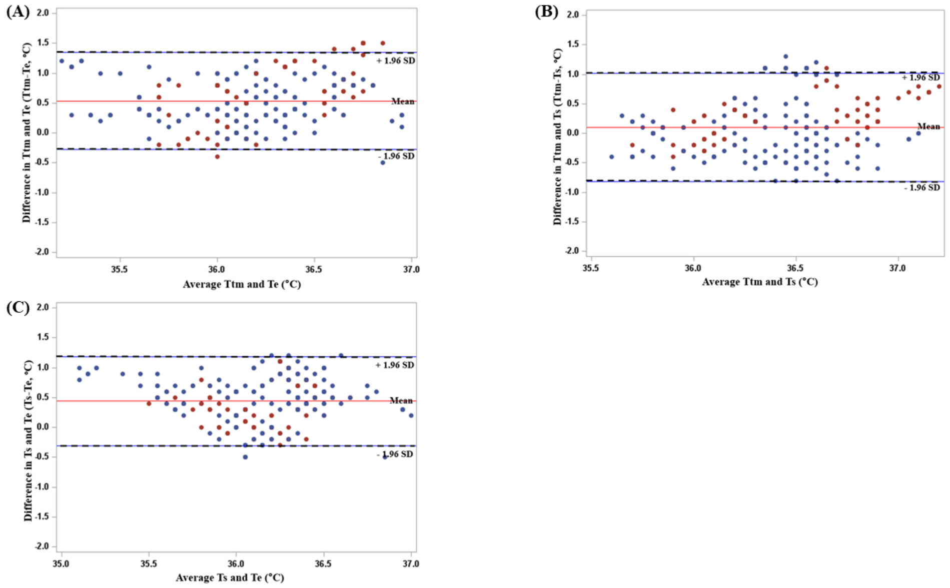
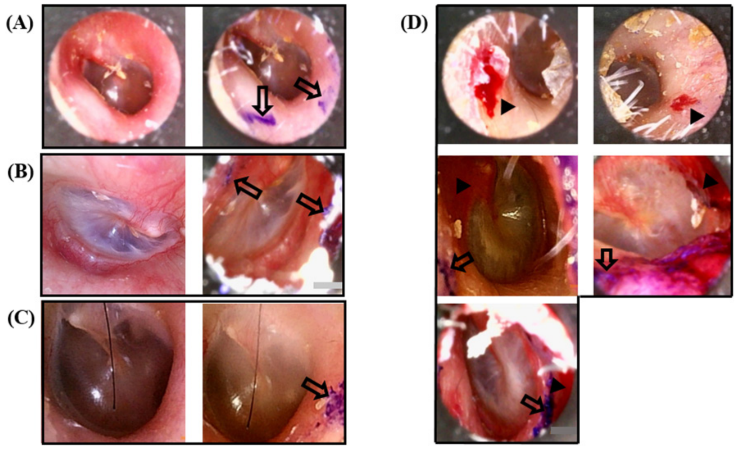


Figure 2.



2024-0210

Comparison of time for endotracheal intubation with flexible tip bougie versus standard bougie during videolaryngoscopy in simulated cervical spine immobilisation in adult patients - A randomized control trial

Renu Sinha[1*], Shivam S[1], Bikash R ray[1], Kanil Ranjith kumar[1], Manpreet Kaur[1], Vanlal Darlong[1], Jyotsna Punj[1]

1. Anaesthesiology, Pain Medicine & Critical Care, All India Institute of Medical sciences, New Delhi, India

Background

Incidence of cervical spine injury ranges from 1.8 to 9% which leads to difficult intubation due to poor glottic visualization due to neck immobilization. Endotracheal tube introducer helps to facilitate oral intubation in fixed cervical spine situations. Flexible tip bougie may help during in insertion of endotracheal tube in these situations. Primary objective was comparison of endotracheal intubation time with flexible tip bougie and standard bougie in simulated difficult airway. Secondary objectives were comparison of number of attempts, need for maneuvers and complications between the groups.

Methods

A day before surgery, pre-anaesthetic check-up was done and informed consent was obtained. Airway assessment including mouth opening and mofified Mallampati grade was done without or with AMBU Perfit Ace adult adjustable cervical collar.

Seventy six adult patients were allocated and randomized into two groups for oral endotracheal intubation in simulated cervical spine stabilization with cervical collar. In operation theatre, standard monitored and train of four monitor were applied. After administration of general anaesthesia (2mcg/kg fentanyl and 2mg/kg propofol) and non-depolarising muscle relaxant; trachea was intubated with the help of flexible tip bougie (group F) or standard bougie (group B) using CMAC video laryngoscope size 3 or 4 Macintosh blade. We evaluated time for intubation, best glottic view, railroading ETT, removal of the bougie, number of attempts, ease of bougie insertion, need of manoeuvres (BURP, cricoid pressure) and complications during intubation. Second attempt was tried if SpO2 decreased to 93% or total time exceeded more than 120 seconds. If 2nd attempt failed then anterior part of cervical collar was removed and intubation was done after proper positioning the patient.

Results

Demographic data, BMI and neck circumference was comparable in both the groups. Mean time required for endotracheal intubation was comparable but mean time for bougie insertion was significantly shorter in Group F as compared to Group B. (table 1)

Conclusion

Flexible tip bougie insertion time is shorter as compared to standard bougie insertion in simulated cervical spine stabilization. Flexible tip bougie resulted in decreased number of intubation attempts in comparison to standard bougie. However total time for intubation, railroading ETT, bougie removal, ease of bougie insertion, need for manoeuvres and complications during intubation were comparable in both the groups.

2024-0210

Figure & Table

Table 1. Comparison of time parameters between group F and Group B

Time parameters Mean ± SD, Seconds	Group F (n=37)	Group B (n=37)	p value
Time for best glottic view	10.95 ± 7.12	10.26 ± 5.86	0.65
Time for insertion of bougie	5.76 ± 2.7	9 ± 9.29	0.048
Time for railroading endotracheal tube	15.55 ± 17.45	16.4 ± 14.39	0.82
Time for removal of bougie	3.17 ± 1.58	3.18 ± 1.01	0.96
Total time for intubation	34.88 ± 20.41	39.27 ± 22.05	0.37
Time for procedure	45.07 ± 20.69	51.85 ± 20.64	0.16

2024-0113

Management of Children and Young People (CYP) under 19 years of Age with Phaeochromocytoma and Paraganglioma - The Perioperative Management (Part of the National UK Guidelines)

Samuel Quek[1*]

1. Paediatric Medicine, KK Women's and Children's Hospital, Singapore

Background

Phaeochromocytoma (PCC) and Paraganglioma (PGL) are rare in children and young people. The national children's registry data reveals an annual incidence of 0.2 and 0.3 per million in 5-9 and 10-14 year age groups respectively. Most result from a genetic predisposition and can represent significant management challenge.

Methods

AGREEII framework utilised with 113 PICO clinical questions formulated by a specialist guideline development group (GDG), and systematic literature searches conducted via Ovid MEDLINE and Cochrane Library databases identified a total of 526 articles, of which 397 were reviewed using GRADE approach. Where evidence was lacking or conflicting, a two-stage international Delphi consensus process was conducted to make recommendations.

Results

40 recommendations on clinical assessment, investigations, medical as well as surgical/anaesthetic management and long-term follow-up of survivors are made; 21 were sent to consensus and achieved agreement. Importantly, the GDG recommend CYP with PCC/PGL to be managed in a specialist centre, linked to tertiary paediatric oncology, by a designated, age-appropriate multidisciplinary team and experienced lead clinician. Clinical assessment and a three-generation family history should be targeted to identify genetically determined PCC/PGL (Von Hippel Lindau (VHL), familial paraganglioma (mutations in succinate dehydrogenase genes, SDHx), Multiple Endocrine Neoplasia 2, Neurofibromatosis 1), and genetic testing offered for all CYP with PCC/PGL after appropriate counselling.

For CYP who undergo bilateral/completion adrenalectomy or cortical sparing surgery, peri-operative steroid replacement should be led by a nominated endocrinologist. Subspecialist including critical care input ensures timely identification of post-operative hypertension/hypotension/hypoglycaemia, which should prompt exclusion of hypocortisolism / adrenal crisis and commencement of stress-doses of steroid. CYP who have undergone adrenocortical sparing surgery should continue maintenance steroid replacement until adrenocortical reserve is re-tested postoperatively. Patients with SDHB mutations and VHL have a high risk of recurrent disease and malignancy, however all CYP diagnosed with PCC/PGL should have life-long follow up because of the propensity for new events.

Conclusion

These guidelines provide the first evidence and consensus-based national recommendations for the management of PCC/PGL in CYP, and highlight a need for further audit and research in this rare, but potentially serious, condition. Their implementation should improve the quality of care and long-term health-related survival of CYP with PCC/ PGL.

2024-0018

Influence of preoperative gum chewing on postoperative requirements of anti-emetic drugs in female patients undergoing robot-assisted laparoscopic surgery for multiple myomas: A prospective single-blinded randomized controlled trial

Min suk Chae[1], Hyun jung Koh[1*]

1. Anesthesiology and Pain Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea

Background

Postoperative nausea and vomiting (PONV) are prevalent complications in female patients undergoing gynecological surgeries, including those assisted by robotic systems. Despite existing prophylactic measures, the incidence remains high, adversely affecting patient recovery and increasing healthcare costs. This study aimed to evaluate the effectiveness of preoperative gum chewing in reducing the need for anti-emetic drugs in female patients undergoing robot-assisted laparoscopic surgery for multiple myomas.

Methods

This prospective, single-blinded, randomized controlled trial involved 92 adult female patients scheduled for robot-assisted laparoscopic surgery for multiple myomas. After exculsion, participants were randomly assigned to either a gum chewing group or a no gum chewing group. The gum chewing group chewed sugar-free gum for 15 minutes in the holding area before surgery. The primary outcome was the need for anti-emetics due to PONV during the first hour in the Post-Anesthesia Care Unit (PACU). Secondary outcomes included the frequency of anti-emetic requests. No preemptive anti-emetics were administered during surgery.

Results

Out of 92 enrolled patients, 89 completed the study gum chewing group (n=44) and no gum chewing group (n=45). The incidence of PONV requiring anti-emetics in the PACU was significantly lower in the gum chewing group (79.5%) compared to the no gum chewing group (95.6%). Additionally, the frequency of anti-emetic requests was higher in the no gum chewing group. There were no postoperative complications, such as tooth or jaw pain/injury or gastric contents regurgitation.

Conclusion

Preoperative gum chewing for 15 minutes immediately before surgery significantly reduces the incidence and frequency of PONV in female patients undergoing robot-assisted laparoscopic surgery for multiple myomas. This simple, non-pharmacological intervention can improve patient comfort and reduce the need for anti-emetic medication without causing adverse effects. Further studies are needed to confirm these findings and establish guidelines for incorporating preoperative gum chewing into clinical practice.

2024-0018

Figure & Table

Figure 1.

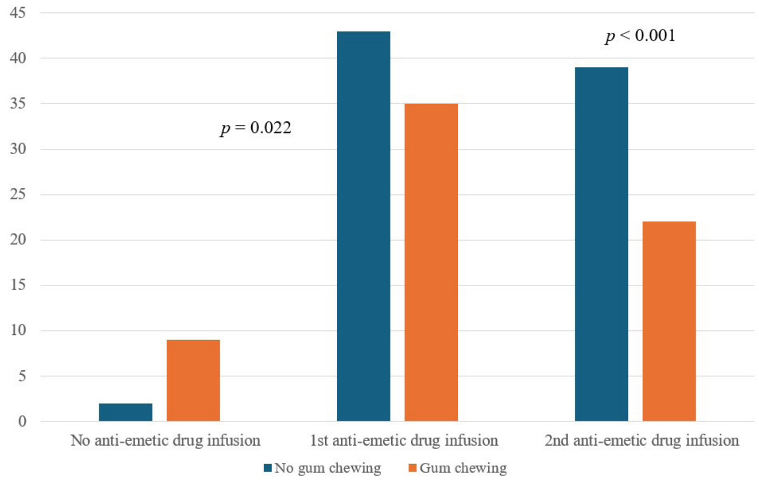


Table 1. Comparisons of PONV severity and anti-emetic drug requirements in the PACU for female patients who received preoperative Gum chewing vs. those who did not

Group	No gum chewing	Gum chewing	p-value
n	45	44	
PONV severity			
Mild to moderate PONV			
no anti-emetic drug infusion	2 (4.4%)	9 (20.5%)	0.022
1st anti-emetic drug infusion	43 (95.6%)	35 (79.5%)	0.022
Severe PONV			
2nd anti-emetic drug infusion	39 (86.7%)	22 (50.0%)	<0.001

Abbreviation: PACU, post-anesthesia care unit
Values are expressed as numbers (proportion).

2024-0216

Comparison of lateral and supine position for tracheal extubation in children undergoing cleft palate repair surgery: A prospective randomised clinical trial

Sanjay Kumar[1*]
1. Anesthesia, M.D, India

Background

Pediatric airway management forms the cornerstone of routine pediatric anesthesia practice. Both intubation and extubation need to be meticulous in children to reduce complications associated with them. Extubation has its own set of problems, which must be addressed thoroughly. Children with congenital airway syndromes, challenge even the most experienced anesthesiologists. Extubation takes paramount significance in patients with cleft palate because of the pathology involved. The supine position has been favored and advocated because of its familiarity and wide acceptance. The lateral position has been routinely used as a recovery position in post-surgical patients. Keeping these points in mind, we aimed to assess the role of lateral position for extubation in children undergoing surgery for cleft palate

Methods

Sixty patients undergoing surgery for cleft palate were enrolled and randomized into two groups (Thirty each), Group S (Supine) and Group L(Lateral), who were extubated either in the lateral or supine position. This study wanted to compare the fall in saturation between lateral and supine positions during extubation after palatoplasty surgery in children

Results

Demographic data was comparable in both groups. Among the 30 cases in each group, 90.0% of subjects in group S and 93.3% of patients in group L underwent simple type palatoplasty. Desaturation (<95%) within 5 minutes of tracheal extubation in group S was 40%, and in group L was 13%, which was statistically significant (P=0.0206). Group S reported the incidence of laryngospasm and upper airway obstruction as 6.7% and 26.7%, respectively. Ingroup L, only laryngospasm was reported as post extubation airway complication, and the incidence was 3.3%. All other hemodynamic parameters like heart rate and blood pressure were comparable in both groups

Conclusion

This prospective randomized controlled study aimed to compare the fall in saturation after extubation in the supine vs lateral group in patients undergoing surgery for cleft palate. We can conclude from this study that extubation in a lateral position compared to a supine position in children undergoing palatoplasty surgery significantly reduces the incidence of desaturation and other airway complications like laryngospasm and airway obstruction.

2024-0216

Figure & Table

Table 1. DEMOGRAPHIC DATA

S. No	Characteristics	Group Supine (n=30)	Group Lateral (n=30)	P Value
1.	Age(Years)	2.01±1.54	1.96±1.44	0.747
2.	Weight (Kg)	11.18±3.42	12.25±5.43	0.453

3.	Gender
	Male
	Female
		15(50.0%)
		15(50.0%)
			16(53.3%)
			14(46.7%)
				0.796

4.	ASA
	I
	II
		29(96.7%)
		1(3.3%)
			29(96.7%)
			1(3.3%)
				1.000

5.	Syndrome
	Hartsfield syndrome
	4p deletion
	Non syndromic
		1(3.3%)
		0(0.0%)
		29(96.7%)
			0(0.0%)
			1(3.3%)
			29(96.7%)
				0.368

6.	Duration of surgery	103.03±31.38	107.70±26.41	0.285

Data expressed as a=(Mean ±SD), %= Percentage, n=numbers

Table 2. SURGERY PERFORMED

S.no	Surgery type	Group supine (n=30)	Group lateral (n=30)
1	Furlow palatoplasty	1(3.3%)	0(0.0%)
2	Fusion palatoplasty	0(0.0%)	1(3.3%)
3	Lip repair and palatoplasty	2(6.7%)	0(0.0%)
4	Palatoplasty	27(90.0%)	28(93.3%)
5	Redo palatoplasty	0(0.0%)	1(3.3%)

Data expressed %=Percentage, n=numbers, p value<0.05 is significant

Table 3. DESATURATION <95% FOR FIRST 5 MINUTES OF POST-EXTUBATION IN BOTH GROUPS

Desaturation	Group S (n=30)	Group L (n=30)	P Value
yes	12(40%)	4(13.3%)	0.0206
No	18(60%)	26(87.%)	

Data expressed as n= number, %- percentage, p-value <0.05 is significant

Table 4. POST-EXTUBATION COMPLICATIONS

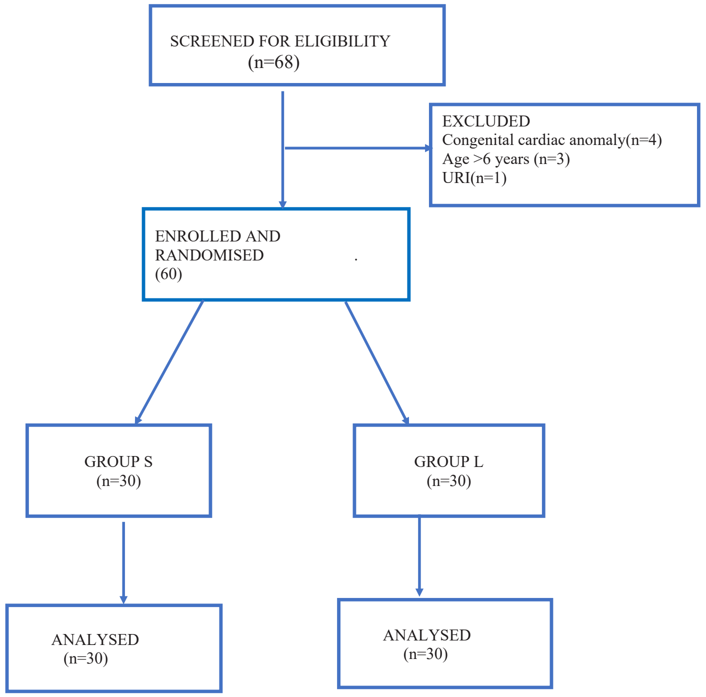
S. no	Post extubation complications	Group S (n=30)	Group L (n=30)	P Value
1.	Laryngospasm	2(6.7%)	1(3.3%)	0.0068
2.	Upper airway obstruction	8(26.7%)	0(0.0%)	
3.	Nil	20(66.7%)	29(96.7%)	

Data expressed as n= number, %- percentage, p value <0.05 significant.

2024-0216

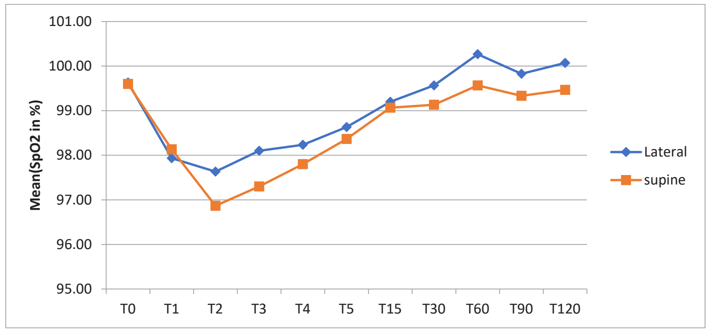
Figure & Table

Figure 1. CONSORT DIAGRAM



The above consort diagram explains the recruitment of patients for the study. A total of sixty eight patients were screened and sixty were enrolled and randomised for the study. These were randomized into two groups, Group supine (S) and Group Lateral (L) which were finally analysed.

Figure 2. DISTRIBUTION OF SpO2 AFTER EXTUBATION



The above figure shows the distribution of spo2 after tracheal extubation.The data points or marker represents the mean value of SpO2, and a line marker shows the trends.

2024-0069

Neuraxial fentanyl for treating breakthrough pain during labor analgesia

Michiko Sugita[1,2*]

1. Obstetric anesthesia, Kumamoto University Hospital, Japan
2. Obstetric anesthesia, Fukuda Hospital, Japan

Background

Breakthrough pain during neuraxial labor analgesia is relieved with additional administration of epidural local anesthetics. The addition of opioids may have the effect of conserving local anesthetic doses and may also decrease motor block, hypotension, and the rate of assisted vaginal delivery. However, the occurrence of unpleasant side effects such as pruritus, nausea and vomiting, and urinary retention, as well as the effect on the infant, are of concern. Fentanyl is fat-soluble, resulting in a short duration of action and high systemic absorption. A retrospective study was conducted on the effects of intrathecal bolus administration of fentanyl for the management of breakthrough pain on the fetus and delivery.

Methods

Singleton term parturient who underwent labor analgesia at Fukuda Hospital were included in the study. The method of labor analgesia was receiving ropivacaine 0.08% with fentanyl 2 mcg/mL, programmed intermittent bolus (PIB) of 6-8 mL every 60 min. When breakthrough pain appeared, patient-controlled analgesia (PCA) 8 ml or 0.1% with fentanyl 50-100 mcg 7 mL bolus was administered at the discretion of the anesthetist in charge. The cases in group F were those in whom a bolus dose of fentanyl was administered by the anesthetist, and without bolus fentanyl (group C). The Primary outcome was umbilical artery blood pH (UmpH), Apgar scores, the secondary outcome was maternal hypotension, instrumental delivery.

Results

We included 81 deliveries performed labor neuraxial analgesia. There was no significant difference between groups in UmpH (7.297 in group F (n=59) vs 7.295 in group C (n=22)), Apgar scores, the incidence of hypotension (systolic blood pressure 80% of baseline or <90 mmHg) or instrumental delivery rate, respectively.

Conclusion

Intrathecal fentanyl was useful for breakthrough pain during labor analgesia, and has no significant adverse effects on the fetus, delivery or maternal side effects. This study is preliminary and a larger study is currently underway.

2024-0248

Characteristics of endotracheal tube design related to proper endotracheal intubation in pediatrics: an in vitro study

Jirawat Wankijcharoen[1,2], **Pramuk Khamman**[2,3], **Kittipott Thusneyapan**[2,3], **Adisak Kasemassawachanont**[2], **Karnkawin Patharateeranart**[3], **Ramida Amornsitthiwat**[3], **Terasut Numwong**[2], **Chairat Turbpaiboon**[2], **Nophanan Chaikittisilpa**[1], **Taniga Kiatchai**[1*]

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
2. Department of Anatomy, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand
3. Department of Radiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background

Endotracheal tube (ETT) should be placed at a proper depth to avoid endobronchial intubation, accidental extubation, or subglottic injury. Although vocal cord marking (VCmarking) was used to guide intubation depth, the VCmarkings on an ETT were reported to have variations among different brands of the same-sized ETTs. Endobronchial intubation and subglottic placement of the cuff still occurred in pediatric population even with the use of VCmarking. This study aimed to examine the characteristics of ETT related to proper endotracheal intubation among different sizes and brands of ETT, including the designs of the VCmarking, the cuff locations, and outer diameters.

Methods

This descriptive in vitro study was approved from Siriraj Institutional Review Board (Si 906/2021). Uncuffed and cuffed ETTs from seven brands with inner diameter 3.0-8.5 mm that were marketed in Thailand during March-August 2022 were examined. Seven brands included 1) Ruschelit, 2) Shiley, 3) Curity, 4) Portex, 5) Unomedical, 6) Fornia, and 7) Microcuff. Each ETT was ordered for two samples and the parameters were measured by two independent investigators using the electronic sliding caliper. ETT parameters were measured for Mark-Tip, Mark-Cuff, and Cuff-Tip distances. Outer diameter was compared between non-cuff area and at the deflated cuff level.

Results

A total of 98 ETTs were included in the study (27 uncuffed ETTs from four brands and 71 cuffed ETTs from seven brands). The VCmarking was present in 79 (80.6%) of the ETTs, while 37 ETTs provided multiple VCmarkings on each ETT. The variation of Mark-Tip distance ranged from 10.0 to 40.3 mm within the same-sized ETT. The variation of Mark-Cuff distance ranged from 1.2 to 30.4 mm within the same-sized ETT. The variation of Cuff-Tip distance ranged from 10.7 to 21.2 mm within the same-sized ETT. Outer diameter at the non-cuff area had minimal variation, while outer diameter at the deflated cuff level had additional 0.1 to 2.6 mm thickness to that of the non-cuff area.

Conclusion

There were variations on the ETT characteristics related to intubation depth (Mark-Tip, Mark-Cuff, and Cuff-Tip distances), and tube size (outer diameter at the deflated cuff level) among the different brands of the same-sized ETTs.

2024-0248

Figure & Table

Figure 1.

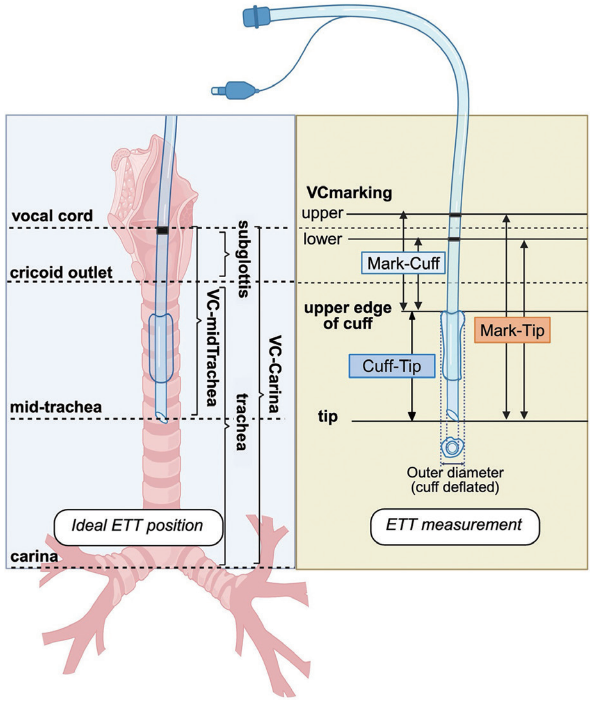
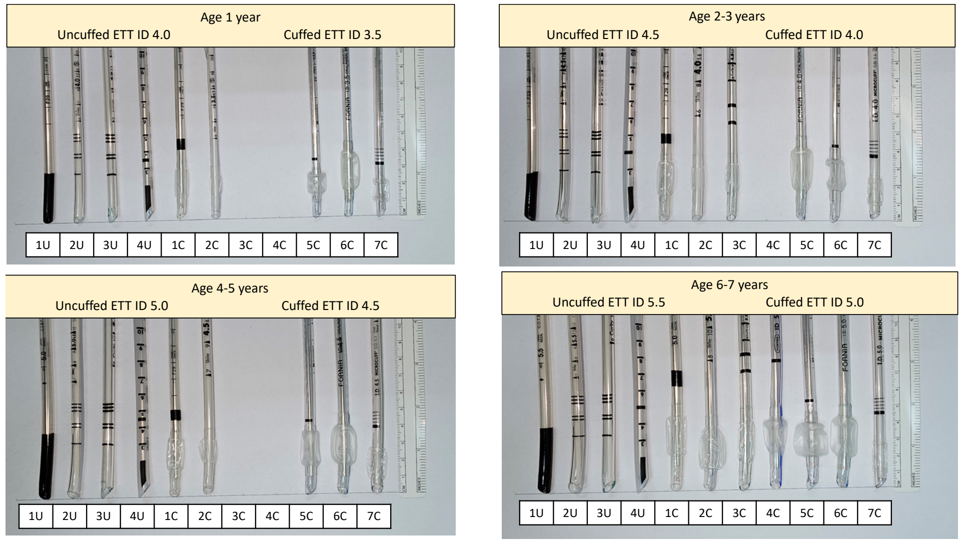


Figure 2.



2024-0188

The Impact of Preoperative Duration of Fasting on the Intravascular Volume Status of Children Older than 5 Years of Age: A Prospective, Observational Study

Beliz Bilgili[1*], Tumay Umuroglu[1]

1. Anesthesiology and Intensive Care Medicine, Marmara University, School of Medicine, Türkiye

Background

Preoperative fasting is a common practice aiming to reduce the risk of pulmonary aspiration during anesthesia. It is advised to avoid prolonged fasting times longer than 6 hours in all children, whenever possible. Prolonged fasting can be uncomfortable for children and may lead to dehydration and other negative outcomes. The primary outcome of the study was the relationship between preoperative duration of fasting and cardiac index variability, as a surrogate of intravascular volume status, after anesthesia induction in pediatric patients undergoing surgery.

Methods

Prospective, observational study included patients over 5 years of age, scheduled for surgery. Passive leg raising induced cardiac index variability was evaluated for fluid responsiveness and intravascular volume after anesthesia induction. Patients were termed fluid responders (Rs) if an increase in cardiac index variability of >10% was obtained after passive leg raising, or non-responders (NRs) if cardiac index variability was <10%. Cardiac index and aortic peak velocity were measured through the suprasternal notch via Ultrasonic Cardiac Output Monitor.

Results

There were 32 responders and 53 non-responders. The mean duration of fasting for Rs was 11.53±2.61, while NRs had a mean duration of fasting of 10.6±2.93 hours, showing insignificant difference. Aortic peak velocity change was significantly higher in Rs (0.24±0.17) compared to NRs (0.03±0.13) (p <0.001). Duration of fasting showed no significant correlation with cardiac index variability and peak aortic velocity.

Conclusion

The study confirmed that even extensively prolonged preoperative fasting times, had no significant impact on intravascular volume status in children over 5 years of age under anesthesia.

2024-0188

Figure & Table

Table 1. Hemodynamic parameters recorded before (T1) and after (T2) PLR.

		Responders (n=32)	**Non-responders (n=53)**	**[a]p (intergroup)**
		Mean±sd	**Mean±sd**	
HR	T1	110.63±20.05	110.04±14.66	**0.877**
	T2	98.38±17.03	96.15±14.27	**0.519**
	Δ	-12.25±8.93	-13.89±7.83	**0.378**
	[c]p (intragroup)	**<0.001****	**<0.001****	
MAP	T1	71.38±12.6	69.26±8.27	**0.403**
	T2	69.16±13.21	68.98±7.18	**0.945**
	Δ	-2.22±9.48	-0.28±6.63	**0.272**
	[c]p	**0.195**	**0.757**	
CI	T1	2.91±0.81	3.58±0.94	**0.001****
	T2	3.8±1.08	3.44±0.82	**0.092**
	Δ	0.89±0.53	-0.13±0.44	**<0.001****
	[c]p	**<0.001****	**0.032***	
CO	T1	2.93±0.81	3.39±1.12	**0.043***
	T2	3.81±1.16	3.27±0.97	**0.023***
	Δ	0.89±0.56	-0.12±0.49	**<0.001****
	[c]p	**<0.001****	**0.076**	
Vpeak	T1	0.93±0.25	1.02±0.24	**0.101**
	T2	1.17±0.27	1.05±0.21	**0.029***
	Δ	0.24±0.17	0.03±0.13	**<0.001****
	[c]p	**<0.001****	**0.055**	

[a] Independent t-test   [c] Paired samples t-test

*p<0.05   **p<0.01

PLR: passive leg raising HR: heart rate MAP: mean arterial pressure CI: cardiac index CO: cardiac output Vpeak: aortic peak velocity Δ: change

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2024-0179

Association of preoperative diaphragmatic thickness fraction and post operative pulmonary complication in adults undergoing major abdominal surgery : A prospective observational study

Satyajeet Misra[1*], Bikram Behera[1], Amritha Chandran[1]

1. Anesthesiology and Critical Care, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India

Background

Postoperative pulmonary complications (PPC)s are common following major abdominal surgery (MAS), with reported incidences of 1% to 20% [1,2]; and may depend on the definition of PPCs and the type of surgery [2]. PPCs tend to increase the morbidity of patients, and increase length of ICU and hospital stay [2,3]. Advanced age, chronic obstructive pulmonary disease, duration of surgery and anesthesia may all contribute to PPCs [4]. Sarcopenia may be an important cause of PPCs [5]. The diaphragm thickness fraction (DTF) is a useful marker of respiratory muscle strength and may be decreased in sarcopenia [6, 7]. Decreased DTF has been found to be associated with PPCs in patients undergoing cardiac surgery [8], and robotic assisted laparoscopic prostatectomy [9]. However, there is a paucity of studies exploring the association of decreased DTF with PPCs in patients undergoing MAS. Thus, the aim of the study was to evaluate whether decreased DTF in adults undergoing MAS is associated with the development of PPCs. Primary objective was to evaluate the difference in DTF in patients who developed PPCs vs those who did not.

Methods

This was a prospective observational study carried out after ethics committee approval. 122 adults posted for MAS with duration of at least > 2 hours were enrolled. Written informed consent was taken & preoperative DTF measured using ultrasound. Briefly, DTF was measured in B-mode using a high frequency linear probe. The probe was positioned between the anterior and mid-axillary line in the 7th-9th intercostal space with the patient in a supine position. The image obtained was then used to measure the cross-sectional thickness of the diaphragm during normal tidal inspiration and expiration at the same point (Figure 1). Patients were then followed in-hospital up for the development of PPCs defined as any of the following: atelectasis, bronchospasm, desaturation, pneumonia, pneumothorax, or unplanned re-intubation. Data were represented as mean (standard deviation; SD) or median (interquartile range; IQR). P < 0.05 was considered significant for all analysis.

Results

The incidence of PPCs in our cohort after MAS was 9.01%. The baseline mean (SD) ARISCAT Score, which classifies risk of developing PPCs was not different between those who developed PPCs [38.5 (9.8)] vs those who did not [37.9 (10.8)], suggesting that there was no baseline difference in the two cohorts. The median (IQR) DTF in those who developed PPCs was 16.7 % (11.8-24.3) vs 27.8% (21.4-41.4) in those who did not develop PPCs (P < 0.001). A DTF < 26.67% predicted the development of PPCs with an area under curve of 0.826 (95% CI 0.71-0.94; P< 0.001) (Figure 2).

Conclusion

Preoperative DTF on ultrasound can be used to predict PPC in patients undergoing MAS. Low preoperative DTF may thus represent an intervention target for minimizing the risk of PPCs.

2024-0179

Figure & Table

Figure 1.

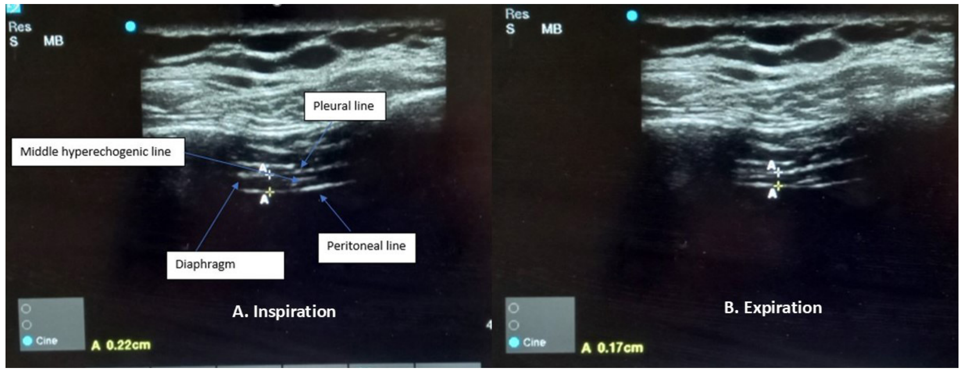
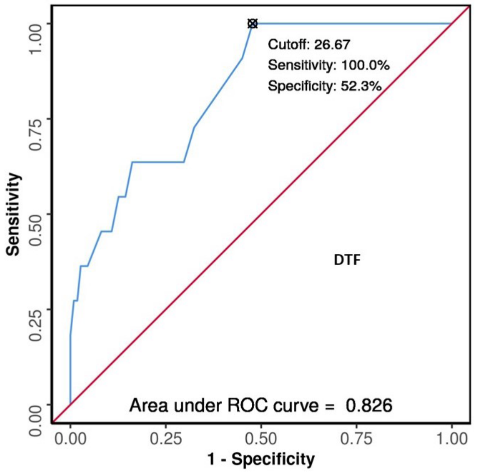


Figure 2.



2024-0251

Lowering the inspired oxygen fraction before tracheal extubation does not reduce the occurrence of immediate and delayed postoperative atelectasis after laparoscopic gastrectomy: A multi-center, randomized, double-blinded trial

Yoon Joo Chung[2], Ji won Choi[1], Jie ae Kim[1*]

1. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Chung-Ang University Hospital, Republic of Korea

Background

The effect of inspired oxygen fraction (FiO2) on postoperative atelectasis has been controversial. We evaluated the effect of lowering the FiO2 during the emergence from the general anesthesia on immediate and delayed postoperative atelectasis.

Methods

Patients undergoing laparoscopic gastrectomy were assigned to either low FiO2 group (group L) or high FiO2 group (group H) (0.5 vs. 0.8 during emergence, respectively). In both groups, the FiO2 of 0.8 and 0.5 was used during induction and intraoperative period, respectively. The primary outcome was the atelectasis score measured by lung ultrasonography (ASLU) in the post-anesthesia care unit (PACU). The oxygen reserve index (ORI) after extubation, the incidence of atelectasis on chest x-ray 2 days after the surgery, the incidence of desaturation events in the PACU, the respiratory and non-respiratory complications during the hospitalization, and re-operation within the postoperative 30 days were collected as secondary outcomes. Post-hoc analysis of multivariable logistic regression analysis was conducted to identify factors associated with the atelectasis score ≥ 5 and the incidence of atelectasis on the chest radiograph taken on the second postoperative day (POD 2).

Results

One hundred and two patients (51 in each group) were analyzed. The ASLU did not significantly differ between the two groups (3.5 [2.3] in group L vs. 3.9 [2.4] in group H, P = 0.444, respectively). Assuming to 1.15 as the noninferiority margin, the ASLU in group L was noninferior to group H (95% CI, -1.27 to 0.56). The ORI immediately after extubation was significantly higher in group H (0.42 [0.10-0.74] vs. 0.52 [0.30-0.83], P = 0.0261). The incidence of atelectasis on the chest x-ray was comparable between the groups (29/51 [57%] in group L vs. 25/51 [49%] in group H, P = 0.428). The incidence of other complications was comparable. BMI was found to be associated with the atelectasis score ≥ 5, and factors which showed association with the incidence of atelectasis on the chest radiograph taken on POD 2 were as the following; age, ASA, anesthesia duration, rescue opioid use in the PACU ≥ 2, and postoperative fever.

Conclusion

Compared to the FiO2 of 0.8, the use of FiO2 of 0.5 during the emergence from laparoscopic gastrectomy did not reduce the incidence of immediate or delayed postoperative atelectasis.

2024-0251

Figure & Table

Table 1. The primary and secondary outcomes

	Low FiO_2 (Group L) (n = 51)	High FiO_2 (Group H) (n = 51)	*P*
Atelectasis score measured by lung ultrasonography (ASLU)	3.5 (2.3)	3.9 (2.4)	0.444
Last ORI measured in the OR	0.42 (0.10, 0.74)	0.52 (0.30, 0.83)	**0.026**
Significant atelectasis in PACU	11 (22)	16 (31)	0.262
SpO_2 < 94% during PACU stay	1 (2)	2 (4)	>.999
Supplementary oxygen within POD 2	5 (10)	8 (16)	0.373
Nausea/Vomiting until POD 1	1(2)/1(2)	2(4)/0(0)	>.999
Atelectasis on POD 2 chest radiograph	29 (57)	25 (49)	0.428
Postoperative fever (> 38°C)	12 (24)	11 (22)	0.813
Additional lung care by respiratory care physiotherapist	12 (24)	11 (22)	0.813
ICU admission during hospitalization	1 (2)	2 (4)	>.999
Duration of hospitalization, day	9 (8, 9)	9 (9, 9)	0.464
Re-operation within POD 30	1 (2)	0 (0)	>.999

Values are expressed as mean (SD), median (IQR), or N (%). ORI, oxygen reserve index; OR, operating room; PACU, post-anesthesia care unit; SpO_2, saturation of percutaneous oxygen; POD, postoperative day; ICU, intensive care unit.

Table 2. Factors associated with atelectasis score ≥5 and atelectasis on POD 2 chest radiograph

Variables	Univariate OR (95% CI)	*P*	Multivariable OR (95% CI)	*P*
Factors associated with atelectasis score ≥ 5				
Low FiO_2 group	1.442 (0.621-3.344)	0.394		
Age, yr	1.008 (0.966-1.053)	0.702		
Female	0.713 (0.303-1.678)	0.438		
BMI, kg/m^2	0.831 (0.704-0.981)	**0.029**	0.836 (0.708-0.987)	**0.0347**
ASA ≥ III	1.103 (0.258-4.722)	0.894		
Abnormal PFT	0.916 (0.221-3.800)	0.904		
Smoking within 1 month	2.357 (0.550-10.095)	0.248		
Last ORI measured in the OR	2.114 (0.587-7.614)	0.252		
Sugammadex use	1.805 (0.775-4.201)	**0.171**	1.731 (0.728-4.117)	0.215
Anesthesia duration (hr)	0.705 (0.369-1.347)	0.290		
Factors associated with atelectasis on POD 2 chest radiograph				
Low FiO_2 group	0.729 (0.334-1.591)	0.428		
Age, yr	1.028 (0.987-1.070)	**0.183**	1.054 (1.002-1.109)	**0.043**
Female	1.316 (0.598-2.893)	0.495		
BMI, kg/m^2	1.130 (0.972-1.314)	**0.111**	1.139 (0.956-1.357)	0.147
ASA ≥ III	0.225 (0.044-1.143)	**0.072**	0.087 (0.014-0.521)	**0.008**
Hypertension	0.891 (0.403-1.969)	0.775		
Diabetes	0.645 (0.220-1.891)	0.425		
Abnormal PFT	0.857 (0.232-3.164)	0.817		
Smoking within 1 month	0.506 (0.114-2.240)	0.369		
Last ORI measured in the OR	1.051 (0.323-3.418)	0.934		
Anesthesia duration (hr)	0.554 (0.303-1.012)	**0.055**	0.441 (0.223-0.872)	**0.019**
SpO_2 < 94% during PACU stay	6.587 (0.211-206.070)	0.283		
Rescue opioid use in the PACU ≥ 2	1.887 (0.858-4.147)	**0.114**	2.859 (1.114-7.339)	**0.029**
Atelectasis score ≥ 5	0.842 (0.364-1.946)	0.688		
Significant atelectasis on lung ultrasonography	0.770 (0.319-1.859)	0.561		
Postoperative fever	1.923 (0.733-5.046)	**0.184**	3.349 (1.053-10.648)	**0.041**

FiO_2, inspired oxygen fraction; BMI, body mass index; ASA, American society of anesthesiologists; PFT, pulmonary function test; ORI, oxygen reserve index; OR, operating room; PACU, post-anesthesia care unit; SpO_2, saturation of percutaneous oxygen.

2024-0172

Predicting Intraoperative Hypoxemia in Lung Resection Surgery: Assessing the Utility of Oxygen Reserve Index Measurements during One Lung Ventilation before pleural opening

Sang-Wook Lee[1], **Dae-kee Choi**[1*]

1. Department of Anesthesiology and Pain Medicine, Asan medical center, University of Ulsan College of Medicine, Republic of Korea

Background

One-Lung Ventilation (OLV) is necessary to collapse the lung and improve access to the operative field during lung surgery. However, intraoperative OLV may cause an increased intrapulmonary shunt, which can lead to intraoperative hypoxemia. The Oxygen Reserve Index (ORI) is a continuous and noninvasive parameter that provides a broader range of oxygen reserve data than conventional oxygen saturation does. In this study, the authors aimed to determine whether ORI values measured during OLV before opening the pleura are reliable predictors of intraoperative hypoxemia.

Methods

This study included 113 adult patients who underwent lung resection surgery at tertiary medical center from January 2024 to April 2024. Patients were positioned in the lateral position for lung surgery, and preemptive OLV with a tidal volume of 5 mL/kg and a fraction of inspired oxygen (FiO2) of 60% was conducted for at least 5 minutes prior to the pleural opening, with concurrent ORI measurements. Intraoperative hypoxemia was defined as an SpO2 value of 90% or less at least once during OLV. The ORI values obtained during this period were analyzed using ROC curve analysis to predict intraoperative hypoxemia. AUC values were compared using DeLong's test.

Results

Out of the total 113 patients, 13 (11.5 %) developed intraoperative hypoxemia. During preemptive OLV, FiO2 levels were similar between the hypoxemia and no hypoxemia groups, but SpO2 and ORI values differed significantly. After pleural opening, the hypoxemia group required higher FiO2, indicating a greater need for oxygen during surgery. The predictive power of ORI measured 5 minutes after initiating OLV for predicting intraoperative hypoxemia was an AUC of 0.955 (95% CI: 0.899-1.000). Additionally, the predictive power of the change in ORI over 5 minutes for predicting intraoperative hypoxemia was an AUC of 0.966 (95% CI: 0.935-0.997). The optimal cut-off values for the ORI and its change measured 5 minutes after preemptive OLV to predict intraoperative hypoxemia were 0.04 and 0.110, respectively.

Conclusion

In patients receiving OLV during lung surgery, the ORI and its change value, measured during preemptive OLV before pleural opening, can predict intraoperative hypoxemia. These results enable an individualized approach to intraoperative FiO2 in patients undergoing OLV, preventing unnecessary oxygen overdose, and facilitating early identification and intervention in patients at high risk of hypoxemia during OLV.

2024-0172

Figure & Table

Figure 1.

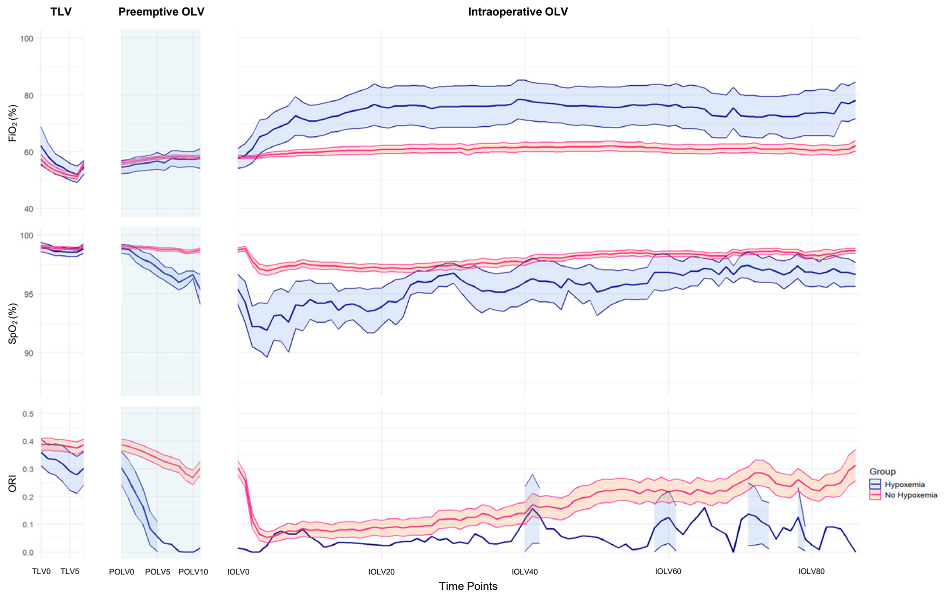
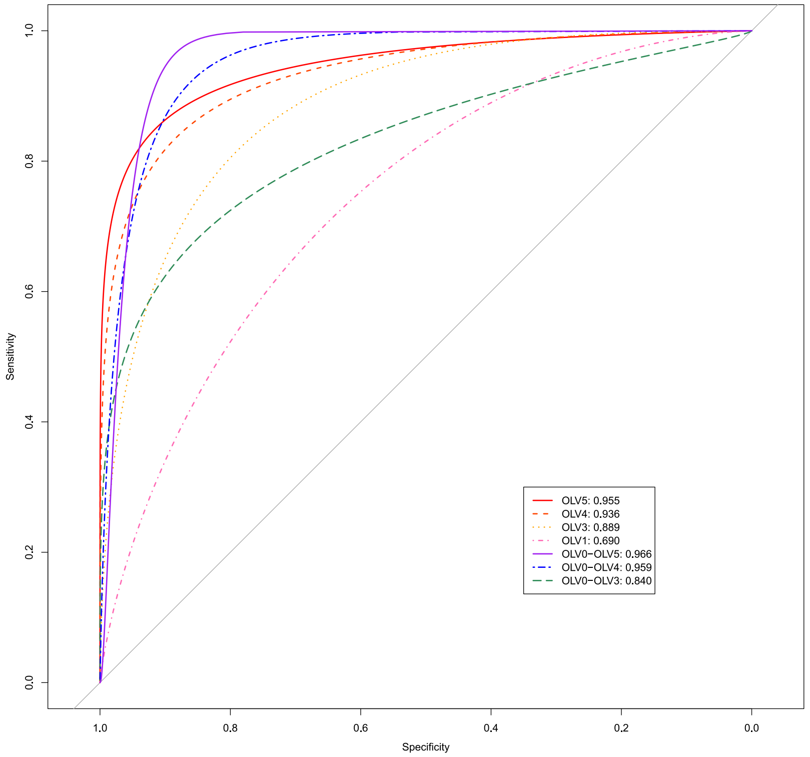


Figure 2.



2024-0170

Association between hypotension timing and postoperative acute kidney injury and delirium following cardiac surgery with cardiopulmonary bypass: a retrospective cohort study

Atsushi Ishikawa[1*], Toshiyuki Nakanishi[1], Takumi Sasaki[1], Tetsuya Tamura[1], Kazuya Sobue[1]

1. Department of Anesthesiology and Intensive Care Medicine, Nagoya City University Graduate School of Medical Sciences, Japan

Background

Acute kidney injury (AKI) and delirium are serious complications after cardiac surgery and are associated with mortality. Several large-scale retrospective studies have reported that intraoperative hypotension is associated with postoperative AKI and delirium in noncardiac surgery. However, the timing of hypotension in cardiac surgery with cardiopulmonary bypass (CPB) and its association with postoperative AKI and delirium is unclear. This study aimed to clarify the association between hypotension timing and postoperative AKI and delirium following cardiac surgery with CPB.

Methods

The institutional review board approved the study protocol (60-23-0125, January 9, 2024). Patient consent was waived due to the retrospective nature of the study. We included patients aged ≥ 18 years who underwent cardiac surgery with CPB at our hospital between April 2015 and August 2023. Patients with circulatory arrest, descending aortic procedure, preoperative renal replacement therapy, preoperative catecholamine administration, preoperative mechanical circulatory support, preoperative ventilation, or missing data were excluded. Data were extracted from the electronic medical records and information management systems. The primary endpoint was postoperative AKI (1.5–1.9 times or ≥0.3 mg/dL increase in serum creatinine from the preoperative value). The secondary endpoint was postoperative delirium, assessed with the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU). Exposures of interest were hypotension (defined as mean arterial pressure <65 mmHg) at the following three timings.

1. Pre-CPB (start of surgery to start of CPB)
2. Post-CPB (end of CPB to end of surgery)
3. Post-OPE (12 hours after surgery in the ICU)

Multivariable logistic regression models were used to examine the association between the outcomes and the exposures. Explanatory variables were age, sex, emergent or urgent surgery, procedure type, ASA-PS, left ventricular ejection fraction, CPB duration, and preoperative estimated glomerular filtration rate. Adjusted odds ratio (aOR) [95% confidence interval] for each 10-minute hypotension was calculated, and P <0.05 was considered statistically significant. Data preprocessing and statistical analyses were performed with Python and R.

Results

Of 348 patients analyzed, 83 (24%) developed AKI and 93 (27%) delirium. Pre-CPB hypotension was not associated with AKI (aOR 1.05 [0.96–1.16], P=0.29) and delirium (aOR 1.02 [0.93–1.12], P=0.65). In contrast, Post-CPB hypotension was associated with AKI (aOR 1.09 [1.01–1.17], P=0.026) and delirium (aOR 1.07 [1.002–1.15], P=0.045), and Post-OPE hypotension was also associated with AKI (aOR 1.03 [1.02–1.05], P<0.001) and delirium (aOR 1.02 [1.001–1.03], p=0.037).

Conclusion

Hypotension between the end of CPB and 12 hours after surgery was associated with postoperative AKI and delirium. However, intraoperative hypotension before CPB was not associated with postoperative AKI and delirium.

2024-0316

Integrating CT body composition, Clinical Frailty Scale, and additional clinical variables for enhanced prediction of one-year mortality after aortic valve replacement for aortic stenosis

Heesoo Shin[1], Suji Lee[2], Jin ha Park[1], Hyun-soo Zhang[3], Young-lan Kwak[1], Sarah Soh[1*], Young joo Suh[2]

1. Anesthesia and Pain Research Institute, Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea
2. Department of Radiology, Research Institute of Radiological Science, Severance Hospital, Yonsei University College of Medicine, Republic of Korea
3. Department of Biomedical Systems Informatics, Biostatistics Collaboration Unit, Yonsei University College of Medicine, Republic of Korea

Background

Frailty is a critical prognostic marker in elderly patients undergoing cardiac surgery. However, assessing frailty is challenging, especially in patients with severe aortic stenosis (AS) due to overlapping symptoms like reduced mobility and cachexia. Sarcopenia and adipopenia can serve as reliable indicators of frailty in elderly patients undergoing transcatheter aortic valve replacement (TAVR) or surgical aortic valve replacement (SAVR), complementing traditional assessment tools such as the Clinical Frailty Scale (CFS). These age-related changes in body composition provide objective measures that may improve the accuracy of frailty assessments. Therefore, we hypothesized that combining CT-derived body composition analysis with CFS would enhance frailty assessment and improve 1-year mortality prediction following aortic valve replacement for AS.

Methods

We retrospectively identified patients who underwent TAVR or SAVR for AS between 2016 and 2021. The primary endpoint was death within 1-year post-AVR. Pre-procedural frailty was assessed using the CFS (scored out of 9 points based on symptoms, mobility, inactivity, exhaustion, and daily living disabilities). Sarcopenia and adipopenia were defined as the sex-specific first tertile of the muscle-height index or fat-height indicies, measured from pre-procedural CT images at the T4 and T12 vertebral levels. We analyzed the associations between these CT-based variables and 1-year mortality, then developed a prediction model by combining CFS, CT-based variables, and various clinical factors.

Results

A total of 407 patients were evaluated. CFS was strongly correlated with 1-year mortality. Using CFS as the baseline predictor, adding sarcopenia at the T12 level—particularly when defined by paravertebral muscles—showed a stronger correlation with 1-year mortality than sarcopenia defined by total muscle mass. Conversely, at T4, sarcopenia based on total muscle mass provided better predictive accuracy for 1-year mortality than that defined by the pectoralis muscles. Additionally, adipopenia at the T12 level was significantly associated with 1-year mortality, whereas T4 adipopenia was not. Although CFS alone was a good predictor of 1-year mortality (c-index = 0.782), its predictive accuracy improved when combined with body composition variable and other clinical variables (c-index = 0.821).

Conclusion

The predictive accuracy for 1-year mortality significantly improved by combining the CFS with body composition variables derived from routine preoperative thoracic CT scans, along with other preoperative clinical variables. This comprehensive approach, integrating routinely available imaging data and clinical factors, enhanced the accuracy of 1-year mortality prediction following aortic valve replacement surgery.

2024-0316

Figure & Table

Table 1. Harrell's c-index comparison among models with pre-operative predictor variables

	c-index (95% CI)	Bootstrap mean diff. (95% CI)	Bootstrap P-value	Comparison
Model 0: CFS only	0.782 (0.704, 0.860)	0.019 (-0.003, 0.052)	0.233	*Model 0 vs. 1*
Model 1: CFS + Sarco.Adipo*	0.799 (0.719, 0.879)	0.022 (-0.001, 0.056)	0.125	*Model 1 vs. 2*
Model 2: CFS + Sarco.Adipo* + CKD + Alb	0.821 (0.741, 0.901)	0.042 (0.009, 0.082)	0.039	*Model 0 vs. 2*

CI, confidence interval; CFS, Clinical Frailty Scale; CKD, chronic kidney disease

* Sarco.Adipo: Categorized using the sex-specific first tertile cutoff values for sarcopenia (low T4_TMI) and adipopenia (low T12_SFMI), with four subgroups: neither condition, sarcopenia only, adipopenia only, or both conditions

2024-0297

Effect of ascorbic acid on postoperative acute kidney injury in moderate to high-risk patients undergoing valvular heart surgery: a single center randomized controlled trial

Hye ji Joo[1], Sarah Soh[2], Young-lan Kwak[2], Jae-kwang Shim[2*]

1. Department of Anesthesiology and Pain Medicine, Ewha Womans University Seoul Hospital, Seoul, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea

Background

Acute kidney injury (AKI) is a common and devastating complication of valvular heart surgery with cardiopulmonary bypass (CPB). The anti-inflammatory, antioxidant, and vasopressor-sparing effects of ascorbic acid (AA) have been validated in patients with sepsis and septic shock. However, these effects are less studied in cardiac surgical patients, particularly those at moderate to high risk of postoperative AKI. Considering the risk factors for AKI following cardiac surgery with CPB—such as hypotension/hemodynamic instability, oxidative stress from ischemia-reperfusion injury, and inflammation—AA's protective effects may help reduce AKI incidence, especially in vulnerable patients. This study aimed to investigate the effect of perioperative AA administration on AKI in patients at moderate to high risk of developing AKI after valvular heart surgery with CPB.

Methods

Patients scheduled for on-pump valvular heart surgery were randomly assigned to the AA or control group. The AA group received 1500 mg of AA intravenously the night before surgery, and 1500 mg before aortic clamp removal, then at 3, 9, 15, and 21 hours post-ICU arrival. The control group received an equivalent volume of normal saline at the same time points. The primary endpoint was the incidence of AKI as defined by the Kidney Disease: Improving Global Outcomes criteria. Secondary endpoints included major morbidity outcomes. Malondialdehyde and thrombomodulin levels were measured before surgery and immediately after CPB.

Results

The trial initially planned to enroll a total of 258 patients; however, an interim analysis was conducted when approximately 50% of the target enrollment was reached. The trial was terminated early due to futility based on interim analysis, with outcomes assessed in 131 patients (66 AA-treated, 65 control). Both groups were comparable in baseline demographics and intraoperative characteristics. The incidence of AKI was similar between the groups (23% [AA-treated] vs. 14% [control], P = 0.277). Other outcome variables, including perioperative vasoplegia, stroke, and mortality, were also similar. Malondialdehyde and thrombomodulin levels were higher after CPB compared to before. Pre- and post-CPB malondialdehyde and thrombomodulin levels were comparable between the two groups. There were no significant differences in hemodynamic parameters or vasopressor dosage from the day of surgery to two days postoperatively.

Conclusion

In patients at moderate to high risk of developing postoperative AKI, perioperative AA administration over 24 hours did not effectively attenuate serum markers of oxidative stress, endothelial injury or systemic inflammation. Subsequently, this AA regimen could not reduce the risk of AKI development following valvular heart using CPB.

2024-0297

Figure & Table

Table 1. Postoperative outcomes of study patients

	Control (n = 65)	Vitamin C (n = 66)	p-value
Acute kidney injury	9 (14%)	15 (23%)	0.277
KDIGO stage1	8 (12%)	12 (18%)	
KDIGO stage2	1 (2%)	0 (0%)	0.147
KDIGO stage3	0 (0%)	3 (5%)	
Mortality	0 (0%)	2 (3%)	0.496
Permanent stroke	1 (2%)	1 (2%)	>0.99
Deep wound infection	0 (0%)	2 (3%)	0.496
Number of patients requiring mechanical ventilation > 24 h	1 (2%)	6 (9%)	0.115
ICU readmission	2 (3%)	2 (3%)	>0.99
Re-operation	1 (2%)	1 (2%)	>0.99
Postoperative atrial fibrillation	8 (12%)	8 (12%)	>0.99
Immediate postoperative vasoplegia	9 (14%)	9 (14%)	>0.99

KIDGO, Kidney Disease: Improving Global Outcomes

2024-0220

Machine learning of clinical and intraoperative biosignal data for predicting persistent acute kidney injury after cardiac surgery

Changho Han[1], Hyun Il Kim[2], Jong wook Song[2], Sarah Soh[2*], Dukyong Yoon[1]

1. Department of Biomedical Systems Informatics, Yonsei University College of Medicine, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea

Background

Early identification of patients at high risk for cardiac surgery-associated acute kidney injury (CSA-AKI) is crucial for prevention. Persistent AKI (pAKI), defined as lasting 72 hours or more, is associated with a higher risk of death compared to AKI which resolves within 72 hours. Recent advances in machine learning techniques have enabled the development of models that predict postoperative complications by utilizing clinical and biosignal data from perioperative phases. We aimed to develop and validate a dynamic predictive model for pAKI after cardiac surgery using machine learning method of the perioperative dataset including the biosignal data.

Methods

We developed Random Forest, XGBoost, Extra Trees Classifier, and soft voting ensemble models using perioperative biosignal data from patients across three consecutive phases: (1) Model 0, utilizing preoperative data only; (2) Model 1, incorporating preoperative, intraoperative, and immediate postoperative data (upon ICU arrival); and (3) Model 2, including preoperative, intraoperative, and postoperative data up to 48 hours after ICU arrival. The dependent variable was the occurrence of pAKI, defined as AKI lasting 72 hours or more after cardiac surgery. AKI was diagnosed based on the recent KDIGO AKI definition.

Results

The study included 2,289 patients who underwent cardiac surgery with cardiopulmonary bypass (CPB) at Severance Cardiovascular Hospital between December 2018 and December 2023. CSA-AKI developed in 384 cases (16.8%), with 172 patients (7.5%) experiencing pAKI. Among the models evaluated, the ensemble model demonstrated the best performance. The predictive performance of the ensemble models progressively improved across the three perioperative phases, with AUROC values increasing from 0.812 to 0.833 and 0.875, all surpassing the performance of the previously introduced Thakar Score. In Model 0, the most important features were EuroSCORE, preoperative eGFR, and hemoglobin levels. In Models 1 and 2, postoperative eGFR emerged as a more significant feature than these preoperative factors. Additionally, pulse pressure during surgery, particularly after CPB, showed high feature importance, highlighting the need to maintain the patient's hemodynamic status stable after CPB weaning. Furthermore, preoperative anemia and perioperative transfusions also emerged as significant features, suggesting the crucial role of patient blood management in the prevention of pAKI.

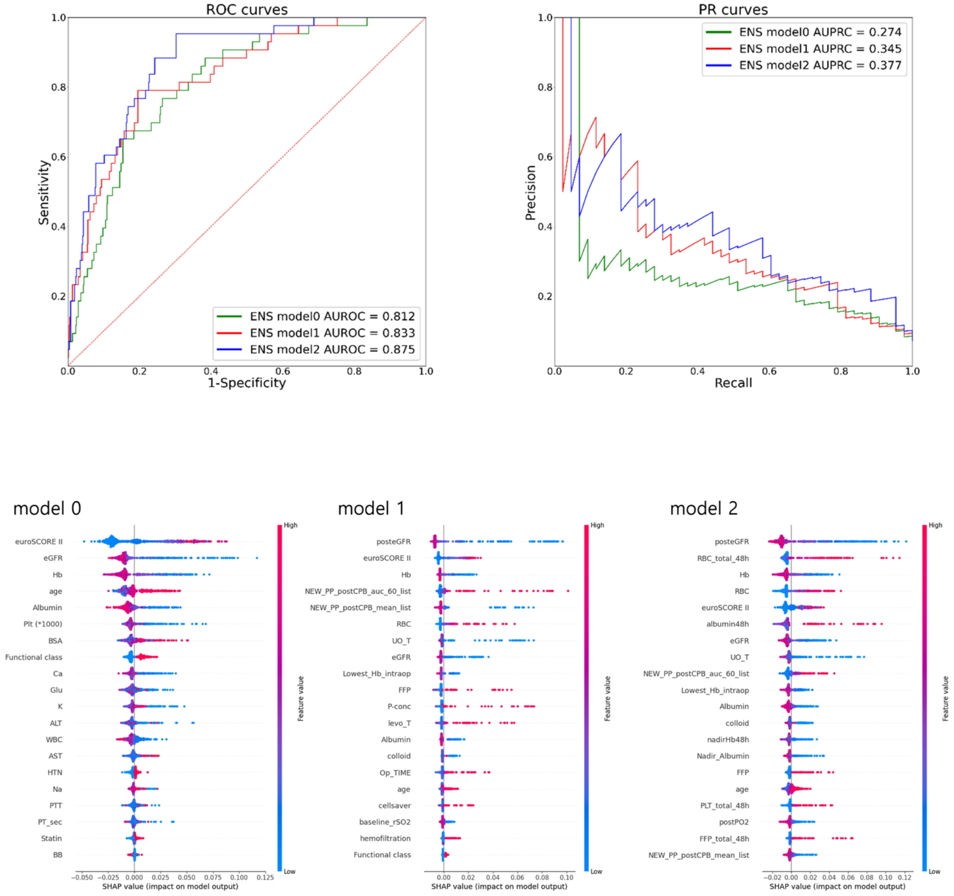
Conclusion

We successfully developed a predictive model for the risk of pAKI following cardiac surgery by utilizing machine learning of perioperative biosignal data. Intraoperative hemodynamic variables, along with perioperative hemoglobin levels and transfusions, emerged as key predictors. Additionally, postoperative eGFR was identified as a strong predictor of pAKI. Our findings reveal some of the key pathophysiologic features related to pAKI and underscore the critical importance of continuous and comprehensive monitoring throughout the perioperative period in cardiac surgical patients.

2024-0220

Figure & Table

Figure 1.



2024-0305

Relationship Between Cognitive Decline and Systemic Inflammatory Biomarkers After Laparoscopic Abdominal Surgeries in the Adult Population: A Comparison Between Inhalational and Total Intravenous Anaesthesia

Farah Hanim Abdullah[1*], Yanlin Ho[1], Qurratu aini Musthafa[1], Azarinah Izaham[1]

1. Anaesthesiology & Intensive Care, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Malaysia

Background

Postoperative cognitive dysfunction (POCD) is a significant concern, particularly in patients undergoing surgery, as it is associated with prolonged recovery times and poorer outcomes. The inflammatory response triggered by surgical trauma, reflected by elevated levels of systemic inflammatory biomarkers such as C-reactive protein (CRP) and ferritin, is thought to play a crucial role in the development of POCD. This study compares the relationship between cognitive decline and systemic inflammation in patients receiving either inhalational anesthesia with sevoflurane or total intravenous anesthesia (TIVA) with propofol during laparoscopic abdominal surgeries.

Methods

This study involved adult patients aged 18-60 years undergoing elective laparoscopic abdominal surgeries. Patients were randomized into two groups: one receiving inhalational anesthesia with sevoflurane, and the other receiving TIVA with propofol. Cognitive function was assessed using the Montreal Cognitive Assessment (MoCA) test before surgery (T0) and on the first postoperative day (T1). Blood samples were collected at the same time points to measure levels of CRP and ferritin, which serve as indicators of systemic inflammation. The study aimed to analyze the differences in cognitive decline and changes in inflammatory biomarkers between the two anesthesia groups.

Results

Thirty patients participated in the study, with comparable mean age and BMI between the propofol (TIVA) and sevoflurane (inhalational) groups. At baseline (T0), there were no significant differences in cognitive function, as measured by the Montreal Cognitive Assessment (MoCA) scores, or in the levels of the inflammatory biomarkers CRP and ferritin between the two groups. On the first day post-surgery (T1), MoCA scores declined in both the propofol and sevoflurane groups; however, this decrease was not statistically significant ($p = 0.906$ for the propofol group and $p = 0.677$ for the sevoflurane group). Similarly, no significant differences were observed between the two groups in CRP and ferritin levels at T1 ($p = 1.0$). Despite the lack of significant differences between the groups, both CRP and ferritin levels showed a significant increase from baseline within each group. In the propofol group, the increase in CRP and ferritin levels was statistically significant ($p = 0.031$ for both). In the sevoflurane group, CRP levels increased significantly ($p = 0.008$), and ferritin levels also showed a significant rise ($p < 0.001$).

Conclusion

The results of this study indicate that both inhalational anesthesia with sevoflurane and intravenous anesthesia with propofol are associated with a similar extent of cognitive decline and systemic inflammation following laparoscopic abdominal surgery. The lack of a significant difference between the two groups suggests that the type of anesthesia may not be a crucial factor in influencing the degree of cognitive decline or the inflammatory response post-surgery. The observed correlation between elevated inflammatory biomarkers and cognitive decline highlights the potential role of inflammation in the pathogenesis of POCD. These findings suggest that inflammation, rather than the specific anesthetic technique, may be a key factor in the development of POCD. Further research is needed to explore strategies for mitigating inflammation and thereby reducing the risk of POCD.

2024-0254

Comparison of Scalp Block and Intravenous Esmolol for Hemodynamic Responses During Skull Pin Application in Elective Supratentorial Craniotomy

Akkhara Olanvoravuth[1*]

1. Anesthesiology, Srinagarind Hospital, Khon Kaen University, Thailand

Background

Skull pin application during craniotomy often triggers hemodynamic fluctuations, increasing the risk of cerebral edema. Although various strategies are used to manage these changes, the effectiveness of intravenous esmolol is not well studied. We hypothesize that a scalp block may provide better hemodynamic stability, enhanced pain control, and fewer systemic side effects compared to intravenous esmolol.

Methods

This study was a prospective, randomized controlled trial including patients aged 18 to 65 years scheduled for elective supratentorial craniotomy with skull pin application under general anesthesia. Participants were randomly assigned to two groups: Group S received a scalp block with a 30 mL mixture of 0.25% bupivacaine and 1% lidocaine with adrenaline (1:200,000) administered 10 minutes before skull pin application by an experienced neuroanesthesiologist, while Group E received an intravenous esmolol bolus at a dose of 1 mg/kg immediately before skull pin placement. Hemodynamic parameters, including mean arterial pressure (MAP) and heart rate (HR), as well as changes in bispectral index (BIS) score, were recorded at 30, 60, 90, 120, 180, and 300 seconds following the application of the skull pins. Postoperative outcomes included cumulative opioid consumption at 6 and 24 hours, as well as the incidence of adverse events, which were evaluated during the immediate postoperative period and up to 24 hours following surgery.

Results

Ninety patients with 45 in each group were recruited. (Fig. 1) Patient demographics were comparable between the two groups (Table 1). The mean age of the patients in group E was 47.4±10.0 compared to 46.4±12.3 years in group S. There were no noticeable differences in patient characteristics in both groups. The baseline MAP was 98.5±14.8 mmHg in group E and 97.6±12.0 mmHg in group S ($P=0.744$). A significant reduction in MAP was noticed in group S at 30, 60, 90, 120, 180, and 300 seconds after pinning compared to group E ($P<0.001$) (Fig. 2). The baseline HR was 81.3±15.8 beats/min in group E and 88.1±16.3 beats/min in group S ($P=0.048$). A significant reduction in HR was noticed in group E at all time points after pinning as compared to group S ($P<0.001$) (Fig. 3). For BIS scores, there were no significant differences between the groups at any time point ($p=0.328$) (Fig. 4). Additionally, Group S showed a significant reduction in cumulative morphine consumption within the first 6 hours postoperatively (MD=-1.8 mg, 95% CI: -3.1 to -0.4, $p=0.009$). No significant differences were observed between the groups in terms of adverse events or cumulative opioid consumption at 24 hours postoperatively (Tables 2 and 3).

Conclusion

Compared to esmolol, scalp block resulted in a decrease in MAP but an increase in HR. Scalp block using a mixture of bupivacaine and lidocaine effectively stabilized MAP more efficiently than intravenous esmolol bolus in the immediate 300 seconds following skull pins application.

2024-0254

Figure & Table

Figure 1. CONSORT flow diagram

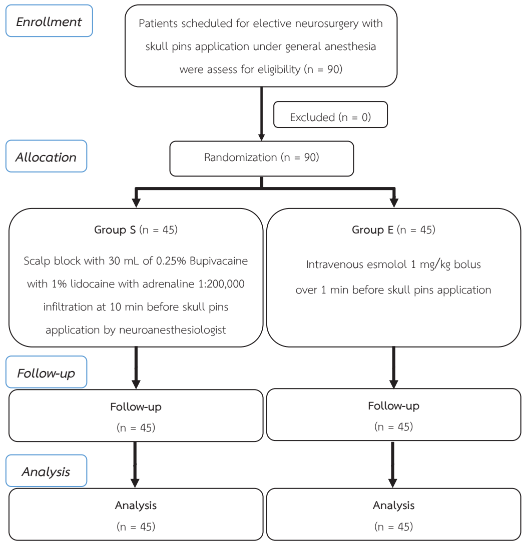
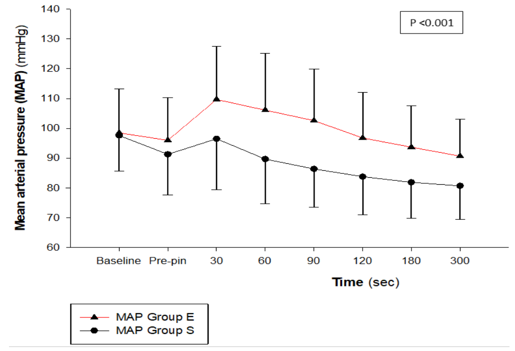
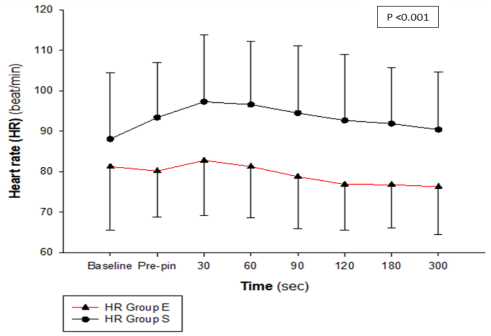

Enrollment
Patients scheduled for elective neurosurgery with skull pins application under general anesthesia were assess for eligibility (n = 90)
Excluded (n = 0)
Allocation
Randomization (n = 90)
Group S (n = 45)
Scalp block with 30 mL of 0.25% Bupivacaine with 1% lidocaine with adrenaline 1:200,000 infiltration at 10 min before skull pins application by neuroanesthesiologist
Group E (n = 45)
Intravenous esmolol 1 mg/kg bolus over 1 min before skull pins application
Follow-up
Follow-up (n = 45)
Follow-up (n = 45)
Analysis
Analysis (n = 45)
Analysis (n = 45)

Figure 2. Changes in mean arterial pressure (MAP) between two groups



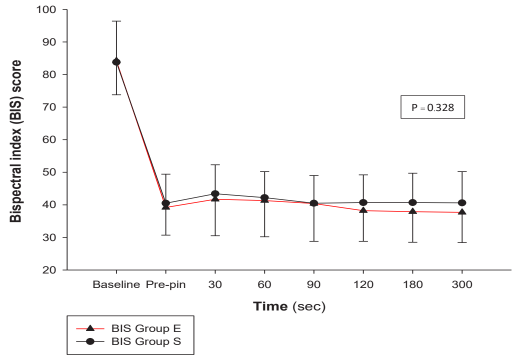
Data are presented as mean ± SD

Figure 3. Changes in heart rate (HR) between two groups



Data are presented as mean ± SD

Figure 4. Changes in bispectral index BIS) score between two groups



2024-0254

Figure & Table

Table 1. Demographic Data (n = 90)

Variables	Group E (n=45)	Group S (n=45)
Ages (years)	47.4 ± 10.0	46.4 ± 12.3
Gender (n (%))		
- Male	11 (24.4)	12 (26.7)
- Female	34 (75.6)	33 (73.3)
ASA physical status		
- ASA I	28 (62.2)	27 (60.0)
- ASA II	17 (37.8%)	18 (40.0)
- ASA III	0	0
Weight (kg)	62.4 ± 8.9	60.7 ± 9.6
Height (cm)	159.9 ± 8.7	158.3 ± 7.8
BMI (kg/m^2)	24.4 ± 3 .0	24.3 ± 3.7

Data are presented as mean ± SD, n (%).

Table 2. Cumulative postoperative morphine consumption (n = 90)

Cumulative postoperative morphine consumption (mg)	Group E (n=45)	Group S (n=45)	MD (95% CI)	P-value
6 h postoperatively	4.6 ± 3.3	2.9 ± 3.0	-1.8 (-3.1 to -0.4)	0.009
24 h postoperatively	10.9 ± 4.8	9.0 ± 4.5	-1.8 (-3.8 to 0.1)	0.062

Data are presented as mean ± SD, mean difference (MD) (95% CI).

Table 3. Postoperative adverse events (n = 90)

Events	Group E (n=45)	Group S (n=45)	P-value
Fever	6 *(13.3)*	5 *(11.1)*	0.748
Nausea and vomiting	7 *(15.6)*	6 *(13.3)*	0.764
Cutaneous pruritus	3 *(6.7)*	3 *(6.7)*	1.000
Respiratory depression	0	0	NA
Subcutaneous hematoma	0	0	NA
Scalp infection	0	0	NA
Local anesthetic systemic toxicity	0	0	NA

Data are presented as n (%).

2024-0193

Comparison Of Change In The Pulsatality Index Before And After Ventriculoperitoneal Shunt Surgery In Adult Patients With Hydrocephalus

Deepak Ganjigere palaksha[1*]

1. Neuroanaesthesia and Neurocritical care, N.I.M.H.A.N.S, Bengaluru, India

Background

In hydrocephalus patients, after ventriculoperitoneal (VP) shunt the decrease in Pulsatility index (PI) correlates with decrease in ventricle size. Also, increase in PI is noted in obstructed or malfunctioning VP shunts. However, previous studies were either done in infants and children or included patients of all age groups. Hence we undertook this study to compare PI before and after successful VP shunt surgery in adult patients and also the trend of TCD parameters for 3 days after surgery.

Methods

It was a prospective, observational study included Twenty adult patients undergoing VP shunt were recruited for this study. Clinical features, vitals, Evans index and TCD parameters were noted in the preoperative period. A CT head was repeated 4-6 hours after surgery, position of ventricular end of shunt confirmed and Evans index was calculated. The vitals and TCD parameters were noted at same time and for next 2 days.

Results

Total of 18 patients were included for statistical analysis. The mean preoperative PI was 1.19±0.24 and postoperative PI after surgery was (POD 1) 0.97±0.17, (POD 2)0.97±0.23, (POD 3)0.94±0.21 ($p=0.004$) respectively. The mean preoperative value of Evans index was 0.37±0.06 and there was statistically significant ($p<0.001$) reduction to 0.33±0.07 after VP shunt surgery. The change in PI and change in Evans index was found to be positively correlating ($r=0.34$; and $p=0.001$).

Conclusion

The decrease in PI after VP shunt surgery correlates with decrease in ventricular size. Any increase in PI in postoperative period should raise suspicion of malfunctioning of VP shunt.

2024-0193

Figure & Table

Figure 1.

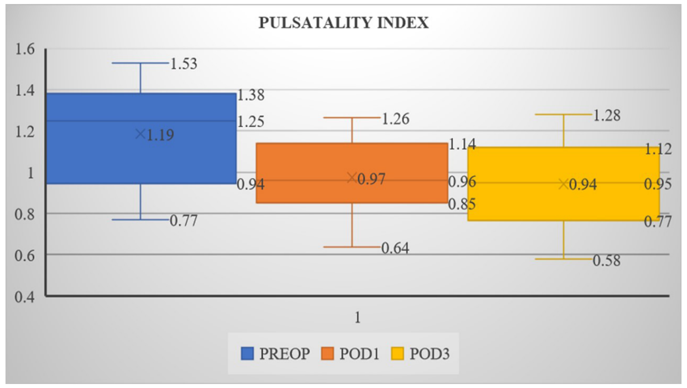
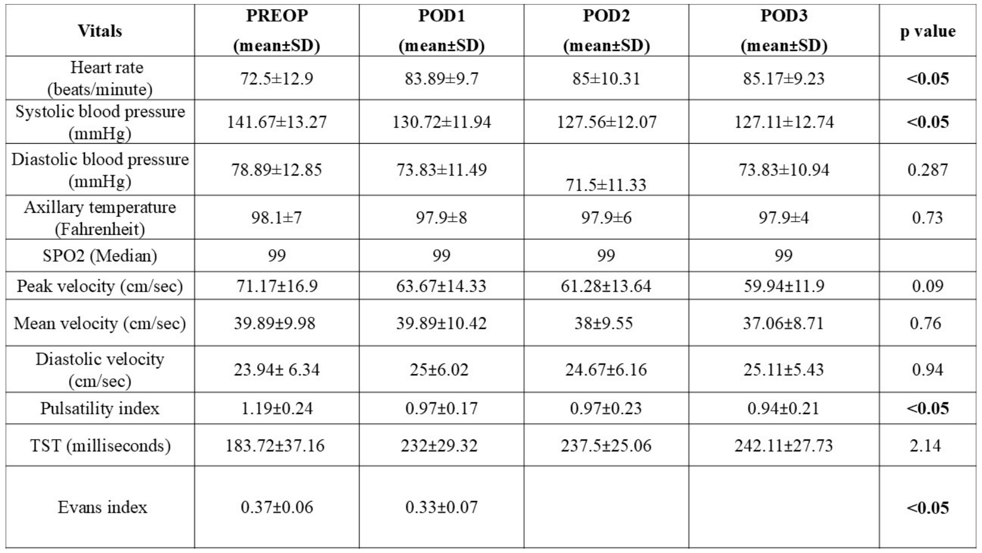


Figure 2.



Vitals	PREOP (mean±SD)	POD1 (mean±SD)	POD2 (mean±SD)	POD3 (mean±SD)	p value
Heart rate (beats/minute)	72.5±12.9	83.89±9.7	85±10.31	85.17±9.23	**<0.05**
Systolic blood pressure (mmHg)	141.67±13.27	130.72±11.94	127.56±12.07	127.11±12.74	**<0.05**
Diastolic blood pressure (mmHg)	78.89±12.85	73.83±11.49	71.5±11.33	73.83±10.94	0.287
Axillary temperature (Fahrenheit)	98.1±7	97.9±8	97.9±6	97.9±4	0.73
SPO2 (Median)	99	99	99	99	
Peak velocity (cm/sec)	71.17±16.9	63.67±14.33	61.28±13.64	59.94±11.9	0.09
Mean velocity (cm/sec)	39.89±9.98	39.89±10.42	38±9.55	37.06±8.71	0.76
Diastolic velocity (cm/sec)	23.94± 6.34	25±6.02	24.67±6.16	25.11±5.43	0.94
Pulsatility index	1.19±0.24	0.97±0.17	0.97±0.23	0.94±0.21	**<0.05**
TST (milliseconds)	183.72±37.16	232±29.32	237.5±25.06	242.11±27.73	2.14
Evans index	0.37±0.06	0.33±0.07			**<0.05**

2024-0151

White Matter Changes Following Traumatic Brain Injury: A Tract-Based Spatial Statistics Study

Rohini Surve[1*], Sunil Khokhar[2], M Radhakrishnan[1], Rose Bharath[2]

1. Neuroanaesthesia And Neurocritical Care, National Institute of Mental Health and Neurosciences, India
2. Neuro Imaging & Interventional Radiology, National Institute of Mental Health and Neurosciences, India

Background

Traumatic brain injury (TBI) is a major public health concern with both acute and long-term consequences. Damage to white matter tracts, the brain's communication pathways, is a hallmark of TBI. Understanding the nature and progression of these changes is crucial for developing targeted interventions and improving patient outcomes. Diffusion imaging techniques like diffusion tensor imaging (DTI) enable sensitive assessments of white matter integrity. Fractional anisotropy (FA), a DTI-derived metric, reflects the directional coherence of water diffusion within white matter tracts.

Methods

In this study, we utilized Tract-Based Spatial Statistics (TBSS) to investigate white matter differences between baseline and follow-up in 12 TBI subjects. Diffusion imaging data were pre-processed for motion and distortion correction. Fractional anisotropy (FA) maps were generated, and significant group differences in FA were analyzed using randomize with threshold-free cluster enhancement (TFCE) correction ($p < 0.05$, FDR-corrected).

Results

Follow-up scans exhibited increased FA compared to baseline in several major fiber tracts, including the anterior thalamic radiation, corticospinal tract, cingulum, forceps major/minor, inferior fronto-occipital fasciculus, inferior/superior longitudinal fasciculus and uncinate fasciculus.

Conclusion

Our findings demonstrate significant white matter changes following TBI. These alterations may represent neuroplasticity or ongoing damage, warranting further investigation. TBSS offers a sensitive method to track white matter changes, aiding in understanding the long-term consequences of TBI and potentially informing targeted rehabilitation strategies.

2024-0151

Figure & Table

Figure 1.

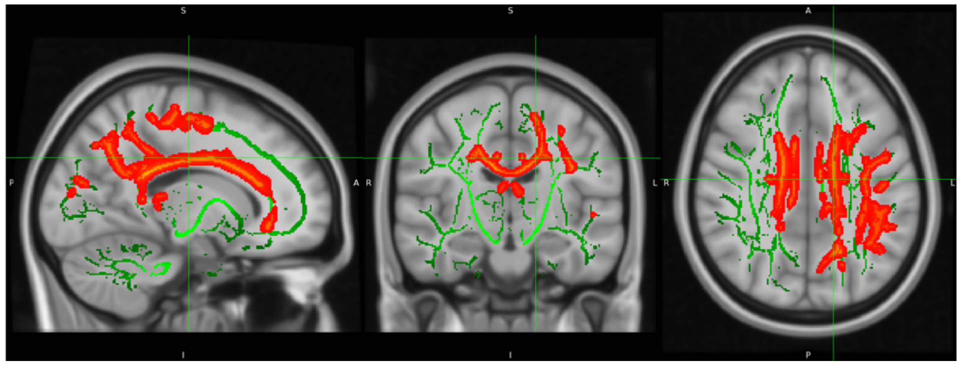
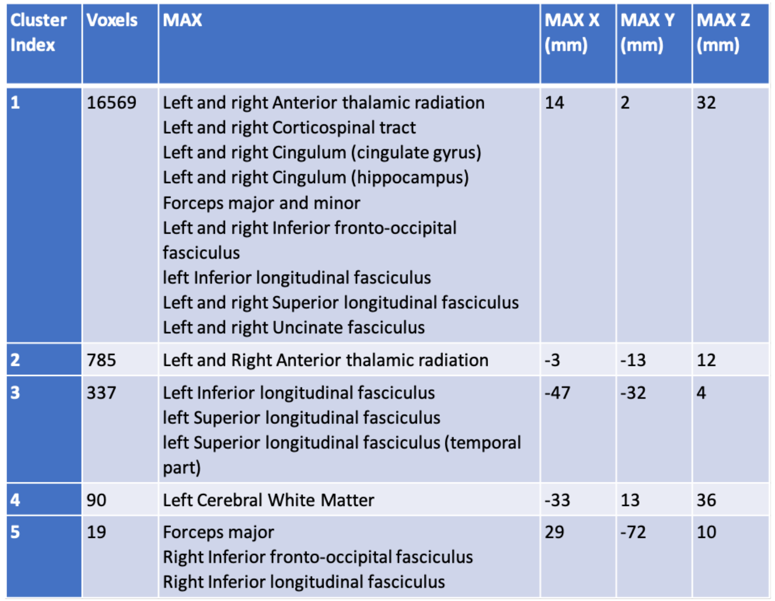


Table 1.



Cluster Index	Voxels	MAX	MAX X (mm)	MAX Y (mm)	MAX Z (mm)
1	16569	Left and right Anterior thalamic radiation Left and right Corticospinal tract Left and right Cingulum (cingulate gyrus) Left and right Cingulum (hippocampus) Forceps major and minor Left and right Inferior fronto-occipital fasciculus left Inferior longitudinal fasciculus Left and right Superior longitudinal fasciculus Left and right Uncinate fasciculus	14	2	32
2	785	Left and Right Anterior thalamic radiation	-3	-13	12
3	337	Left Inferior longitudinal fasciculus left Superior longitudinal fasciculus left Superior longitudinal fasciculus (temporal part)	-47	-32	4
4	90	Left Cerebral White Matter	-33	13	36
5	19	Forceps major Right Inferior fronto-occipital fasciculus Right Inferior longitudinal fasciculus	29	-72	10

2024-0190

Impact of ultrasound-guided cervical plexus block on inflammation response and early postoperative recovery in trigeminal neuralgia or hemifacial spasm patients undergoing microvascular decompression

Kyung Won Shin[1], Woo-young Jo[1], Hyongmin Oh[1], Hee-pyoung Park[1], Seungeun Choi[1*]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

Background
With the increasing use of nerve blocks for postoperative pain control, this study investigated the effect of cervical plexus block (CPB) on early postoperative quality of recovery (QoR) and inflammatory response in patients undergoing microvascular decompression (MVD) for trigeminal neuralgia or hemifacial spasm, comparing those who received CPB with those who did not.

Methods
Patients were randomly divided into the two groups, CPB (n=30) and control (n=30) groups. CPB was performed after anesthesia induction and before the surgery began. The QoR-15 questionnaire was used to evaluate the postoperative QoR. The primary outcome was the QoR-15 score on postoperative day 1. In addition, severity of pain, use of rescue analgesics, and postoperative nausea and vomiting were investigated and perioperative inflammatory cytokines were measured.

Results
The QoR-15 score on postoperative day 1 (94.5 [68.0–116.0] vs. 80.5 [51.5–100.8], p=0.077) did not show a significant difference between the CPB and control groups. Postoperative pain scores and use of rescue analgesics did not differ between the two groups. The CPB group experienced significantly less severe PONV at postoperative hours 6 (3 [10.0%] vs. 15 [50.0%], p=0.001), 12 (2 [6.7%] vs. 9 [30.0%], p < 0.001), and on day 1 (6 [20.0%] vs. 18 [60.0%], p = 0.002) in the CPB group. Inflammatory cytokine levels showed no significant differences.

Conclusion
Following MVD for trigeminal neuralgia or hemifacial spasm, CPB was found to reduce the severity of PONV during the early postoperative period but did not lead to an improvement in early postoperative QoR in patients undergoing MVD.

2024-0190

Figure & Table

Table 1. Comparisons of perioperative quality of recovery-15K scores and postoperative outcomes between patients undergoing microvascular decompression with or without ultrasound-guided cervical plexus block (CPB)

	CPB group	Control group	P value
Quality of recovery-15K scores			
Preoperative day	131.5 (121.8–150.0)	123.0 (109.0–140.3)	0.129
Postoperatively day 1	94.5 (68.0–116.0)	80.5 (51.5–100.8)	0.077
Postoperatively day 3	114.0 (104.0–135.0)	110.0 (88.5–124.5)	0.249
The time to first use of rescue analgesics	1.0 (0.5–5.3)	1.0 (0.5–12.3)	0.970
Severity of PONV			
Postoperatively hour 6	0.0 (0.0–0.0)	0.5 (0.0–1.3)	0.001
Postoperatively hour 12	0.0 (0.0–0.0)	1.0 (0.0–2.0)	< 0.001
Postoperatively day 1	0.0 (0.0–0.0)	1.0 (0.0–2.0)	0.004
Frequency of antiemetic administration			
Postoperatively hour 6	0.0 (0.0–0.0)	0.0 (0.0–1.0)	0.012
Postoperatively hour 12	0.0 (0.0–0.0)	0.0 (0.0–1.0)	0.018

Values are presented as median (interquartile range). CI: confidence interval

Table 2. Comparisons of perioperative inflammatory cytokines between patients undergoing microvascular decompression with or without ultrasound-guided cervical plexus block (CPB)

	CPB group	Control group	P value
TNFα (pg/mL)	0.2 (-0.5–1.0)	0.4 (-0.1–1.2)	0.318
IL-6 (pg/mL)	1.4 (0.5–2.4)	0.9 (0.5–1.5)	0.287
IL-8 (pg/mL)	3.9 (1.0–8.2)	3.0 (1.0–4.8)	0.540

Values are presented as median (interquartile range) or mean ± SD. TNF-α: tumor necrosis factor-α; IL-6: interleukin-6; IL-8: interleukin-8

2024-0080

Comparison of Cognitive Impairment Between Propofol and Remimazolam Anesthesia in ApoE4 Knock-In Mouse Model

Jong ho Kim[1,2], Harry Jung[2], Eun seo Lee[2], Eun hae Lee[2], Wonrae Kim[2], Jong hee Sohn[2,3*]

1. Department of Anesthesiology and Pain Medicine, Chuncheon Sacred Heart Hospital, Hallym University College of Medicine, Republic of Korea
2. Institute of New Frontier Research, Hallym University College of Medicine, Republic of Korea
3. Department of Neurology, Chuncheon Sacred Heart Hospital, Hallym University College of Medicine, Republic of Korea

Background

The influence of general anesthesia on neurocognitive disorders (NCDs), particularly in populations predisposed to neurodegenerative diseases such as Alzheimer's disease (AD), is a significant concern. Remimazolam, an ultrashort-acting benzodiazepine, offers potential advantages due to its rapid elimination. This study aimed to compare the outcomes of propofol and remimazolam anesthesia in a preclinical mouse model of sporadic AD[1], following anesthesia and surgery.

Methods

Abdominal surgery was performed on cognitively presymptomatic, 5-month-old male ApoE4-KI mice. Anesthesia was administered via tail vein injections, with doses of either propofol (Group P, 170 mg/kg) or remimazolam (Group R, 85 mg/kg) over a duration of 2 hours (Figure 1). Body weight was also measured to assess any physiological impact of the surgery and anesthesia. Cognitive function was assessed using the Morris Water Maze (MWM) and Y maze (YM) tests at intervals of 2 days before and 2, 4, and 7 days after surgery. The mean escape latencies and spontaneous alternation percentages were the major outcomes. Also, Hippocampal amyloid beta (Aβ) levels were assessed via quantitative immunohistochemistry (IHC).

Results

There were no differences in body weight between the two groups before and after anesthesia and surgery. Both groups exhibited increased mean escape latencies in MWM at 2 days post-operatively, but there were no significant differences between the two groups. Also, there were no differences in spontaneous alternation percentages of YM performance. Propofol induces a significant increase in the amyloid beta positive area from postoperative day 2, peaking on day 4. By day 7, a reduction in the positive area in noticeable. Remimazolam increase in the amyloid beta positive area is also observed at 2 days post-operation, the magnitude of this increase is smaller compared to the propofol group. There is a slight increase by day 4, followed by a reduction at day 7. The propofol group exhibits a significantly higher percentage of amyloid beta positive area than the remimazolam group at 2 days post-operation. By day 7, the amyloid beta positive area decreases in both groups, and the difference between the two groups is no longer statistically significant. Propofol induces a significant increase in the amyloid beta positive area in the hippocampal CA3 region at 2 days and 4 days post-operative. However, by day 7, the levels in both groups decrease, showing no significant difference between the two anesthetics (Figure 2).

Conclusion

These findings indicate that remimazolam and propofol differentially affect pathological hippocampal changes in pre-symptomatic, but vulnerable AD mice. These results suggest that the choice of anesthetic may influence the progression of neurocognitive disorders in a preclinical AD model.

2024-0080

Figure & Table

Figure 1.

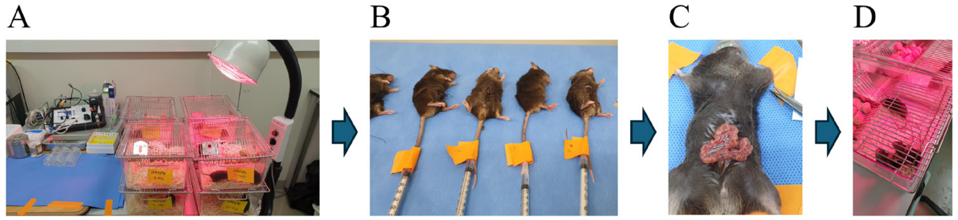
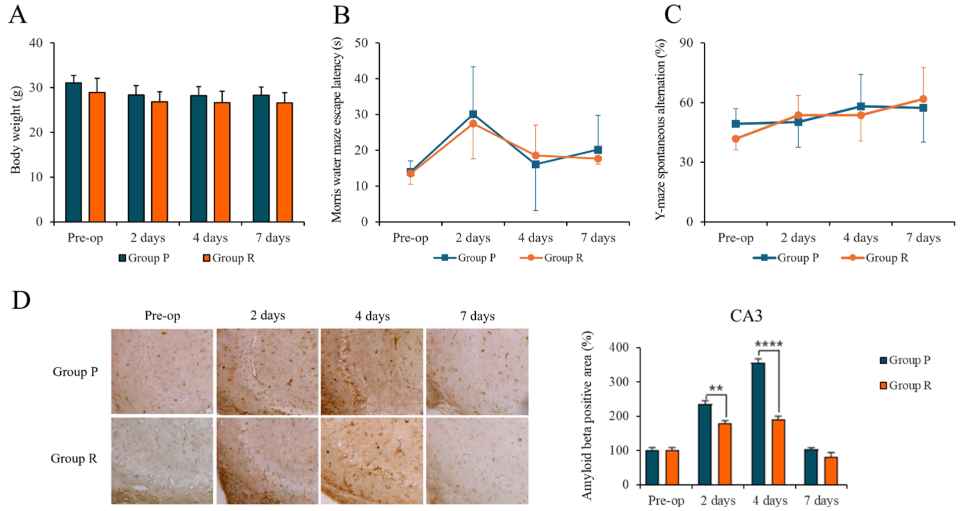


Figure 2.



2024-0291

Assessing Minute Volume, Tidal Volume and Room Air Oxygen Saturation as Criteria for Safe Extubation After General Anesthesia with Sevoflurane and Rocuronium: Preliminary Study

Angeline Soeparto[1*], Ardyan Wardhana[2], Juni Kurniawaty[3], Anisa fadhila Farid[3], Ratih kumala fajar Apsari[3]

1. Anesthesiology and Intensive Care Therapy Resident FK-KMK UGM, RSUP Dr.Sardjito Yogyakarta, Indonesia
2. Anesthesiology, Surabaya University, Indonesia
3. Anesthesiology and Intensive Care Therapy Staff FK-KMK UGM, RSUP Dr.Sardjito Yogyakarta, Indonesia

Background

Sevoflurane inhalation agents can prolong the duration of action of non-depolarizing neuromuscular blockade agents such as rocuronium. Residual paralysis and complications related to intubation are frequently encountered in clinical settings, yet the use of Train of Four (TOF) monitoring remains uncommon. Limited availability of TOF necessitates reliance on clinical extubation assessment. Oxygen administration at room air levels helps detect hypoventilation, with patients maintaining > 95% oxygen saturation considered non-hypoventilated. This study assesses ventilation adequacy as an additional clinical criterion for extubation without TOF monitoring to prevent residual paralysis in the recovery room.

Methods

This preliminary study included 10 elective surgery patients (excluding head/neck surgeries), aged 18-60, ASA I-II, not on pre-surgical oxygen supplementation, and who consented to participate. Post-reversal, spontaneous breathing was monitored, with neostigmine administered per protocol. If minute volume was 80-100 ml/kg or tidal volume > 5 ml/kg, patients received air without O2 and were extubated if SpO2 > 95% for 3 minutes. In the recovery room, TOF measurements were taken with TOFSCAN devices.Statistically evaluation of the result was using t-test analysis. Results were considered statistically significant when p < 0,05.

Results

This study found that respiratory rate and minute volume values met the criteria for reflecting adequate pulmonary function. Individuals who are asleep have lower tidal volumes compared to those who are fully awake; tidal volume can decrease by up to 73% compared to the normal value in awake patients.The minute volume averaged 89.05 mL/kg, with the lowest value being 81.1 mL/kg and the highest 100 mL/kg. The tidal volume averaged 4.83 mL/kg, with the lowest value at 2.8 mL/kg and the highest at 8 mL/kg.

The ability to maintain a saturation level on room air for 3 minutes before extubation has a strong correlation with TOF measurements in the recovery room. In this study, no subjects had a TOF < 90%. The t-test analysis for TOF 1 and TOF 2 yielded a p-value < 0.05, indicating that there is no residual or prolonged effect of neuromuscular blocking agents after extubation with these criteria.

Conclusion

Normal tidal volume is difficult to achieve in anesthetized patients compared to minute volume. Therefore, it was decided to use minute volume as the criteria in the main study. In this preliminary study, with exposure to room air oxygen for 3 minutes before extubation, no post-extubation complications were observed, and TOF values were all above 90% in the recovery room. Based on this study, further research will be conducted with a larger sample size and different muscle relaxants and inhalational agents.

2024-0291

Figure & Table

Table 1. Subjects Characteristic

Characteristic		Value
Gender	Male (%)	2 (20)
	Female (%)	8 (80)
Age (year)	Mean (min-max)	37,7(21-58)
BMI		22,51 (14,7-33,3)
Duration of anesthesia (minutes)		124,5 (75-165)
Rocuronium dose (mg)		37,5 (25-70)
Frequency of rocuronium administration		1,3 (1-3)
Total dose of neostigmine (mg)		1,394 (0,3-2,5)

Table 2. Perioperative assessment

Sample	BMI	RR	MV		VT		TOF	
			(L/min)	(mL/kg)	(mL)	(mL/kg)	TOF1(%)	TOF2(%)
1	20	22	4,2	87	192	4	95	100
2	23,6	16	5,3	91,3	350	6	90	98
3	33,3	25	5,9	83	222	3	100	100
4	26,4	17	5,6	84,8	330	5	100	100
5	25	20	5,6	87,5	288	4,5	97	100
6	17,6	16	4,4	97	283	6	100	100
7	21,5	27	4,3	81,1	165	3	100	100
8	24,1	29	5,2	81,2	184	2,8	96	100
9	14,7	17	4,6	100	281	6	100	95
10	18,9	13	4,1	97,6	336	8	100	100
Mean (min-max)	22,51 (14,7-33,3)	20,2 (13-29)	4,92 (4,1-5,9)	89,05 (81,1-100)	263,1 (165-350)	4,83 (2,8-8)	97,8 (90-100)	99,3 (98-100)

(RR: Respiratory Rate; MV: Minute Volume; VT: Tidal Volume)

Table 3. TOF T-test Analysis

	Mean (std deviation)	P-Value
TOF 1	97.80 ± 3.35	0.000
TOF2	99.30 ± 1.63	0.000

2024-0055

Explainable artificial intelligence for predicting mortality in geriatric patients undergoing hip arthroplasty: Machine learning analysis using national health insurance data

Hyunyoung Seong[1], Kwang-sig Lee[2], Donghyun Na[1], Hyeon ju Shin[1*]

1. Department of Anesthesiology and Pain Medicine, Korea University Medical Center, Anam Hospital, Republic of Korea
2. AI center, Korea University College of Medicine, Republic of Korea

Background

This study uses machine learning and population data to analyze major determinants of mortality among patients with hip arthroplasty.

Methods

Retrospective cohort data came from Korea National Health Insurance Service claims data for 17290 patients aged 65 years or more with hip arthroplasty in 2019. The dependent variable was 1-year mortality (yes vs. no) in 2019 and its 31 predictors were included. Random forest variable importance and Shapley Additive Explanations (SHAP) were used for identifying major predictors and the directions of their associations with mortality.

Results

The random forest registered the area under the curve of 74.6%. Based on random forest variable importance, the top-10 predictors were age (0.30), red blood cell (0.11), sex (male) (0.08), dementia (0.06), low socioeconomic status (0.06), solid tumor (0.05), congestive heart failure (0.04), chronic kidney disease (0.03), statin (0.02) and peripheral vascular disease (0.02). These predictors were followed by their top-20 counterparts including cardiovascular disease, myocardial infraction, peptic ulcer disease, general anesthesia, thrombocytopenia, iron, chronic obstructive pulmonary disease, tranexamic acid, anemia and hypothyroidism. In terms of univariate analysis and max SHAP values, these associations were positive in general, e.g., age (0.17), red blood cell (0.10), sex (male) (0.09), dementia (0.04), low socioeconomic status (0.03), solid tumor (0.06), congestive heart failure (0.04), chronic kidney disease (0.05), general anesthesia (0.02) and iron (0.02). For example, the inclusion of age (0.17), red blood cell (0.10), general anesthesia (0.02) or iron (0.02) into the random forest will increase the probability of mortality among patients with hip arthroplasty by 17%, 10%, 2% or 2%.

Conclusion

Machine learning is an effective prediction model for mortality among patients with hip arthroplasty. The high-risk group with age, blood transfusion and comorbid conditions need to be treated with iron and/or other appropriate interventions.

2024-0055

Figure & Table

Figure 1. Random forest area under the curve.

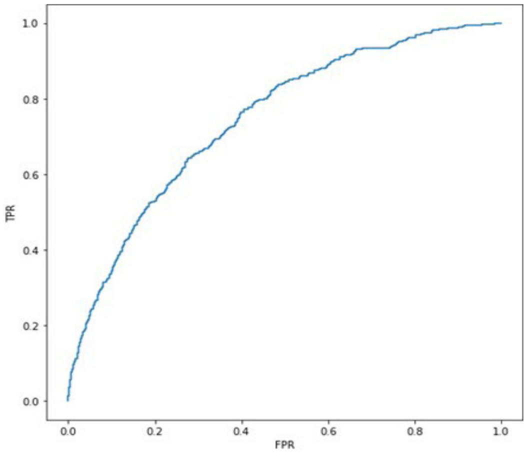


Figure 2. SHAP summary plot. SHAP; Shapley Additive Explanation.

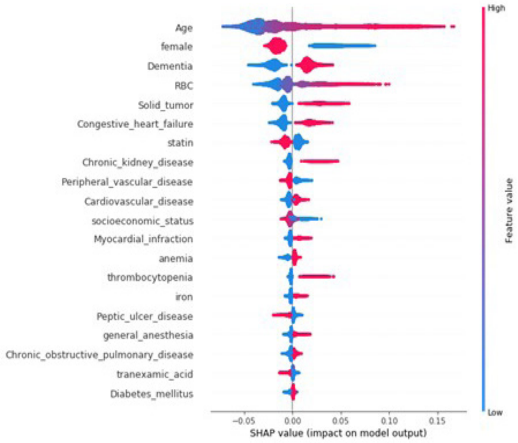


Figure 3. SHAP dependence plot for age. SHAP; Shapley Additive Explanation.

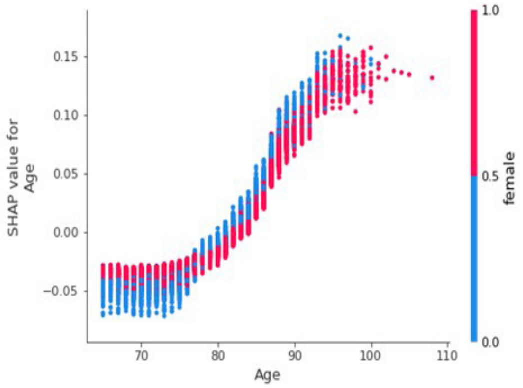


Figure 4. SHAP dependence plot for general anesthesia. SHAP; Shapley Additive Explanation.

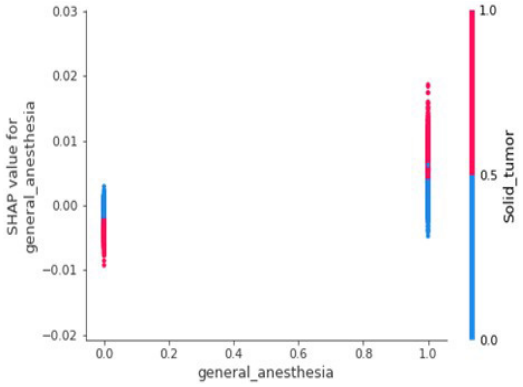
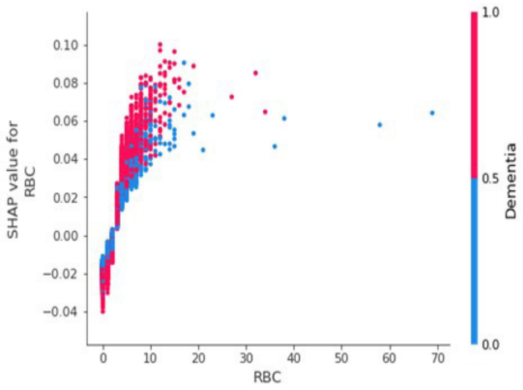


Figure 5. SHAP dependence plot for red blood cell. SHAP; Shapley Additive Explanation.



2024-0271

Predictive Factors for High Number of Red Blood Cell Transfusion in Liver Transplantation: Towards Efficient Blood Management

Kunravitch Soraprajum[1], Karuna Wongtangman[2], Chutwichai Tovikkai[3], Prawat Kositamongkol[3], Sudta Parakkamodom[2], Janejira Kittivorapart1*

1. Department of Transfusion Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
2. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
3. Hepato-Pancreato-Biliary and Transplant Surgery Unit, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

Background

Orthotopic liver transplantation is a procedure associated with a significant risk of major blood loss. Over requesting with minimal utilization results in significant wastage of blood, reagents, and human resource. This study aimed to identify factors contributing to the high number of red blood cell (RBC) transfusion in liver transplant surgery to optimize the utility of blood products and maintain the adequacy of blood inventory.

Methods

The prospectively collected transplant registry including data from patients who underwent liver transplantation at a university-based hospital (Bangkok, Thailand) between September 2018 and October 2023 were reviewed. The outcome was intraoperative transfusion of more than 4 RBC units. A priori defined risk factors were compared using univariate and multivariate binary logistic regression analyses. A factor with p-value of <0.2 was included in the multivariate analysis.

Results

A total of 86 adult patients who underwent liver transplantation were enrolled. The median (interquartile range) of RBC transfusion in liver transplantation was 6 (3.00, 11.25) units. 55 patients received more than 4 units (63.95%). The univariate analysis demonstrated that MELD-Na score >20 (Odds ratio (OR) 6.00, 95% confidence interval (CI) 2.20 – 16.40, p<0.001), preoperative hemoglobin of <9.5 g/dL (OR 14.00, 95%CI 3.79 – 51.74, p<0.001), and albumin <3 g/dL (OR 3.16, 95%CI 1.23 – 8.09, p = 0.015) were significantly associated with >4 units RBC transfusion. Multivariate analysis revealed that MELD-Na score >20 (adjusted OR 3.48, 95%CI 1.11 – 10.92) and preoperative hemoglobin <9.5 g/dL (adjusted OR 8.24, 95%CI 2.06 – 33.04) significantly increased the RBC transfusion.

Conclusion

Based on these findings, it may be possible to revisit the current routine practice of cross-matching and adopt a more tailored approach for patients undergoing liver transplantation. Implementing such a strategy can be used for decision support to optimize blood availability and reduce costs associated with cross-matching.

2024-0271

Figure & Table

Table 1. Baseline characteristics

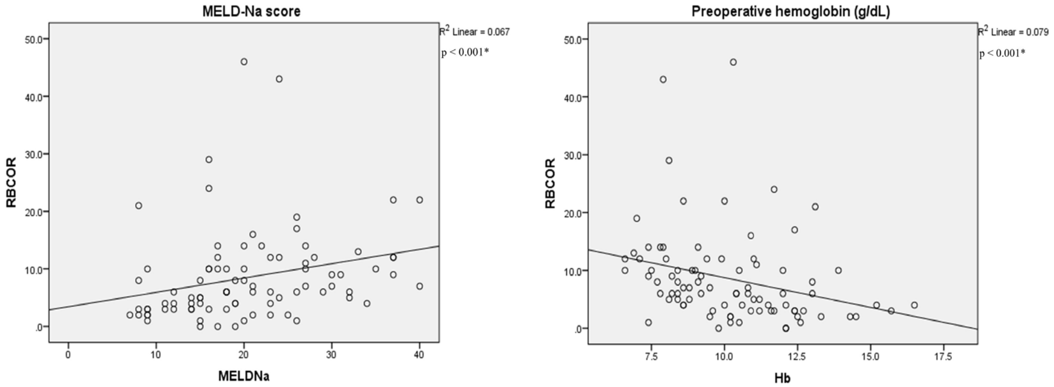
	RBC >4 units (n = 55)	RBC ≤4 units (n = 31)	p-value
Demographic			
Age (year)	58 (48, 64)	55 (44, 65)	.577
Sex (M)	38 (69%)	18 (56%)	.303
BMI (kg/m^2)	22.48 (20.60, 26.12)	24.41 (22.00, 26.64)	.163
Etiology/complication of liver disease			
Portal hypertension	49 (89.1%)	28 (90.3%)	.858
Portal vein thrombosis	11 (20%)	4 (12.9%)	.405
Hepatocellular carcinoma	9 (16.4%)	4 (12.9%)	.667
Viral hepatitis	25 (45.5%)	13 (41.9%)	.752
Alcoholic cirrhosis	7 (12.7%)	7 (22.6%)	.235
Preoperative variable			
Previous history of hepatectomy	4 (7.2%)	3 (9.6%)	.695
MELD-Na score	23.25 ± 8.15	15.52 ± 6.38	<.001
Hemoglobin (g/dL)	9.41 ± 1.83	11.63 ± 2.13	<.001
Platelets (/μL)	87000 (57000, 164000)	111000 (63000, 138000)	.345
Albumin (g/dL)	3 ± 0.69	3.34 ± 0.61	.026
INR	1.57 (1.44, 2.03)	1.28 (1.19, 1.39)	<.001
Total bilirubin (mg/dL)	3.88 (2.42, 18.51)	1.9 (0.97, 6.95)	.009

RBC; Red blood cell, BMI; Body mass index, MELD-Na; Model for end stage liver disease-sodium, INR; International normalized ratio; Data was presented in frequency (%), mean ± SD, or median (interquartile range)

Table 2. Univariate and Multivariate analyses of preoperative parameters for red cell transfusion >4 units in liver transplant procedure

	Univariate analysis			Multivariate analysis		
	Odds ratio	95%CI	p-value	Odds ratio	95%CI	p-value
MELD-Na score ≥20	6.00	2.20 - 16.40	<.001	3.48	1.11 - 10.92	.032
Hemoglobin <9.5 g/dL	14.00	3.79 - 51.74	<.001	8.24	2.06 - 33.04	.003
BMI ≥23 kg/m^2	0.56	0.23 - 1.36	.199	0.80	0.26 - 2.39	.683
Albumin ≤3.0 g/dL	3.16	1.23 - 8.09	.015	2.38	0.79 - 7.16	.122

Figure 1. Correlation between red blood cell transfusion in liver transplant procedure (RBCOR) and preoperative parameters. (a) Preoperative MELD-Na score. (b) Preoperative hemoglobin (Hb) *Indicates p <0.05



2024-0228

Assessing Quality of Death in Surgical ICUs: A Preliminary Report of Medical Perspectives and Influencing Factors

Christine Kang[1], Hannah Lee[2*]

1. Critical Care Medicine, Seoul National Hospital University, Republic of Korea
2. Anesthesiology and Pain Medicine, Seoul National Hospital University, Republic of Korea

Background

Amid diverse ICU environments, limited research has explored how medical personnel in the Republic of Korea perceive death. This study address this gap by investigating the perceptions of death among healthcare professionals, particularly in surgical ICUs, which is essential for improving the quality of end-of-life care.

Methods

A preliminary prospective study was conducted between June 2023 and July 2024. Medical personnel who cared for deceased patients completed the Quality of Dying and Death (QODD) questionnaire within 48 hours of the patient's death. The 20-item QODD, with scores ranging from 0 to 100, assessed the quality of death, with higher scores indicating better outcomes. QODD scores were compared between doctors and nurses using the Mann-Whitney U test, and Pearson analysis was performed to explore correlations with potential influencing factors.

Results

Analysis of 87 questionnaires from 45 ICU staff and physicians (19 doctors, 26 nurses) who cared for 33 deceased patients revealed that doctors, who experience more death, reported higher QODD scores than nurses (21.1 ± 9.2 vs. 16.1 ± 8.6; P = 0.02). Positive correlations were found between QODD scores and discussions of patient wishes and appropriate sedation, respectively (r = 0.74, P = 0.01; r = 0.60, P = 0.01). Despite 81.8% of patients having end-of-life plans, 17.2% received cardiopulmonary resuscitation within 24 hours before death.

Conclusion

The perception of death in surgical ICUs, as reflected by QODD scores, is lower compared to finding from other studies primarily conducted in medical ICUs. Much of the research on end-of-life care centers on medical ICUs, leaving the unique challenges in surgical ICUs less explored. This highlights the need for improved education, advanced care planning, and further research to enhance end-of-life quality in surgical settings.

2024-0228

Figure & Table

Table 1. Comparison of Score from Questionnaire Items (Doctor vs. Nurse)

Items	Total (N = 87)	Doctor (N = 56)	Nurse (N = 31)	*P*-value
Patient's experiences at the end of life				
Having pain under control	6.1 ± 2.4	6.2 ± 2.6	6.0 ± 2.2	0.49
Having control over what is going on around you	2.3 ± 2.3	2.3 ± 2.3	2.3 ± 2.2	0.88
Being able to feed oneself	0.9 ± 1.8	0.8 ± 1.6	1.1 ± 2.1	0.82
Being able to breath comfortably	3.6 ± 2.9	3.4 ± 2.9	3.9 ± 2.8	0.40
Feeling at peace with dying	3.4 ± 2.9	3.1 ± 2.8	3.8 ± 3.0	0.42
Feeling unafraid of dying	3.5 ± 2.9	2.9 ± 2.8	4.5 ± 2.9	0.08
Being able to laugh and smile	1.5 ± 2.0	1.4 ± 1.9	1.6 ± 2.2	0.89
Keeping one's dignity and self-respect	3.2 ± 2.6	3.4 ± 2.8	2.8 ± 2.2	0.60
Spending time with family, friends	5.3 ± 3.0	5.4 ± 3.0	5.0 ± 3.1	0.63
Spending time alone	4.2 ± 3.1	4.3 ± 3.2	4.0 ± 3.1	0.71
Being touched or hugged by loved ones	4.5 ± 3.2	4.7 ± 3.3	4.3 ± 3.2	0.64
Saying goodbye to loved ones	2.9 ± 3.3	2.8 ± 3.1	3.2 ± 3.5	0.89
Clearing up bad feelings	1.9 ± 2.4	1.8 ± 2.3	2.1 ± 2.7	0.85
Visits from religious advisor	2.2 ± 3.0	2.1 ± 3.0	2.3 ± 3.0	0.95
Spiritual service before death	2.4 ± 3.2	2.0 ± 3.0	3.0 ± 3.4	0.39
Medical care at the end of life				
Experience of receiving mechanical ventilation	5.3 ± 3.2	6.0 ± 3.1	4.2 ± 3.1	0.02
Experience of receiving dialysis	6.0 ± 3.0	6.7 ± 2.7	4.9 ± 3.1	0.01
Discussion with doctors about wishes	3.0 ± 3.1	3.5 ± 3.1	2.0 ± 2.8	0.03
Experience at the moment of death				
Anyone present at moment of death	7.2 ± 2.8	7.4 ± 2.8	6.9 ± 2.8	0.31
State at moment of death	5.0 ± 3.3	5.6 ± 3.2	4.0 ± 3.2	0.04
Quality of Dying and Death score	19.4 ± 9.3	21.1 ± 9.2	16.1 ± 8.6	0.02

Data are presented as mean ± SD. Note that same medical staff occasionally cared for multiple deceased patients.

Table 2. Baseline Characteristics of Deceased Patients (N = 33)

Variables	
Age (yr)	66.5 ± 12.5
Male	12 (36.4)
Malignancy	
APACHE II score	31.8 ± 8.1
SOFA score	13.8 ± 3.5
Comorbidities	
Diabetes mellitus	7 (21.7)
Chronic kidney disease	7 (21.7)
Malignancy	10 (30.3)
Reason for admission to the ICU	
Sepsis	8 (24.2)
Respiratory failure	5 (15.2)
Heart failure	0 (0)
Post-resuscitation care	2 (6.1)
Renal failure	4 (12.1)
Hemorrhagic shock	4 (12.1)
Post-operative care	10 (30.3)
Length of ICU stay (days)	17.7 ± 17.6
Length of hospital stay (days)	40.4 ± 35.5
Life-support equipment at the time of death	
Mechanical ventilator	29 (87.9)
Continuous renal replacement treatment	27 (81.8)
Extracorporeal membrane oxygenation	0
Others	0
Medication within 24hr of death	
Sedatives	15 (45.5)
Analgesics	20 (60.6)
Inotropes	32 (97.0)
GCS within 24h before death	7.0 ± 3.6
Cardiopulmonary resuscitation within 24 h before death	7 (21.2)
DNR documentation	3 (9.1)
End-of-Life decision documentation	27 (81.8)

Continuous data are expressed in mean ± SD or as n (%). APACHE II, acute physiology and chronic health evaluation II; SOFA, Sequential Organ Failure Score; ICU, intensive care unit; GCS, Glasgow Coma Scale; DNR, do not resuscitate

2024-0059

Assessing the Effect of Phonation on the Modified Mallampati Classification in Predicting a Potential Difficult Airway Using the Modified Cormack-Lehane Score

Alexie corelle Muyco[1], Rosalie Iturriaga[1*]
1. Anesthesiology, Western Visayas Medical Center, Philippines

Background

Difficulty with airway management is a life-threatening and most feared event by anesthesiologists and other clinicians. An unanticipated difficult airway all the more increases the risk of failure to intubate and ventilate if preparation is compromised.

Early recognition of a difficult airway is paramount in the preanesthetic assessment to reduce the likelihood of failure in airway management. The Modified Mallampati Classification (MMC) is one of the most utilized bedside airway screening test because of its simplicity and ease of use. It is normally done without phonation however it has been observed that phonation alters the score.

This study aimed to assess the effect of phonation on the MMC and correlate it with the Modified Cormack-Lehane Score (MCLS) during direct laryngoscopy to predict a potential difficult airway. The hypothesis of this study was that an improvement in the MMC after phonation would result in a lower MCLS.

Methods

This prospective comparative study included 54 adult ASA PS 1-2 patients scheduled for elective surgical procedures under general anesthesia. Consecutive sampling was used. Both the principal investigator and the participants were aware of what procedures were done.

Preoperatively, two MMC evaluations were performed – initially without phonation and then with phonation. MCLS was assessed during direct laryngoscopy.

In comparing the MMC with and without phonation, McNemar's test was used. In correlating the MMC to the MCLS, crosstabulation, Pearson Chi-Square, and Cramer's V were utilized. A confirmatory statistical analysis using Spearman's rho was also utilized to determine the correlations. SPSS version 28 was used to carry out statistical calculations.

Results

A significant proportion of participants were assigned easy MMC both without and with phonation. But there was a statistically significant difference in the proportion of easy and difficult MMC's without and with phonation (p=.001), wherein more participants received a difficult MMC without phonation.

A strong correlation exists between MMC without and with phonation, r(53)=.656, p<.001. However, there is a lack of significant correlation between MMC without and with phonation and MCLS (X2=2.057, p=.152, Cramer's V=0.195, p=.152, r(53)=-.068, p=.625 and X2=.954, p=.329, Cramer's V=.133, p=.329, r(53)=-.054, p=.699, respectively).

Conclusion

MMC without phonation reflects a more baseline anatomical condition resulting in higher difficult evaluations, suggesting that the dynamic changes induced by phonation can influence airway anatomy and lead to an underestimation of difficulty. Nevertheless, MMC is still a reliable tool for assessing static anatomical structures regardless of phonation because the core structures assessed remain constant.

The lack of significant correlation between MMC and MCLS emphasizes the distinct nature of these tests - anatomical features captured by MMC might not directly correlate with the direct view of the vocal cords. Hence a holistic approach considering static and dynamic factors of airway assessment should be utilized to ensure accurate predictions and enhance patient safety.

2024-0059

Figure & Table

Table 1. Confirmatory Statistical Analysis to Determine Correlations

			MMC Without Phonation	MMC With Phonation	MCLS
Spearman's rho	MMC Without Phonation	Correlation Coefficient	1.000	.656**	-.068
		Sig. (2-tailed)	.	.000	.625
		N	54	54	54
	MMC With Phonation	Correlation Coefficient	.656**	1.000	-.054
		Sig. (2-tailed)	.000	.	.699
		N	54	54	54
	MCLS	Correlation Coefficient	-.068	-.054	1.000
		Sig. (2-tailed)	.625	.699	.
		N	54	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

2024-0064

Preoperative COVID-19 and Postoperative Mortality in Cancer Surgery: A South Korean Nationwide Study

Taeyup Kim[1], Jae-woo Ju[1,2], Soo-hyuk Yoon[1], Tak kyu Oh[3], Ho-jin Lee[1,2*]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Seoul National University College of Medicine, Republic of Korea
3. Department of Anesthesiology and Pain Medicine, Seoul National University Bundang Hospital, Republic of Korea

Background
We evaluated the impact of preoperative COVID-19 on early postoperative mortality in patients undergoing time-sensitive cancer surgery.

Methods
This retrospective nationwide cohort study included adult patients who underwent various cancer (thyroid, breast, stomach, colorectal, hepatobiliary, genitourinary, lung, and multiple cancer) surgeries under general anesthesia in South Korea in 2022. Patients were grouped according to the duration from the date of COVID-19 confirmation to the date of surgery (0–2 weeks, 3–4 weeks, 5–6 weeks, and ≥7 weeks). Patients without preoperative COVID-19 were also included. Multivariable logistic regression analysis with Firth correction was performed to investigate the association between preoperative COVID-19 and 30-day and 90-day postoperative mortality. The covariates encompassed sociodemographic factors, the type of surgery, and vaccination status, in addition to the aforementioned groups.

Results
Of the 99,555 patients analyzed, 30,933 (31.1%) were preoperatively diagnosed with COVID-19. Thirty-day mortality was increased in those who underwent surgery within 0–2 weeks after diagnosis of COVID-19 (adjusted odds ratio [OR], 1.47; 95% confidence interval [CI], 1.02–2.12; P=0.038); beyond 2 weeks, there was no significant increase in mortality. A similar pattern was observed for 90-day mortality. Full vaccination against COVID-19 was associated with reduced 30-day (OR, 0.38; 95% CI, 0.29–0.50; P<0.001) and 90-day (OR, 0.39; 95% CI, 0.33–0.46; P<0.001) mortality.

Conclusion
Cancer surgery within 2 weeks of COVID-19 diagnosis was associated with increased early postoperative mortality. These findings support current guidelines that recommend postponing elective surgery for at least 2 weeks after the diagnosis of COVID-19.

2024-0064

Figure & Table

Table 1. Postoperative outcomes after elective cancer surgery

	No preoperative COVID-19 (n = 68,622)	Preoperative COVID-19 infection (by timing of diagnosis prior to surgery)			
		0–2 weeks (n = 3,489)	3–4 weeks (n = 2,841)	5–6 weeks (n = 2,270)	≥7 weeks (n = 22,333)
30-day postoperative mortality	326 (0.5)	32 (0.9)	12 (0.4)	14 (0.6)	65 (0.3)
90-day postoperative mortality	928 (1.4)	97 (2.8)	42 (1.5)	36 (1.6)	220 (1.0)

Values are expressed as the number (%).
COVID-19, Coronavirus disease 2019

Table 2. Univariable and multivariable logistic regression analyses for 30-day postoperative mortality after elective cancer surgery

	Univariable		Multivariable	
	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
Timing of diagnosis of COVID-19 prior to surgery				
No preoperative COVID-19	Reference		Reference	
0–2 weeks	1.97 (1.37–2.82)	<0.001	1.47 (1.02–2.12)	0.038
3–4 weeks	0.92 (0.52–1.63)	0.785	0.90 (0.51–1.59)	0.731
5–6 weeks	1.34 (0.79–2.28)	0.272	1.50 (0.88–2.54)	0.134
≥7 weeks	0.62 (0.47–0.80)	<0.001	0.78 (0.59–1.01)	0.059
Age, years				
0–49	Reference		Reference	
50–69	4.14 (2.48–6.92)	<0.001	1.73 (1.03–2.92)	0.039
≥70	20.13 (12.26–33.05)	<0.001	5.30 (3.16–8.87)	<0.001
Male (versus female)	3.75 (3.08–4.57)	<0.001	1.59 (1.30–1.95)	<0.001
Updated Charlson comorbidity index				
0–3	Reference		Reference	
4–5	2.01 (1.31–3.10)	0.002	1.27 (0.83–1.96)	0.272
≥6	6.37 (4.37–9.27)	<0.001	2.72 (1.86–3.97)	<0.001
Fully vaccinated (versus not vaccinated or not fully vaccinated)	0.43 (0.33–0.56)	<0.001	0.38 (0.29–0.50)	<0.001
Type of cancer surgery				
Thyroid	Reference		Reference	
Breast	0.55 (0.22–1.39)	0.207	0.52 (0.21–1.29)	0.156
Stomach	11.78 (6.31–22.01)	<0.001	4.50 (2.36–8.56)	<0.001
Colorectal	25.52 (14.09–46.22)	<0.001	8.33 (4.51–15.40)	<0.001
Hepatobiliary	22.92 (12.30–42.69)	<0.001	8.18 (4.31–15.52)	<0.001
Genitourinary	6.11 (3.04–12.26)	<0.001	3.32 (1.64–6.69)	0.001
Lung	10.35 (5.45–19.64)	<0.001	3.73 (1.93–7.21)	<0.001
Multiple cancer surgeries	18.32 (6.61–50.80)	<0.001	6.38 (2.28–17.87)	<0.001
Income level at the index procedure				
1st quartile (lowest)	Reference		Reference	
2nd quartile	0.43 (0.33–0.57)	<0.001	0.54 (0.41–0.70)	<0.001
3rd quartile	0.71 (0.56–0.91)	0.007	0.78 (0.61–1.00)	0.048
4th quartile (highest)	0.70 (0.54–0.89)	0.004	0.64 (0.50–0.82)	<0.001
Residence level at the index procedure				
Capital city	Reference		Reference	
Metropolitan city	0.92 (0.68–1.25)	0.614	1.01 (0.74–1.36)	0.963
Other area	1.28 (1.00–1.65)	0.055	1.11 (0.87–1.43)	0.399

COVID-19, Coronavirus disease 2019; OR, odds ratio; CI, confidence interval.

2024-0301

The Incidence of Adjusting the Supraglottic Airway Device in Overweight and Obese Patients

Woon-seok Kang[1], Yea-ji Lee[1], Jaekyung Kim[1], Chung-Sik Oh[1*]

1. Anesthesiology and Pain Medicine, Konkuk University, Republic of Korea

Background

Perioperative complications were higher in patients with high body mass index (BMI), especially in airway management. Accurate application and right positioning of LMA is essential. This study was designed to compare the additional manipulation of the LMA after initial LMA insertion in patients with normal BMI and high BMI.

Methods

Patients were categorized to a BMI <25 kg/m^2 (normal BMI group) and a BMI≥25 kg/m^2 (high BMI group) according to their BMI. The 3rd generation of LMA (LMA SupremeTM, Teleflex Inc., Morrisville, NC, USA) was prepared with water-based lubrication in the present study. Initial trial of LMA was performed by inserting LMA during jaw thrust until the resistance for push-in was encountered. And then, the depth of LMA was plotted in the LMA relative to the incisor. The additional manipulation of LMA, which was defined as additional push-in with neck extension or pull out of LMA relative to the initial depth of LMA, was executed in the following situations: 1) the square wave pattern of capnography was not established well, or 2) anticipated tidal volume (6 mL/kg of body weight) was not established well, or 3) the leakage sound from oropharynx was detected under peak pressure of 15 cmH2O. The additional manipulation was performed initially by additional push-in LMA with neck extension until the resistance was encountered. Even though above situations were not resolved, LMA was slowly pulled out continuously until above situations were resolved. LMA related values including incidence of additional manipulation of LMA including push-in and pull-out were measured.

Results

The demographic and airwaly related variables were comparable between the two groups (Table 1). The incidence of additional LMA push-in immediately after LMA insertion and intraoperative time were significantly higher in high BMI group compared to those in normal BMI groups. In addition, the incidence of additional LMA pull-out immediately after LMA insertion was significantly lower in high BMI group compared to that in normal BMI group, but it was comparable in intraoperative time (Table 2). in the multivariate logistic regression analysis identified only the BMI (OR = 1.29 (1.12 – 1.48), P < 0.001) as an independent risk factor for additional LMA adjustment after LMA insertion for optimization of mechanical ventilation. The area under receiver operating curve of BMI was 0.71 (0.62 – 0.81) (P < 0.001) and the optimal cutoff point of BMI was 24.1 kg/m^2 for additional LMA adjustment after LMA insertion for optimization of mechanical ventilation.

Conclusion

The body mass index influence on the additional adjustment method after insertion of supraglottic airway device.

2024-0301

Figure & Table

Table 1. Profiles related to airway and mechanical ventilation.

		Normal BMI	High BMI	*P*
		(N=64)	(N=53)	
Mallampati classification				0.220
	1	21 (32.8%)	11 (20.8%)	
	2	38 (59.4%)	34 (64.2%)	
	3	5 (7.8%)	8 (15.1%)	
Neck circumference (cm)		39.6 ± 3.6	43.3 ± 4.5	< 0.001
Thyromental distance (cm)		7.0 (6.3 - 8.0)	6.5 (5.5 - 8.0)	0.035
Success of upper lip bite test		59 (92.2%)	42 (79.2%)	0.079
Oxygen saturation (%)				
	Before LMA insertion	97 (96 - 98)	97 (96 - 98)	0.322
	Intraoperative lowest value	99 (98 - 99)	99 (98 - 99)	0.320
Airway pressure after LMA adjustment (cm H_2O)				
	Peak inspiratory pressure	13 (12 - 14)	15 (13 - 17)	< 0.001
	Plateau pressure	8 (8 - 9)	9 (8 - 10)	< 0.001
PEEP (cm H_2O)		5 (5 - 5)	5 (5 - 5)	0.630
Compliance (mL/cm H_2O)		48 (44 - 54)	42 (34 - 53)	0.002

Abbreviations: LMA, laryngeal mask airway; PEEP, positive end-expiratory pressure

Table 2. Profiles related to laryngeal mask airway manipulation after laryngeal mask airway insertion.

		Normal BMI	High BMI	*P*
		(N=64)	(N=53)	
Trial numbers of LMA insertion				0.991
	1	57 (89.1%)	47 (88.7%)	
	2	6 (9.4%)	5 (9.4%)	
	3	1 (1.6%)	1 (1.9%)	
Duration of LMA insertion trial (sec)		25 (10 - 45)	20 (10 - 30)	0.702
Oropharyngeal leak pressure (cm H_2O)				
	After LMA adjustment	22 (18 - 29)	25 (19 - 31)	0.146
	Before emergence	24 ± 6	25 ± 9	0.359
Cuff pressure of LMA (cm H_2O)		59 (52 - 60)	60 (54 - 60)	0.779
Additional cuff pressure adjustment		18 (28.1%)	19 (35.8%)	0.487
Additional manipulation of LMA				
Push-in with neck extension				
	Immediate after insertion	7 (10.9%)	21 (39.6%)	0.001
	Intraoperative time	8 (12.5%)	21 (39.6%)	0.002
Pull-out				
	Immediate after insertion	20 (31.3%)	7 (13.2%)	0.037
	Intraoperative time	4 (6.3%)	2 (3.8%)	0.854
Push-in or pull-out		32 (50.0%)	40 (75.5%)	0.009
Tingled blood on LMA after LMA removal		6 (9.4%)	8 (15.1%)	0.508
Aspiration of secretion during mechanical ventilation		0	0	NS
Conversion to tracheal intubation		0	0	NS

Abbreviations: LMA, laryngeal mask airway; PEEP, positive end-expiratory pressure

2024-0229

Comparison of analgesic efficacy of ropivacaine and levobupivacaine in labour analgesia by Dural Puncture Epidural technique– a prospective double-blinded randomized trial

Jyotsna Punj[1*]

1. Anesthesiology, Pain medicine and critical care, All India Institute of Medical Sciences, New Delhi, India

Background

Background: Dural puncture epidural (DPE) technique has been introduced recently for labour analgesia in which first a dural puncture is performed with a spinal needle and needle is withdrawn. This is followed by injection of 15-20 ml of local anesthetic agent in the epidural space. DPE is thought to induce analgesia earlier than epidural analgesia without compromising hemodynamic stability. No study previously has compared ropivacaine and levobupivacaine for DPE in labour analgesia.

Methods

Methods: The primary aim of the study was to compare time to onset of Numerical Pain Rating Score (NPRS) ≤ 1 in labour analgesia with both drugs. After obtaining ethics and patient consent, ASA I and ASA II parturient with single foetus in vertex presentation and cervical dilatation <5.0 cm were included.

DPE was performed with 16/ 26 G combined spinal epidural (CSE) technique and parturients randomized into two groups. In Group R (Ropivacaine) 20 ml 0.125% ropivacaine+ fentanyl 2μg/ml was injected to a maximum of 20 ml in 20 minutes and in Group L (Levobupivacaine), 20 ml 0.125% levobupivacaine + fentanyl 2μg/ml was injected.

Outcomes were assessed at 0.5,2,4,6,8,10,12,14,16,18,20 and 30 minutes, then every 90 minutes until delivery.

Appropriate statistical analysis was applied and p value of <0.05 was considered statistically significant.

Results

Results: Demographic data between both groups including age, weight, height, BMI, cervical dilatation, NPRS at request and metal heart rate was comparable between both groups. The median time to onset of NPRS ≤1 in both groups was comparable (group R= 16 minutes vs group L= 18 minutes (p = 0.076). Volume of drug for NPR ≤1 in both groups was also comparable (Group R 15.95± 2.03 ml vs Group L 16.35 ± 1.34 ml (p=0.47). Highest sensory level reached in both groups was T8 with no patient in either group reporting motor block. Total drug used in both groups was comparable (approx 59 ml). Number of PCEA demands and time to delivery was also comparable between both groups. Mode of delivery in both groups (vaginal, instrumental, cesarean section) was comparable between both groups. Fetal parameters (abnormal FHR pattern and APGAR score) was comparable between both groups. pruritus, nausea, vomiting and hypotension was comparable between both groups.

Conclusion

Conclusion: DPE with 16 G epidural needle and 26 gauge spinal needle with both 0.125% ropivacaine and 0.125% levobupivacaine results in similar efficacy of labour analgesia.

2024-0229

Figure & Table

Table 1. Time to onset of NPRS ≤1 between both groups

Parameters	**Group R (n=20)**	**Group L (n=20)**	**p value**
Time to onset of NPRS ≤1 (in minutes)	16 (14-16)	18 (14-18)	0.076
Volume (in ml)	15.95± 2.03	16.35 ± 1.34	0.47
Highest Sensory level	T8 (T8)	T8 (T8-T10)	0.347
Number of patients with motor block	0	0	
Total drug used (bolus+infusion in ml)	59.25±17.69	59.65±28.19	0.96
Number of PCEA demands	2.45±1.15	2.25±1.38	0.62
Time to delivery(in minutes)	356.00±145.05	361.25±207.54	0.93

Values are expressed as mean ± SD or median (interquartile range), P – value <0.05 was considered statistically significant, n = number, SD – standard deviation

Table 2. Mode of delivery between two groups

Mode of delivery	**Group R (n=20)**	**Group L (n=20)**	**p value**
Vaginal	12	12	1.00
Instrumental	2	3	0.63
Cesarean section	6	5	0.72

Data expressed in number 'n'

2024-0150

Comparison of Ropivacaine-Fentanyl with Ropivacaine-Sufentanil for Labour Epidural Analgesia

Manish Kumar Tiwary[1*], **Yasir Ahmed**[1]

1. Anaesthesia And Pain Medicine, Sheikh Khalifa Medical City Ajman UAE, United Arab Emirates

Background

Introduction:

Maternal stress response induced by labour pain is neither beneficial for the mother nor for the foetus. Pain relief is important in preventing maternal and perinatal morbidity and reducing the chances of caesarean section due to maternal anxiety. Neuroaxial technique of epidural analgesia is the most popular and effective method of pain relief in labour. So combination of opiods with Local Anaesthetic (LA) was shown to be more effective compared with LA alone. Ropivacaine being 40% less potent than bupivacaine and having a tendency for differential blockade, is preferred for labour analgesia. Along with LA, opioids (fentanyl or sufentanil) are used to reduce the dose and adverse effects of the anaesthetic agents.

Methods

A Retrospective randomized study had conducted in Sheikh Khalifa Hospital-Women and Children, Ajman, UAE wing after approval by the Institutional Ethics and Review board.

Patients will be allotted to one of the two groups each consisting of 50 patients. Written informed consent obtained, 50 term parturient (primigravida and gravida 2nd or 3 rd) of ASA grade II and III, aged between 19-40 years who were willing for epidural analgesia during labor. The women included in study had singleton pregnancy with vertex presentation with cervical dilatation of 3-4cm and had no contraindications to epidural analgesia..

Parturients with severe pregnancy-induced hypertension, eclampsia, severe anemia, previous caesarean section, cephalopelvic disproportion, breech presentation, allergy to anesthetics, bleeding disorders, psychological/neurological disease and severe spine deformities will be excluded from the study.

With the onset of first stage of labour (having regular painful contractions in latent phase) labor analgesia had been instituted. Group I patients received 10ml of ropivacaine (0.1%) + fentanyl 10µg/ml and Group II received 10ml of ropivacaine (0.1%) + Sufentanyl 1µg/ml. Pre-anaesthesia evaluation had been performed on all the participants. The baseline heart rate (HR) systolic blood pressure (SBP) and diastolic blood pressure(DBP) had been recorded.

The efficacy of the study drugs had been assessed using visual analog scale (VAS scale) along with mother's vitals like HR,SBP, DBP, were measured every 5 min till 30 min then at 60 min and later every hour for six hours.

Baby had been monitored for any respiratory distress or neurological symptoms after delivery. Observation of mother had been done for any early complications.

Results

Both the groups provided equivalent labor analgesia and maternal satisfaction. The chances of cesarean delivery were also not increased in any group. No difference in the cephalad extent of the sensory analgesia, motor block or neonatal Apgar score were observed. Although mean pain scores throughout the labor and delivery were similar in both groups, more patients in fentanyl group required supplementary boluses though not statistically significant.

Conclusion

We conclude that both ropivacaine (0.1%) + fentanyl 10µg/ml and ropivacaine (0.1%) + Sufentanyl 1µg/ml were equally effective by continuous epidural infusion in providing labor analgesia with hemodynamic stability achieving equivalent maternal satisfaction without serious maternal and fetal side effects. We found that sufentanil was 10 times more potent than fentanyl as an analgesic for continuous epidural labor analgesia.

2024-0161

Comparative evaluation of the efficacy and safety of intrathecal hyperbaric ropivacaine with hyperbaric bupivacaine in patients undergoing caesarean section under spinal anaesthesia

Savita rani Singhal[1*]

1. Obstetrics & Gynaecology, Pt. BD Sharma PGIMS, Rohtak, Haryana, India

Background

Ropivacaine is a long-acting amide local anaesthetic with structural andpharmacodynamic properties similar to bupivacaine. It is relatively less potent than bupivacaineand has a higher therapeutic index and better safety profile. Hyperbaric ropivacaine prepared by adding glucose to ropivacaine hasbeen used for spinal anaesthesia in caesarean section and lower limb surgeries.Recently with commercially available hyperbaric ropivacaine, the present study aims to compare the efficacy and safety ofhyperbaric ropivacainevs hyperbaric bupivacaine in patients undergoing caesareansection under spinal anaesthesia.

Methods

The present prospective, randomized, double blind study was conducted after institutional ethical clearance. We included 90 pregnant females belonging to American Society ofAnesthesiologists (ASA) class II, scheduled to undergo lower segment caesareansection under spinal anaesthesia. Patients were randomized into two groups of 45each; Group R received 2 mL of intrathecal hyperbaric ropivacaine (0.75%) andGroup B received 2 mL of intrathecal hyperbaric bupivacaine (0.5%). A standardized routine protocol was used for anaesthesia including the technique of subarachnoid block in all patients.

Results

Demographic parameters were comparable between the two groups. The onset of sensory block at T10 level was significantly faster with bupivacaine as compared to ropivacaine ($p=0.026$).The maximum level of sensory block (T4) achieved was significantly faster inbupivacaine than ropivacaine ($p=0.013$).The mean duration of analgesia was comparable in both the groups ($p=0.58$).The mean duration of motor block was significantly shorter with ropivacaine ascompared to bupivacaine.The incidence of hypotension and bradycardia was comparable between both the groups.

Conclusion

We conclude that both hyperbaricropivacaine and hyperbaric bupivacaine can be used for elective cesarean section. However, ropivacaine causes delayed onset of sensory block which can delay the start of procedure and may not bedesirable in case of emergency cesareansection. At the same time, motor recovery with ropivacaine is significantly faster,which can help in early ambulation.

2024-0315

The impact of decision-to-delivery interval on neonatal outcomes in Category 1 caesarean section deliveries: A quality improvement project

Jo-Ve Ng[1], Shairil rahayu Ruslan[1], Intan syafiqah Ikram shah[2], Nur azreen Hussain[2], Nabilah Abdul ghani[1], Rajeev kumar Rajaratnam[3], Mayura Damanhuri[1*]

1. Anaesthesiology, Universiti Malaya, Malaysia
2. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia
3. Obstetrics and Gynaecology, Universiti Malaya, Malaysia

Background

The NICE guidelines has proposed the decision-to-delivery interval (DDI) of 30 minutes in Category 1 caesarean deliveries as an audit standard. A delayed DDI in Category 1 caesarean deliveries, involving presumed compromised fetuses may lead to adverse neonatal outcomes. This audit aims to determine the DDI in Category 1 caesarean deliveries and the association of delayed DDI on neonatal outcomes.

Methods

An ongoing audit is being conducted at a tertiary, university teaching hospital in Malaysia. This audit was designed to address documentation inconsistencies, with a pre-audit briefing on timing definitions and standardisation of documentation conducted prior to prospective data collection over a study period of 1 year. The DDI is taken as the time interval from time case posted for surgery till time of foetal delivery. Neonatal outcomes were assessed by means of umbilical artery ph, Apgar scores at the first and fifth minutes and requirement of special care nursery admissions. The data reported in this study represent the preliminary audit findings from 1st June to 28th August 2024.

Results

Data from a total of 42 Category 1 caesarean deliveries has been collected thus far, with a mean DDI of 33.04 minutes and standard deviation (SD) of 9.15 minutes. 19 (45.2%) deliveries achieved a DDI within 30 minutes (mean 26.06, SD 4.19) while 23 (54.8%) exceeded 30 minutes (mean 38.49, SD 8.14). There was no significant difference in umbilical artery pH (p=0.560) in the neonates delivered within 30 minutes (mean 7.25, SD 0.085) when compared to those delivered beyond 30 minutes (mean 7.23, SD 0.09). The average Apgar score at the first minute in neonates within 30 minutes DDI was 8.26 (SD 1.05), which was slightly higher (p=0.737) than those surpassing the 30 minutes DDI (mean 8.13, SD 1.42). Furthermore, neonates delivered within 30 minutes displayed an increased Apgar score at the fifth minute (mean 9.94, SD 0.23) than those exceeding DDI of 30 minutes (mean 9.65, SD 0.78) (p=0.117). However, the Apgar scores in both groups of DDIs were not significantly different. The only two neonates requiring special care nursery admissions were observed to have DDI beyond 30 minutes.

Conclusion

There was no significant association of neonatal outcomes with DDI exceeding 30 minutes based on the preliminary findings of this audit. Nonetheless, a larger sample size is recommended and a re-briefing with involved teams will be conducted to advocate for a DDI within 30 minutes, alongside exploring ways to enhance this metric.

2024-0315

Figure & Table

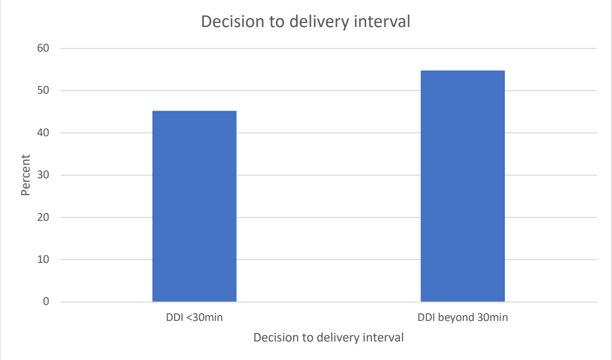
Table 1. The DDI in Category 1 caesarean deliveries

Group Statistics

	Decision to delivery interval	N	Mean	Std. Deviation	Std. Error Mean
DDI (min)	DDI ≤ 30min	19	26:06	04:19	00:59
	DDI beyond 30min	23	38:49	08:14	01:43
Total		42			

Abbreviations: DDI, Decision-to-delivery interval; min, minute; std, standard

Figure 1. The DDI in percentage in Category 1 caesarean deliveries



Abbreviations: DDI, Decision-to-delivery interval; min, minute

Table 2. Outcome data for Category 1 caesarean deliveries for DDI within 30 minutes and beyond 30 minutes.

Group Statistics

	Decision to delivery interval	N	Mean	Std. Deviation	Std. Error Mean
Umbilical artery ph	DDI ≤ 30min	19	7.24505	.085286	.019566
	DDI beyond 30min	22	7.22886	.090047	.019198
Apgar at 1st min	DDI ≤30min	19	8.2632	1.04574	.23991
	DDI beyond 30min	23	8.1304	1.42396	.29692
Apgar at 5th min	DDI ≤30min	19	9.9474	.22942	.05263
	DDI beyond 30min	23	9.6522	.77511	.16162

Abbreviations: DDI, Decision-to-delivery interval; min, minute; std, standard

2024-0030

A Comparison of Prophylactic Phenylephrine between 100, 150 and 200 mcg Intravenous Slow Injection on Vasopressor Consumption, Bradycardia and Other Side Effects after Spinal Anesthesia in Obese Parturients during Cesarean Section: A Randomized, Single-Blind Study

Suchaya Jeeranukosol[1], Ratikorn Anusorntanawat[1*]

1. Anesthesia, Chaophraya Yommaraj Hospital, Thailand

Background

Obese parturients required a higher ED50 of phenylephrine (P) for prophylactic continuous infusion than non-obese parturients after CSE1. There is no previous study on the optimal dose of P administered in obese parturients using a smart pump imitation injection technique2. The goal of this study is to compare vasopressor consumption, bradycardia, and other side effects between prophylactic P 100, 150, and 200 mcg intravenous (IV) slow injections after spinal anesthesia (SA) for cesarean section (C-section) in obese parturients.

Methods

Three hundred sixty-nine parturients with a BMI ≥30 undergoing elective C-sections from December 2022 to June 2024 were randomized into three groups: P100, P150, and P200 (n=123 per group). After completing SA, the three groups were prophylactically administered P by IV slow injection at doses of 100, 150, and 200 mcg over 30, 45, and 60 seconds, respectively, by opening three separate ports of a 3-way stopcock to imitate the function of a smart pump. SH (SBP <90% of baseline) was treated with P 100 mcg(vasopressor consumption). Bradycardia was also treated and recorded. Kruskal–Wallis test was performed to analyse non-normal distribution of vasopressor consumption.

Results

Mean rank of P required for treatment of SH were 201.0, 185.8, and 168.2 mcg in the P100, P150, and P200 groups, respectively, p=0.03. Bradycardia, treated with atropine showed 5(4.1%) in both the P100 and P150 groups, and 7(5.7%) in the P200 group, respectively, p=0.86. Reactive hypertension (defined as SBP > 110% of baseline) were 59(48.0%), 61(49.6%), 87(70.7%) in P100, P150, and P200, respectively, p<0.001. Subgroup analysis showed SBP > 130% of baseline were 2(1.6%), 16(13.0%), and 25(20.3%) in P100, P150, and P200, respectively, p=<0.001. No statistically significant difference in maternal cardiac arrhythmia, nausea and vomiting. Normal baby Apgar score was found in the three groups.

Conclusion

The optimal prophylactic dose of P for management of SH with a smart pump imitation injection technique considering an acceptable incidence of bradycardia and reactive hypertension is 100 mcg, compared to 150 and 200 mcg. after SA for C-section in obese parturients.

2024-0030

Figure & Table

Table 1. Baseline characteristics and demographic data

Variables	All (N= 269)						
	P100 (n = 123)		P150 (n = 123)		P200 (n = 123)		p-value
	mean	±sd	mean	±sd	mean	± sd	
Age (year)	29.3	±5.1	29.8	±29.8	29.5	±5.6	0.74[a]
Weight (kilogram)	88.1	±11.8	89.9	±11.9	89.8	±11.7	0.44[a]
Height (centimeter)	160.9	±5.7	161.2	±5.1	160.5	±5.4	0.64[a]
Baseline systolic blood pressure (mmHg)	121.6	±8.6	122.0	±9.7	121.3	±9.8	0.84[a]
Baseline diastolic blood pressure (mmHg)	75.8	±6.6	76.1	±7.6	75.1	±7.4	0.55[a]
Baseline mean blood pressure (mmHg)	91.0	±7.2	91.3	±7.6	90.3	±7.7	0.55[a]
Baseline heart rate (beat per minute)	85.0	±8.6	86.0	±8.5	84.6	±8.8	0.41[a]
	n	(%)	n	(%)	n	(%)	
Body Mass Index (kilogram/centimeter^2)							0.73[b]
30-34.9	80	(65.0)	78	(63.4)	71	(57.7)	
35-39.9	33	(26.8)	33	(26.8)	35	(28.5)	
40-44.9	10	(8.1)	10	(8.1)	16	(13.0)	
45-50	0	(0)	1	(0.8)	1	(0.8)	
>50	0	(0)	1	(0.8)	0	(0)	
Gestation age (week)							0.80[b]
37	5	(4.1)	6	(4.9)	9	(7.3)	
38	83	(67.5)	77	(62.6)	73	(59.3)	
39	29	(23.6)	34	(27.6)	34	(27.6)	
40	4	(3.3)	6	(4.9)	6	(4.9)	
41	2	(1.6)	0	(0)	1	(0.8)	
ASA II	123	(100)	123	(100)	123	(100)	NA
Indication for C-section							0.83[b]
Cephalopelvic disproportion	58	(47.2)	52	(42.3)	58	(47.2)	
Oligohydramnios	7	(5.7)	6	(4.9)	5	(4.1)	
Previous C-section	52	(42.3)	58	(47.2)	51	(41.5)	
Breech presentation	3	(2.4)	4	(3.3)	6	(4.9)	
Nonreassuring FHS	1	(0.8)	0	(0)	0	(0)	
Unprogress of labor	0	(0)	1	(0.8)	0	(0)	
Fetal macrosomia	1	(0.8)	0	(0)	1	(0.8)	
Postterm	0	(0)	0	(0)	1	(0.8	
Uterine mass	1	(0.8)	0	(0)	0	(0)	
Placenta previa	0	(0)	2	(1.6)	0	(0)	
PROM	0	(0)	0	(0)	1	(0.8)	
Underlying disease							0.33[b]
Diabetic mellitus	1	(0.8)	0	(0)	3	(2.4)	
Asthma	1	(0.8)	3	(2.4)	1	(0.8)	
Thalassemia	0	(0)	0	(0)	1	(0.8)	
Migrain	0	(0)	0	(0)	1	(0.8)	

a = One way ANOVA test, b = fisher’s exact test

Table 2. Relevant data pertaining to anesthesia, vasopressor consumption, the other side effects and neonatal outcome.

Variables	All (N= 269)						
	P100 (n = 123)		P150 (n = 123)		P200 (n = 123)		p-value
	n	(%)	n	(%)	n	(%)	
Duration from completing SA (minute) : mean±sd							
To skin incision	3.5	±1.0	3.9	±1.1	3.4	±1.0	0.002[a]
To uterine incision	6.3	±1.7	6.7	±2.2	6.1	±1.9	0.08[a]
To baby delivery	7.6	±1.8	8.0	±2.3	7.5	±2.1	0.12[a]
Anesthetic level at 1 minute							0.4[c]
L1-T11	15	(12.2)	23	(18.7)	16	(13.)	
T10-T5	87	(70.7)	86	(69.9)	92	(74.8)	
T4-T1	21	(17.1)	14	(11.4)	15	(12.2)	
Anesthetic level at 5 minute							0.54[c]
T10-T5	11	(8.9)	17	(13.8)	19	(15.4)	
T4-T1	110	(89.4)	103	(83.7)	102	(82.9)	
C level	2	(1.6)	3	(2.4)	2	(1.6)	
Phenylephrine for treatment of SH (mcg.); mean rank	201.0		185.8		168.2		0.03[d]
Bradycardia (treated with atropine)	5	(4.1)	5	(4.1)	7	(5.7)	0.86[c]
Reactive HT							
SBP >10% of baseline	59	(48.0)	61	(49.6)	87	(70.7)	<0.001[c]
SBP >10-20% of baseline	53	(43.1)	51	(41.5)	68	(55.3)	0.06[c]
SBP >20-30% of baseline	21	(17.1)	30	(24.4)	44	(35.8)	0.003[c]
SBP >30% of baseline	2	(1.6)	16	(13.0)	25	(20.3)	<0.001[c]
Cardiac arrhythmia	5	(4.1)	2	(1.6)	2	(1.6)	0.52[b]
Type of cardiac arrhythmia							0.33[b]
Premature atrial contraction	1	(0.8)	0	(0)	0	(0)	
Premature ventricular contraction	3	(2.4)	2	(1.6)	0	(0)	
Sinus pause	0	(0)	0	(0)	1	(0.8)	
Sinus arrhythmia	1	(0.8)	0	(0)	1	(0.8)	
Nausea							0.9[b]
0. No nausea	120	(97.6)	121	(98.4)	120	(97.6)	
1. Mild nausea not requiring pharmacological intervention	1	(0.8)	1	(0.8)	2	(1.6)	
2. Nausea requiring pharmacological intervention	2	(1.6)	1	(0.8)	0	(0)	
3. Nausea resistant to pharmacological treatment	0	(0)	0	(0)	1	(0.8)	
Vomit							1.0[b]
0. No vomiting	123	(100)	122	(99.2)	122	(99.2)	
1. Single vomiting event	0	(0)	0	(0)	0	(0)	
2. Repeated vomiting events requiring pharmacological intervention	0	(0)	1	(0.8)	1	(0.8)	
3. Vomiting resistant to pharmacological treatment	0	(0)	0	(0)	0	(0)	
Apgar at 1 minute							0.10[b]
8	17	(13.8)	7	(5.7)	14	(11.4)	
9	103	(83.7)	109	(88.6)	107	(87.0)	
10	3	(2.4)	7	(5.7)	2	(91.6)	
Apgar at 5 minute							
10	123	(100)	123	(100)	123	(100)	NA

a = One way ANOVA test, b = fisher’s exact test, c = chi square test, d = Kruskal-Wallis test, NA = not applicable

2024-0290

Effect of maternal oxygen supplementation by face mask or high flow nasal cannula versus no oxygen supplementation, on umbilical vein oxygen content in the setting of category ii/iii fetal heart rate tracings- A randomized trial

Supreet Kaur[1*]

1. Department of Anesthesiology, All India institute of medical sciences, Patna, Bihar, India

Background

The most common intervention for intrauterine fetal resuscitation is maternal oxygen administration and even non hypoxic pregnant females have received O2 at some point during labor..No standardized recommendations exist about the dose and duration of Oxygen administration especially for Cat II/III FHR tracings during labor. High FiO2s have shown to increase fetoplacental resistance as well as fetal cerebral vascular resistance due to vasoconstriction caused by the oxygen free radicals such as - 8-isoprostone, Malondialdehyde & Hyperperoxides. Routine maternal oxygen supplementation is thus discouraged. O2 administration is thought to improve Category II fetal heart tracings (FHT) that may be associated with fetal hypoxemia and acidemia by resulting in maternal hyperoxygenation and increased placental transfer of O2 to fetal circulation. We believe, if at lower FiO2s, the maternal PaO2 can be increased, as in by HFNC, it may result in increased fetal Umbilical Vein Oxygen content and lesser fetal acidosis

Methods

We randomized 108 pregnant females posted for LSCS under spinal anesthesia into 3 groups – Room air, Face mask and HFNC from the time when decision for LSCS was made till the clamping of umbilical cord. Patients with room air were given no oxygen supplementation. Group Face mask was supplied with 10 L/min oxygen and HFNC with 40 L/min flow with Fio2 of 0.4. After cord clamping, both umbilical venous and maternal blood samples were taken and sent for arterial blood gas analysis. Primary outcome was to assess umbilical venous oxygen content between 3 groups Secondary outcome were comparison of other umbilical vein ABG parameters (pH, pCO2, Lactate, HCO3-, Anion gap) in three groups and comparison of maternal ABG parameters in the three groups.

Results

There was no statistically significant difference in umbilical vein paO2 of the three groups (p= 0.399). There was also no statistically significant difference in between the other umbilical vein parameters i.e., pH, pCO2, Lactate, HCO3-, Anion gap (p>0.05). Maternal ABG parameters did not vary significantly among the groups (p > 0.05).

Conclusion

Oxygen supplementation via face mask or HFNC to a pregnant patient does not improve umbilical vein oxygenation.

2024-0290

Figure & Table

Table 1.

Groups	Mean	SD	P-value
Room air	30.80	7.5105	0.084
Face mask	29.02	6.8482	0.304
HFNC	28.39	6.7630	0.377

AP-12

Nov 9(Sat) 13:30-15:00 / Room C

2024-0138

Evaluation of Perfusion index as an indicator of post-operative pain in parturients undergoing caesarean section: An observational study

Suresh kumar Singhal[1*], Vandana Arora[1], Pragya Sharma[1]

1. Anaesthesiology and Critical care, Pt. BD Sharma, Postgraduate Institute Of Medical Sciences, Rohtak, Haryana, India

Background

Perfusion index (PI) is a non-invasive measure of peripheral perfusion whichmay decrease due to increased vasomotor tone and constriction of peripheralblood vessels when the sympathetic nervous system is activated by pain andincrease when pain is relieved by the use of adequate analgesics. There are afew previous studies which have evaluated PI as a tool of pain assessmentperioperatively and in critically ill patients. Against this background, thepresent study aimed to evaluate PI as an objective indicator of painassessment in parturients undergoing lower segment caesarean section andalso to observe any correlation of PI with Visual analogue scale (VAS) andhaemodynamic parameters like heart rate (HR) and mean arterial pressure(MAP).

Methods

This was a prospective observational study conducted in 40 pregnant femalesbelonging to American Society of Anaesthesiologists (ASA) class II,scheduled to undergo cesarean section under spinal anesthesia. After thecompletion of surgery, patients were shifted to post anaesthesia care unit.Pulse co-oximeter probe (Masimo Radical 7; Masimo corp, Irvine, CA,USA)was attached to the middle fingertip of the hand alonwith standard routinemonitors. HR, MAP, VAS and PI were recorded at first request of analgesia(T1) by the patientand at 30 minutes after administration of analgesia (T2) inthe form of 1 gparacetamol iv. Statistical analysis was done using SPSSversion 20 (IBM SPSS Statistics inc, Chicago llinois, USA) windowssoftware program

Results

There was a statistically significant increase in PI fromT1 to T2 (3.62 ± 2.36to 8.51 ± 9.36; $p<0.05$).This increase was associated with statisticallysignificant decrease in HR (93.08 ± 12.71 vs 85.65 ± 10.63 beats /min), MAP (96.60 ± 11.606 vs 91.55 ± 10.86mmHg)and VAS (6.23 ± 1.23 vs 2.53 ±1.06)at T2 as compared to T1.A statistically significant negative correlationwas observed between PI and HR/MAP/VAS from T1 to T2 ($rs=-0.433, p<0.001$; $rs = 0.896$, $p <0.001$ and$rs=-0.231$, $p=0.016$respectively)

Conclusion

PI can be used as an additional objective indicator of pain assessment in post anesthesia care unit.

AP-13

Nov 9(Sat) 15:30-17:00 / Room B

2024-0294

Impact of Frailty on Days Alive and Out of Hospital Within 30 Days After Cardiac Surgery in Elderly Patients

Seo hee Ko[1], Young-lan Kwak[1*], Jae-kwang Shim[1], Jong wook Song[1], Yoon jin Lee[1], Wonsik Lim[1]

1. Department of Anesthesiology and Pain Medicine, Severance Hospital, Republic of Korea

Background

As more elderly patients are undergoing cardiac surgery, frailty has emerged as a significant factor influencing surgical outcomes in these patients. To better assess the clinical implications of frailty, a comprehensive evaluation is essential. This study evaluates the impact of frailty evaluated through a holistic approach on days alive and out of the hospital within 30 days post-surgery (DAOH 30), a valid patient-centered outcome, among elderly cardiac surgery patients.

Methods

This retrospective study analyzed the prospectively registered data of 438 patients, aged 65 or older, who underwent cardiac surgery. Frailty was categorized into functional (cognitive, emotional, and physical) and metabolic (malnutrition) domains. Additionally, as an independent factor, anemia was included in the analysis due to its critical association with frailty. The primary outcome, DAOH 30, was calculated as the number of days a patient remained alive and outside of the hospital within 30 days post-surgery, beginning from discharge day. Readmission days were subtracted, and deaths within 30 days were recorded as zero DAOH 30. Multivariable quantile regression was used to evaluate the associations between frailty assessment and DAOH 30.

Results

The median age of the cohort was 72 years, with a median DAOH 30 of 19 days. Cardiopulmonary bypass was used in 68.5% of patients, and 59.6% were male. Among the cohort, 9.8% had no frailty, 40.4% had functional frailty, 10.0% had metabolic frailty defined by malnutrition, and 45.9% had anemia. Additionally, 9.2% exhibited both functional and metabolic frailty, and 8.0% experienced frailty across all three domains: functional, metabolic, and anemia-related. The proportion of patients with cognitive decline, physical dysfunction, metabolic frailty, and anemia increased with increasing age. DAOH 30 was significantly shorter in patients with increasing age, cognitive dysfunction, emotional dysregulation, physical decline, metabolic frailty, and anemia (all $p < 0.05$).

In multivariable quantile regression at the 50th percentile, metabolic frailty had the strongest impact, reducing DAOH 30 by 6.1 days (95% CI: -10.9 to -0.7), followed by anemia, which reduced DAOH 30 by 1.2 days (95% CI: -2.3 to -0.2). Each additional functional frailty domain decreased DAOH 30 by 1.0 days (95% CI: -3.6 to -1.0). After excluding deaths within 30 days, similar results were observed.

Conclusion

Frailty, particularly metabolic frailty and anemia, are critical factors influencing postoperative recovery evaluated by DAOH 30 in elderly cardiac surgery patients. Addressing and managing preoperative malnutrition and anemia may help improve recovery time and quality following surgery.

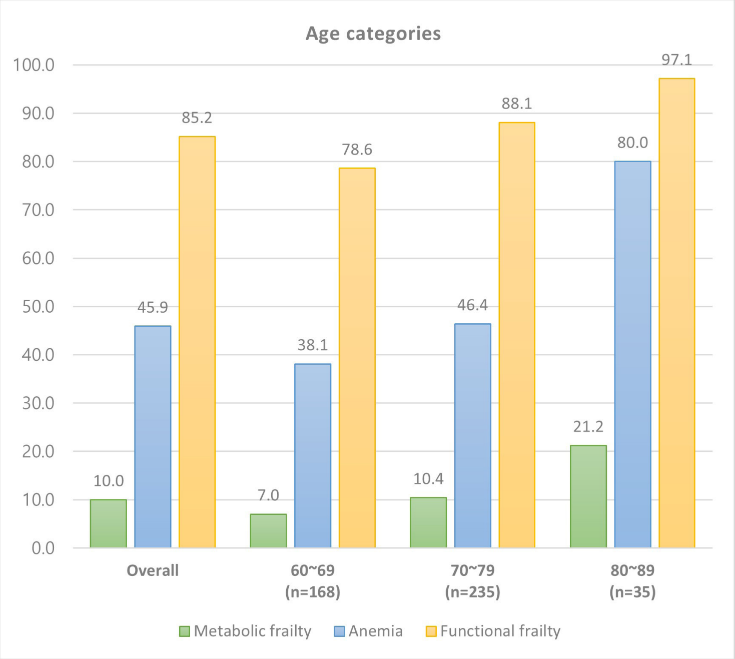
2024-0294

Figure & Table

Table 1. Univariable and Multivariable Quantile Regression Analysis for DAOH 30 at the 50th Percentile

	Univariable	Multivariable
	Coefficients (95% CI)	**Coefficients (95% CI)**
Sex, female	0.000 (-4.964, 2.964)	
age	-0.250 (-0.407, -0.113)	-0.097 (-0.186, -0.001)
BMI	0.125 (-0.099, 0.233)	
EuroSCORE II	-0.658 (-1.102, -0.558)	-0.398 (-0.712, -0.282)
Functional frailty		
Cognitive decline, yes	-1.000 (-7.693, -1.000)	
Emotional dysregulation, yes	-2.000 (-5.214, 1.214)	
Physical dysfunction, yes	-2.000 (-2.000, -0.889)	
Functional frailty, yes	-	-0.806 (-1.490, -0.268)
Number of Functional Frailty Domains (0–3)	-1.000 (-3.582, -1.000)	
Metabolic frailty, yes	-11.000 (-17.508, -2.492)	-6.129 (-10.876, -0.734)
Anemia, yes	-2.000 (-8.095, -2.000)	-1.223 (-2.257, -0.189)
Creatinine	-2.703 (-4.868, -1.315)	
C-Reactive Protein	-0.067 (-0.158, 0.008)	

Figure 1. Distribution of Frailty Domains by Age Categories. The bar chart illustrates the distribution of metabolic frailty, anemia, and functional frailty across different age groups (60–69, 70–79, and 80–89 years), as well as the overall population.



2024-0109

The Effects of preoperative continued Angiotensin-Converting Enzyme Inhibitors/Angiotensin Receptor Blockers on postoperative Acute Kidney Injury after Coronary Artery Bypass Graft Surgery

Thanaphon Srimueang[1*], **Pairin Simcharoen**[1], **Sirigun Phinsunte**[1], **Chonticha Seingdang**[1], **Suppachai Lawanaskol**[2]

1. Anesthesiology, Khon Kaen University, Thailand
2. General practitioner, Chaiprakarn hospital, Thailand

Background

Hypertension, diabetes, or heart failure coexist with patients underwent coronary artery bypass graft surgery (CABG). Angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor blockers (ARB) are common part of the treatment. Continued this medication before surgery is still controversy from mostly concerned about perioperative hypotension and postoperative renal problems. In this retrospective study, we would like to find out whether continued prior ACEI/ARB before surgery affected postoperative acute kidney injury when compared to the patients without this medication prior to surgery.

Methods

Retrospective study of the patients underwent coronary artery bypass surgery with or without valvular cardiac surgery. Excluded in case of preoperative renal dysfunction, emergency surgery, died/ referred out or need extracorporeal membrane oxygenator within 7 days postoperative. The primary outcome was acute kidney injury (AKI) staging by Kidney Disease Improving Global Outcomes (KDIGO) at the intensive care unit (ICU), postoperative day (POD) 1, 2, and 5-7. Secondary outcomes were in-hospital morbidity and mortality.

Results

Enrolled of 760 patients, after excluded, there were 239 cases of continued ACEI/ARB, and 382 cases of no ACEI/ARB. Higher incidents of kidney injury were KDIGO stage 1 at POD 1 and 2 in no ACEI/ARB group, 19.6% vs 11.7%. The staging of AKI were mostly declined at POD5-7 in both groups. Less than 3% of KDIGO stage 2 or 3 in both groups were observed. From multivariable ordinal logistic regression, increased KDIGO staging at POD 1 was 3.92 times in no ACEI/ARB group vs 1.61 times in ACEI/ARB group. More gradually declined of AKI staging until POD 5-7 were seen in ACEI/ARB group, but no statistical differences, p=0.135. Postoperative morbidity and mortality were also similar in both groups.

Conclusion

Postoperative AKI was not higher in patients underwent CABG with or without valvular cardiac surgery who continued ACEI/ARB compared to the patients without preoperative ACEI/ARB.

2024-0109

Figure & Table

Table 1. Perioperative data

	Continued ACEI/ ARB	N= 239	No ACEI/ARB	N=382	P-value
	n	%	n	%	
Age	63.65	8.12	64.2	9.1	0.451
Male	157	66.0	279	73.0	0.071
BMI	24.5	4.0	23.8	3.8	0.025
LVEF < 30%	19	7.9	39	10.2	0.467
Left main disease	59	24.7	134	35.1	0.007
CAG time >30 days	163	68.2	191	50.0	< 0.001
Baseline hemoglobin, g/dL	12.3	1.6	12.3	1.8	0.771
Propofol-based anesthesia	121	50.6	188	49.2	0.742
Conventional CABG	144	60.2	211	55.2	0.304
Anastomosis 3-4	176	73.6	274	71.7	0.093
Bypass time, min	162.1	61.3	160.4	57.7	0.717
Cross clamp time, min	88.7	31.5	95.6	40.2	0.035
Red cell, %	190	79.5	302	79.1	0.905
Red cell, units	1.9	0.9	2.1	1.0	0.050
Extubation 6-24 h	155	64.9	244	63.9	0.175
ICU					0.400
KDIGO stage 1	14	5.9	30	7.9	
KDIGO stage 2	0	0	3	0.8	
KDIGO stage 3	0	0	1	0.3	
POD1					0.030
KDIGO stage 1	28	11.7	75	19.6	
KDIGO stage 2	3	1.3	9	2.4	
KDIGO stage 3	1	0.4	2	0.5	
POD2					0.007
KDIGO stage 1	26	10.9	75	19.6	
KDIGO stage 2	1	0.4	6	1.6	
KDIGo stage 3	1	0.4	4	1.0	
POD5-7					0.263
KDIGo stage 1	11	4.6	29	7.6	
KDIGO stage 2	2	0.8	8	2.1	
KDIGO stage 3	1	0.4	3	0.8	
Renal replacement therapy>7d	1	0.4	1	0.3	1.000
Reoperation stop bleeding	5	2.1	13	3.4	0.463
In hospital mortality	1	0.3	3	1.3	0.161
Hospital stay, day	11.4	6.2	12.4	6.5	0.068

2024-0109

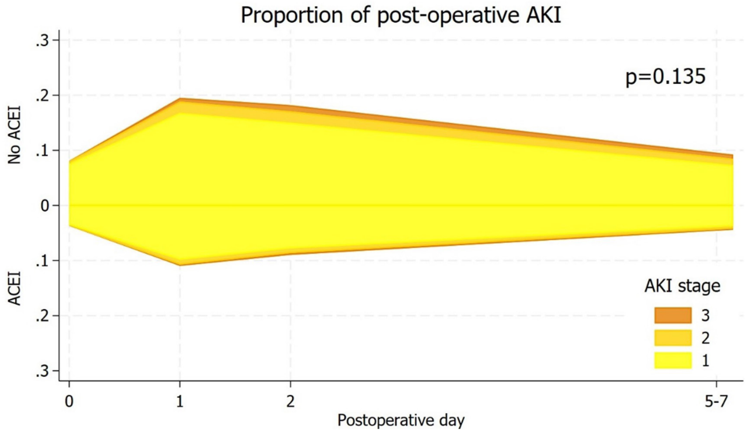
Figure & Table

Table 2. Multivariable multilevel ordinal logistic regression; adjusted by age, gender, body mass index, left main disease, left ventricular ejection fraction, catheterization date, bypass time, cross clamp time, procedure, anesthetic technique, anastomosis

	mOR	95% CI		p-value
		Lower	Upper	
No ACEI/ARB				
Day				
ICU	1.00	-	-	
POD1	3.92	2.08	7.38	<0.001
POD2	2.14	0.95	4.79	0.065
POD 5-7	0.20	0.06	0.68	0.010
Continued ACEI/ARB				
Day				
ICU	0.45	0.16	1.28	0.135
POD1	1.61	0.61	4.24	0.335
POD2	0.56	0.17	1.89	0.353
POD 5-7	0.04	0.01	0.26	0.001

mOR; multivariable ordinal odds ratio, CI; confidence interval, ACEI/ARB; angiotensin-converting enzyme inhibitor/ angiotensin receptor blocker

Figure. 1. Post-operative acute kidney injury



2024-0317

Assessment of Inferior vena cava distensibility index in patients undergoing general anesthesia

Soyombo Orsoo[1], Oyuntugs Byambasukh[2], Ganbold Lundeg[1*]

1. Critical Care and Anesthesia, School of Medicine of Mongolian National University of Medical Sciences, Mongolia
2. Department of Endocrinology, School of Medicine, Mongolian National University of Medical Science, Mongolia

Background

Ultrasonographic evaluation of the inferior vena cava diameter is a noninvasive, bedside, and objective method of detecting the volume status. The purpose of this study is to assess the predictive value, for fluid responsiveness of the inferior vena cava distensibility index in patients undergoing general anesthesia.

Methods

This a prospective observational study was conducted including 25 patients aged >18 years scheduled for elective surgery under general endotracheal anesthesia, from June to August 2023. Prior to being placed under general anesthesia, baseline parameters such as the systolic arterial pressure, diastolic arterial pressure, mean arterial pressure, heart rate and left ventricular outflow tract velocity time integral measured and were recorded before and after passive leg raise in the preoperative room. Patients with an increase in the velocity time integral >10%, induced by passive leg raise, were responders, otherwise they were classified as nonresponders. After general anesthesia maximum and minimum diameter of the inferior vena cava was assessed by ultrasonography according to the phases of the respiratory cycle in the supine position. After estimating the parameters, Inferior vena cava distensibility index was calculated using the equations (maximum IVC diameter – minimum IVC diameter) / (minimum IVC diameter) × 100. Statistical Package for the Social Sciences (SPSS) 26 was used for statistical analysis.

Results

We included a total of 23 patients. 5-chamber view was not visualized in two patients. The median age was 49 years old, with an 82.6% of women. Out of the remaining 23 patients, 20 (87%) patients were fluid responders and 3 (13%) were non-responders. The cut-off value for Inferior vena cava distensibility index as defined by the receiver operator characteristics curve (ROC) analysis was 21.3%, for which sensitivity, specificity, positive predictive value and negative predictive value were 100%, 67%, 95%, 100% respectively, the area under the curve was 0.88 (p<0.05).

Conclusion

The Inferior vena cava distensibility index is reliable indices of fluid responsiveness in patients undergoing general anesthesia.

2024-0044

Dexmedetomidine alleviates CoCl2-induced hypoxic cellular damages in INS-1 cells via regulating autophagy

Jin Ha Park[1,2*], Ju eun Oh[2]

1. Anesthesiology and pain medicine, Yonsei University College of Medicine, Republic of Korea
2. Anesthesia and Pain Research Institute, Yonsei University College of Medicine, Republic of Korea

Background

Ischemia-reperfusion (I/R) injury is inevitable during perioperative period. Autophagy is a self-digestion process and is upregulated during I/R injury. The pancreas is particularly vulnerable to I/R injury and the occurrence of acute pancreatitis induced by I/R injury can be lethal. The aim of this study is to determine whether dexmedetomidine may decrease cell injury by regulating autophagy in pancreatic β-cells under hypoxic condition.

Methods

A cobalt chloride (CoCl2)-induced hypoxia model of INS-1 cells were established to investigate whether dexmedetomidine reduces hypoxia-induced autophagy. CCK-8 assay and flow cytometry was used to examine cell viability and apoptosis. Autophagy and apoptosis-related protein expression was quantified by western blotting. To further investigate the effects of dexmedetomidine on autophagy, CoCl2-treated INS-1 cells were co-treated with 3-MA or z-VAD-FMK. Bafilomycin (Baf-A1) was used to confirm the changes in autophagic influx by dexmedetomidine, investigating the lysosomal turnover of LC3-II.

Results

Dexmedetomidine treatment alleviates CoCl2-induced hypoxic cellular damages in INS-1 cells. CoCl2-induced hypoxia decreased the expression of anti-apoptotic protein (Bcl-2) and increased the expression of autophagic proteins (ATG3,5,7,and beclin-1) and apoptotic proteins (p-BAD and BAX), which were attenuated by dexmedetomidine. Dexmedetomidine decreased autophagic influx mainly due to decreased autophagosome formation, as confirmed by co-treatment with Baf-A1, which inhibits autophagosome degradation.

Conclusion

Dexmedetomidine protected INS-1 cells against CoCl2-induced hypoxia by regulating autophagy.

2024-0243

Association between the first 12-hour postoperative central body temperature trajectory and acute kidney injury after valvular heart surgery

Jin Sun Cho[1], Young-lan Kwak[1*]

1. Department of Anesthesiology and Pain Medicine, Yonsei University College of Medicine, Republic of Korea

Background

Postoperative body temperature (BT) abnormalities are common after cardiac surgery and are associated with poor outcomes, including acute kidney injury (AKI). Most studies on this, however, have focused on the correlation between BT at a specific point in time or the occurrence of abnormal BT over a specified period with postoperative prognosis, while BT continues to fluctuate according to the patient's condition after surgery. This study investigated the patterns of postoperative BT changes after valvular heart surgery and their association with severe AKI.

Methods

In this retrospective cohort study, we reviewed data from 3,274 patients who underwent valvular heart surgery. Latrend cluster analysis was used to identify the first 12-hour postoperative BT trajectories, measured using a pulmonary artery catheter after arrival at the intensive care unit. The primary endpoint was the occurrence of stage 2–3 AKI diagnosed based on the Kidney Disease: Improving Global Outcomes (KDIGO) criteria, and its association with BT trajectory was evaluated using logistic regression analysis. Non-recovery AKI within 48 hours was also investigated.

Results

Four distinct BT trajectory classes were identified: Class 1 (normothermia [36.5–37.5°C] progressing to mild hyperthermia [≥ 37.5–38°C], 32.8% of patients); Class 2 (stable normothermia, 27.4%); Class 3 (mild hypothermia [36.0–36.5°C] progressing to normothermia, 24.4%); and Class 4 (moderate hypothermia [35.5–36.0°C] progressing to normothermia, 15.4%). The occurrence of stage 2–3 AKI was significantly higher in Class 4 (15.1%) compared to Class 1 (2.9%), Class 2 (3.9%), and Class 3 (4.8%) (P < 0.001). Non-recovery within 48 hours was also more frequent in Class 4 (17.1%) than in Class 1 (3.2%), Class 2 (6.1%), and Class 3 (6.0%) (P < 0.001). Multivariable logistic regression analysis showed that the Class 4 BT trajectory was an independent risk factor for stage 2–3 AKI and non-recovery AKI. Compared to Class 4, the adjusted odds ratios for stage 2–3 AKI were 0.39 (95% CI 0.24–0.65, P < 0.001) in Class 1, 0.36 (95% CI 0.22–0.59, P < 0.001) in Class 2, and 0.47 (95% CI 0.30–0.74, P = 0.001) in Class 3. EuroSCORE II, intraoperative erythrocyte transfusion, and preoperative eGFR were identified as independent factors associated with Class 4.

Conclusion

Postoperative blood BT trajectory classes were independently associated with the occurrence of severe AKI and non-recovery AKI within 48 hours after valvular heart surgery. Specifically, patients with initial moderate hypothermia (Class 4) were at the highest risk for severe AKI and delayed recovery, highlighting the critical importance of early postoperative temperature management.

2024-0243

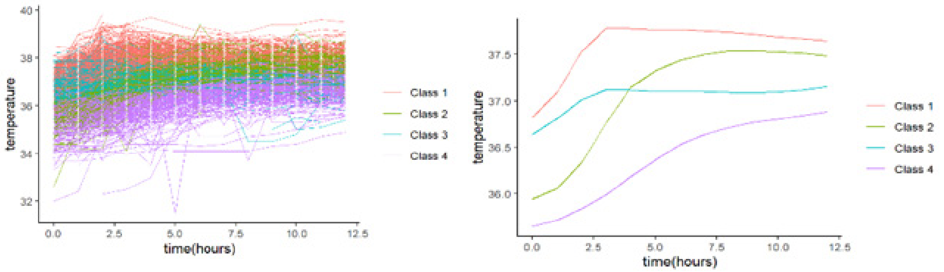
Figure & Table

Table 1. Postoperative acute kidney injury: occurrence, severity, and non-recovery by body temperature trajectory classes

	All (n = 3274)	Class 1 (n = 1075, 32.8%)	Class 2 (n = 897, 27.4%)	Class 3 (n = 798, 24.4%)	Class 4 (n = 504, 15.4%)	*P* value
AKI occurrence	722 (22.1%)	196 (18.2%)*	184 (20.5%)*	180 (22.6%)*	162 (32.1%)	<0.001
Severe AKI (stage 2–3)	180 (5.5%)	31 (2.9%)*	35 (3.9%)*	38 (4.8%)*	76 (15.1%)	<0.001
AKI severity						
Non-AKI	2552(77.9%)	879 (81.8%)	713 (79.5%)	618 (77.4%)	342 (67.9%)	<0.001
Stage 1	542 (16.6%)	165 (15.3%)	149 (16.6%)	142 (17.8%)	86 (17.1%)	
Stage 2	67 (2.0%)	24 (2.2%)	15 (1.7%)	20 (2.5%)	8 (1.6%)	
Stage 3	113 (3.5%)	7 (0.7%)	20 (2.2%)	18 (2.3%)	68 (13.5%)	
non-recovery within 48 h	223 (6.8%)	34 (3.2%)*	55 (6.1%)*	48 (6.0%)*	86 (17.1%)	<0.001
non-recovery within 72 h	165 (5.0%)	18 (1.7%)*	36 (4.0%)*	35 (4.4%)*	76 (15.1%)	<0.001

*, *P*<0.05 compared to Class 4

Figure 1.



2024-0046

Clinical Evaluation of the New Supraglottic Airway i-gel®Plus: a Single Prospective Observational Study

Ayaka Tani[1*], Toshiyuki Nakanishi[1], Atushi Ishikawa[1], Kei Matsumoto[1], Yuki Takami[1], Yuji Kamimura[1], Rina Kato[1],
Minhye So[1], Kazuya Sobue[1]

1. Department of Anesthesiology and Intensive Care Medicine, Nagoya City University Graduate School of Medical Sciences, Japan

Background

The i-gel® Plus is a novel supraglottic device that became available in Japan in December 2023. The i-gel Plus has a larger gastric channel and a longer cuff tip than the conventional i-gel®. An interim analysis of the European multicenter prospective observational study involving 1,000 patients reported that the oropharyngeal leak pressure (OLP) of the i-gel Plus was 32±7 cmH_2O, which was higher than the previously reported performance of other supraglottic devices. As the i-gel was developed by cadaveric studies in Europe and the USA, the i-gel Plus might not fit the Asian population. In addition, the effects of age and gender on the OLP of i-gel Plus are unknown. Our study aims to evaluate the clinical performance of i-gel Plus in older and non-older men and women in Japan.

Methods

After the approval by the institutional review board, we registered the study protocol in the Japan Registry of Clinical Trials. Written informed consent was obtained from all study participants. We included adult patients scheduled for surgery with the indication of a supraglottic device under general anesthesia. The study was conducted from March to June 2024. Patients were stratified into four groups according to gender (men; women) and age (non-older, age <70 years; older, age ≥70 years). Anesthesiologists with experience of conventional i-gel insertion in more than 20 cases placed the i-gel Plus. Another anesthesiologist recorded whether the placement was successful, placement time, OLP, and fiberoptic scores (whether glottis could be seen or not). Statistical analysis was performed using R ver. 4.4.0. Results were expressed as median [interquartile range] or proportion.

Results

We enrolled 67 patients, of whom, one older man was unable to ventilate due to poor fit, and two dropped out due to missing data. Finally, 64 patients (age 69 [55–77] years, 16 in each group) were analyzed. The initial success rate was 92% (including one patient who dropped out due to poor fit), the placement time was 23 [17–32] seconds, OLP was 24 [19–29] cmH_2O, and the vocal cords were visible with a fiberscope in 80% of cases. The OLP tended to be lower in men than women (Figure). Post-hoc analysis using the Mann-Whitney U test showed that the OLP was significantly lower in men than in women (20 [18–26] vs. 25 [22–31] cmH_2O, P = 0.027).

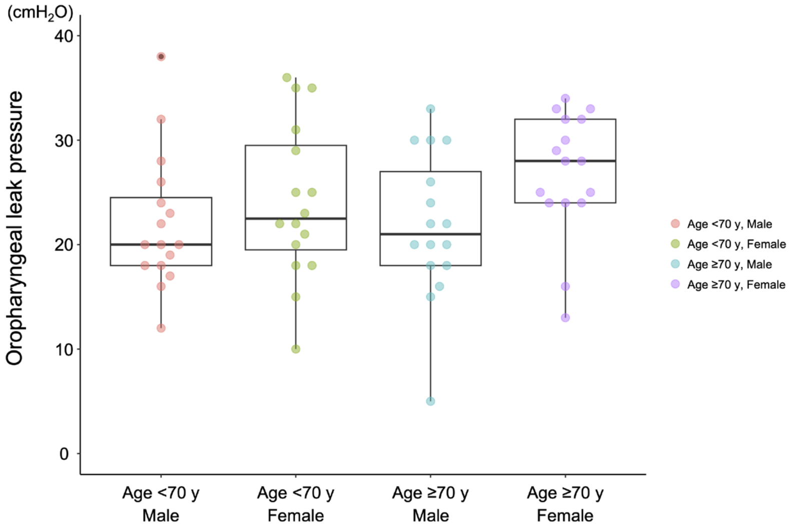
Conclusion

Our first clinical evaluation of i-gel Plus in Japan revealed a lower OLP than the interim analysis of the European multicenter study. This result suggests that the sealing performance of i-gel® Plus may not be as good, particularly in Asian men.

2024-0046

Figure & Table

Figure 1.



Competition
Presentation
E-Poster

2024-0262

Effect of Remimazolam on Non-Intubated Video-Assisted Thoracoscopic Surgery

Po-yu Huang[1*]

1. Anesthesia, Taipei Veterans General Hospital, Taiwan, China

Background

Non-intubated video-assisted thoracoscopic surgery (NIVATS) offers a safe alternative to traditional intubation, reducing airway risks and speeding recovery. While propofol is commonly used, its respiratory depression risk requires careful titration. Remimazolam, with rapid onset, quick recovery, and stable respiratory and cardiovascular profile, is a promising alternative. This study compared the safety and efficacy of remimazolam and propofol in NIVATS by evaluating changes in PaCO2, surgery duration, anesthesia duration, and hospital stay.

Methods

This retrospective cohort study at Taipei Veterans General Hospital, Taiwan, evaluated propofol versus remimazolam in NIVATS. After IRB approval, patients were divided into two groups: propofol group (41 patients) and remimazolam group (21 patients). Exclusion criteria included central lung lesions, severe adhesions, airway comorbidities, morbid obesity, and anatomical deformities. All surgeries were performed by the same surgeon, using transnasal humidified rapid-insufflation ventilatory exchange for respiratory support.

Anesthesia was maintained with either propofol or remimazolam, both combined with dexmedetomidine. Remimazolam was administered as a 2.5-5 mg bolus, followed by a 0.10-0.2 mg/kg/h infusion. Pain was managed with a thoracic epidural or paravertebral block, and cough suppression with xylocaine. After resection, an intercostal nerve block was administered, and a chest tube connected to the Thopaz digital chest drainage system.

Results

PaCO2 increase was significantly lower in the remimazolam group (6.84 ± 6.01 mmHg) compared to the propofol group (14.42 ± 11.55 mmHg, p = 0.0113). Surgery duration was significantly shorter with remimazolam (50.19 ± 26.12 minutes) than with propofol (83.54 ± 24.86 minutes, p < 0.001). Although anesthesia duration was slightly shorter with remimazolam (101.67 ± 24.46 minutes) compared to propofol (110.61 ± 25.48 minutes), the difference was not statistically significant. The postoperative hospital stay was shorter with remimazolam (1.38 ± 0.50 days) than with propofol (1.83 ± 0.83 days, p = 0.0274).

Conclusion

Remimazolam shows non-inferiority to propofol in terms of anesthesia duration, surgery duration, and postoperative hospital stay in NIVATS. Moreover, remimazolam is associated with a smaller increase in PaCO2, indicating superior respiratory stability. These findings support remimazolam as a viable alternative to propofol. Future prospective studies are needed to confirm these results and explore remimazolam's benefits across various surgical settings.

Competition
Presentation
E-Poster

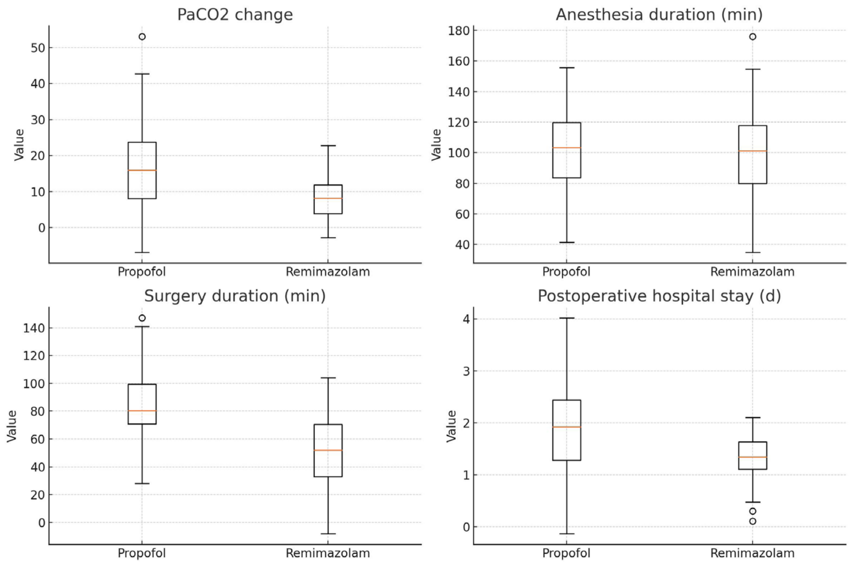
2024-0262

Figure & Table

Table 1. Remimazolam vs Propofol

	Remimazolam (mean ± std)	Propofol (mean ± std)	p-value
PaCO2 change	6.84 ± 6.01	14.42 ± 11.55	0.0113*
Anesthesia duration (min)	101.67 ± 24.46	110.61 ± 25.48	0.1900
Surgery duration (min)	50.19 ± 26.12	83.54 ± 24.86	p < 0.001*
Postoperative hospital stay (d)	1.38 ± 0.50	1.83 ± 0.83	0.0274*

Figure1. Remimazolam vs Propofol Boxplots High Res



2024-0013

Airway management in submandibular abscess patient: Sharing experience with 20 cases from a single tertiary center

Akita Yvonne Koh[1*]

1. Anesthesia & Intensive Care, Queen Elizabeth Hospital, Malaysia

Background

Skillful airway management is critical in deep neck infections. Any flaw in airway management can lead to grave mortality and morbidity. The objective of this study is to review the current airway management practices and assess their safety and efficacy in patients presenting with submandibular abscess.

Methods

A retrospective observational study involving 20 patients diagnosed with submandibular abscess undergoing emergency surgical drainage under general anesthesia at Queen Elizabeth Hospital between year 2022-2023. The factors recorded for each patient were age, gender, presence of trismus, methods used to secure airway, any adverse events during airway management as well as need of post operative ventilation.

Results

20 patients presented with submandibular abscess with majority are males,13(65%). 11 patients (55%) diagnosed with submandibular abscess; 9 patients (45%) diagnosed with submandibular abscess and impending Ludwig angina. Trismus was present in 15 patients (75%).4 different methods of inductions were used, including gas induction in 8 patients (40%), total intravenous anesthesia (TIVA) induction in 5 patients (25%), target controlled infusion (TCI) Remifentanil induction in 2 patients (10%), and Intravenous dexmedetomidine infusion in 5 patients (25%). 4 methods were used in intubation, including asleep video laryngoscope (VL) in 10 patients (50%), awake VL in 2 patients (10%), asleep fiberoptic intubation (FOI) in 2 patients (10%), awake FOI in 7 patients (35%). Among the 7 awake FOI patients, 2 patients induced with TCI remifentanil (28.5%), 5 patients induced with Intravenous dexmedetomidine(71.4%) with all 2 patients that undergone asleep FOI induced under TIVA. Adverse events occurred in 9 patients (45%), including total 8 patients with hypotension (40%) and desaturation in 5 patients (25%). Postoperative ventilation was required in 5 patients (25%) due extensive nature of operation with no mortality reported. None of the patients required tracheostomy.

Conclusion

In our setting, awake fiberoptic intubation (FOI) with intravenous dexmedetomidine infusion is the safe and preferred method to apply in airway management for patients with trismus. In some cases, asleep fiberoptic intubation with spontaneous ventilation was applied to enhance patients' comfort. The use of video laryngoscope (VL) is also another useful and effective method in managing this population patients. We also do utilize the newer developments of awake video laryngoscopy due to the greater familiarity and confidence in VL for use in asleep patients that led to it's recognition as an alternative approach in difficult airway management. In the future, newer modalities like video assisted fiberoptic intubation(VAFI) might be further explored to further improve our airway management.

2024-0013

Figure & Table

Figure 1.

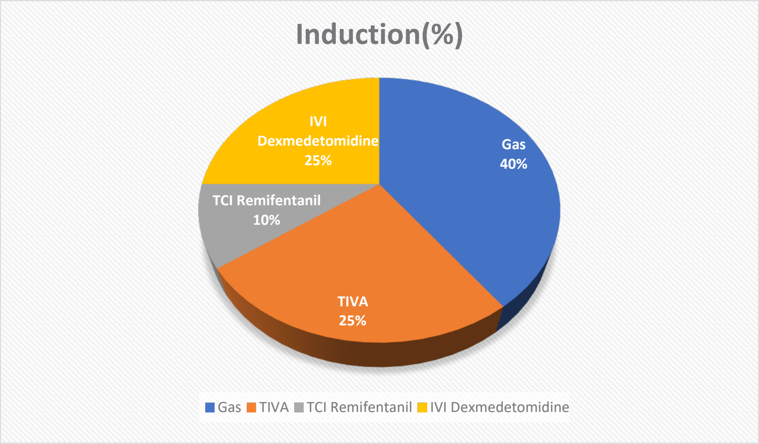
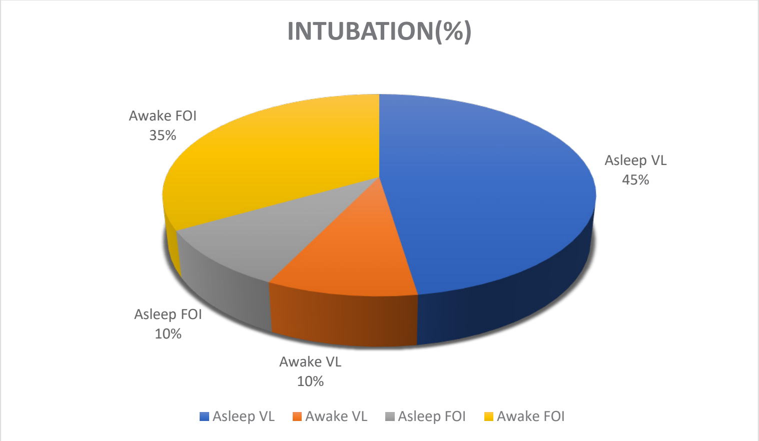


Figure 2. INTUBATION METHODS



2024-0019

Alarming Moment: Tearing the Cuff Is Not The Only Thing A Nasal Spur Can Do

He Ma[1,2*], Jingping Wang[2]

1. Department of Anesthesiology, the Second Hospital of Jilin University, China
2. Department of Anesthesia, Critical Care and Pain Management, Massachusetts General Hospital, Harvard Medical School, USA

Background

Nasotracheal intubation is frequently applied in otolaryngologic surgeries. However, it leads to the increased risk of cuff damage, which may be attributed to nasal deformities such as nasal spur.

Methods

We present a unique case report of cuff damage caused by nasal spur, which was accompanied by airway bleeding, hypoxemia, and atelectasis, and meanwhile review the recent literature on this topic.

Results

Through this case report and review of literature, we highlight the unforeseen complications of cuff damage caused by nasal spur, including airway bleeding, hypoxemia, and atelectasis during nasotracheal intubation. Of note, patients who have not previously experienced the above-mentioned conditions are still at high risk of developing these complications.

Conclusion

Cuff rupture during nasal intubation may bring about serious complications and thereby requires careful management. Regarding the detrimental consequences of cuff rupture, many complementary strategies are used to minimize the risk of its complications if it does occur. More effective approaches are needed to develop to reduce the risk of cuff rupture as well as improve airway management, especially for those patients with nasal spur.

2024-0024

Thromboelastography 6s CFF-MA as a Predictor of Perioperative Blood Loss in Orthopedic Surgery of Femur Fracture in Elderly: Prospective Observational Study

Hae Wone Chang[1*], Hyoseok Kang[1], Wan Kim[1]

1. Anesthesiology and Pain Medicine, Nowon Eulji University Hospital, Republic of Korea

Background

Hidden blood loss is major cause of blood loss in femur fracture patient and uncompensated anemia may lately occur in critically ill elderly patients [1]. This prospective observational study evaluated if thromboelastography 6s (TEG 6s) citrated functional fibrinogen maximum amplitude (CFF MA) could act as predictor of significant perioperative blood loss in elderly patients undergoing orthopedic surgery of femur fracture.

Methods

We recruited 50 consecutive elderly patients over the age of 65 undergoing surgery after femur fracture, under general or spinal anesthesia scheduled for planned admission to intensive care unit, had blood samples taken pre-operative as well as postoperative (20 min after arrival at intensive care unit (ICU)) for TEG 6s and laboratory tests. We evaluated determined cutoff value of pre and postoperative CFF MA could identify significant perioperative blood loss, which is estimated using Mercuriali's formula at 3rd day after operation.

Results

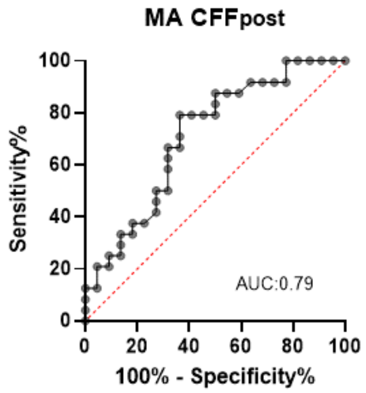
In this small cohort, median perioperative blood loss was 863 ml (IQR; 560-1280), and postoperative CFF MA cut off value 19.1 mm can indicate significant perioperative blood loss (>850 ml) [Area under the receiver operating curve (AUC) 0.792, P=0.007, 95% confidence interval: 0.60-0.91)] This value had a sensitivity 79.2 and specificity 63.6%.

Conclusion

The TEG 6s CFF MA value could be used to identify massive perioperative blood loss critically ill elderly patients with femur fracture faster than conventional laboratory coagulation test. Future clinical study should investigate whether cut off value guided transfusion protocol may improve patient postoperative outcome.

Figure & Table

Figure 1.



2024-0025

Studying efficacy of lipsense device after day care elective surgery: A randomized controlled trial

Vikas Saini[1*], Alisha Goel[1]

1. Anaesthesia and Intensive care, Postgraduate institute of medical education and research, Chandigarh, India

Background
Post operative thirst and oral dryness after general anesthesia is a familiar issue encountered in the post anaesthesia care unit; equally distressing for the patient and the staff who fear aspiration.The Lipsense device (Coolsense ltd, Tel Aviv, Israel) is a novel device which allows controlled delivery of water to relieve thirst and oral dryness. We hypothesized lipsesne will prove to be effective to decrease thirst and oral dryness and improve overall patient and care giver satisfaction.

Methods
This was a prospective randomized controlled study conducted in 120 adult patients, equally divided into 3 groups receiving Lipsense; wet gauge and no intervention, undergoing daycare surgeries under general anaesthesia and complaining of post operative thirst. Numerical rating scores of thirst and oral dryness were measured at 0,1,2,3 hrs of post operative period by an independent observer.

Results
The mean difference in intensity scores. from baseline till the end of 3 hours was greater in the Lipsense group being 4.12, 4.26 than in the wet gauge group, being 2.92, 2.82 for thirst intensity (1-10) and oral dryness (1-10) respectively. Lipsense resulted in a greater reduction, i.e. 72% as compared to our hypothesis of 35% reduction. Wet gauge resulted in a 46% reduction in thirst intensity.

Conclusion
Lipsense is an effective device to reduce post-operative thirst and oral dryness with minimal side effects in comparison to wet gauge or no intervention in patients after general anesthesia.

2024-0025

Figure & Table

Figure 1. lipsense

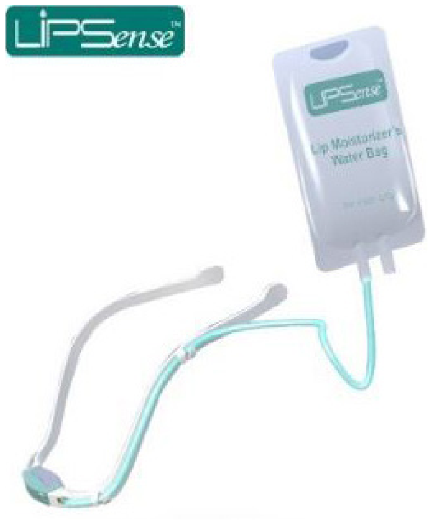
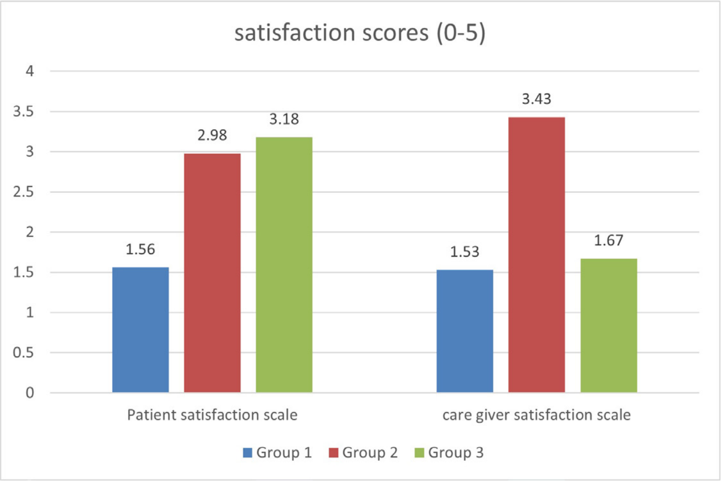


Figure 2. Lipsense satisfaction



2024-0026

Perioperative opioid consumption and post operative neurocognitive dysfunction in elderly patients undergoing laparoscopic surgeries: An observational study

Dipayan Mistry*, Puneet Khanna[1], Nitin Choudhary[1]

1. Department of Anesthesiology, Pain Medicine and Critical Care, All India institute of medical sciences, New Delhi, India

Background

Opioids are essential component of balanced anesthesia with significant role in the successful management of intraoperative and postoperative pain. But lately there have been growing concerns regarding the adverse effects of opioids on postoperative cognitive outcome with higher postoperative morbidity show that significant cognitive impairment is associated with parenterally administered opioids and that these decrements are dose related.

Methods

In this regard, a study was conducted on 100 patients above 60 years age of either sex belonging to American Society of Anaesthesiologist's (ASA) physical status I-III undergoing laparoscopic surgery lasting more than 60 minutes. The postoperative cognitive dysfunction (POCD) of these patients were assessed using Addenbrooke Clinical Examination (ACE-III) questionnaire at the end of 48 hours and at 30 days of surgery along with correlating it with the total amount of opioids used intraoperatively and post operatively. POCD was defined as postoperative ACE-III score of less than 83 and score between 83-87 is taken as inconclusive. Since two different opioids have been used for surgeries, equianalgesic doses of morphine equivalents have been used in our analysis (10 mg morphine is considered equivalent to 100 mcg of fentanyl).

Results

In this study, we found no significant positive or negative correlation between the POCD and opioid consumption however, there was a clinically significant difference in the presence of POCD 30 days post-surgery with morphine plus fentanyl compared to fentanyl alone, as observed in Table 1 and 2.The patients who received morphine did not have clinically significant effect on incidence of POCD 24 hours postoperatively(p=0.139) but significant difference was observed in incidence of POCD 30 days postoperatively.(p=0.00)

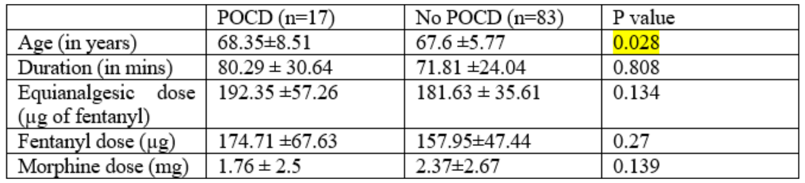
Conclusion

While no significant correlation was found between overall opioid consumption and POCD, the differential effects observed with morphine plus fentanyl compared to fentanyl alone warrant further investigation. These findings underscore the need for personalized approaches to pain management in the perioperative setting, taking into account factors such as opioid type and patient characteristics.

2024-0026

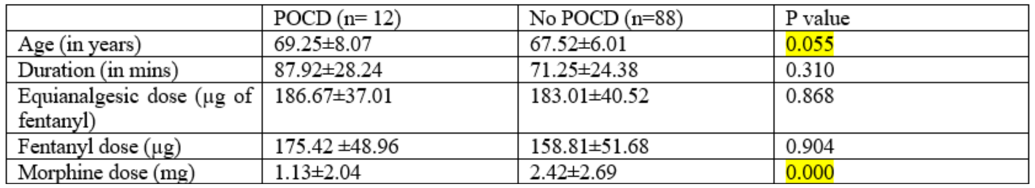
Figure & Table

Table 1. Comparison of POCD and none POCD (ACE Ⅲ < 83) 24 hours postoperatively



	POCD (n=17)	No POCD (n=83)	P value
Age (in years)	68.35±8.51	67.6 ±5.77	0.028
Duration (in mins)	80.29 ± 30.64	71.81 ±24.04	0.808
Equianalgesic dose (µg of fentanyl)	192.35 ±57.26	181.63 ± 35.61	0.134
Fentanyl dose (µg)	174.71 ±67.63	157.95±47.44	0.27
Morphine dose (mg)	1.76 ± 2.5	2.37±2.67	0.139

Table 2. Comparison of POCD and none POCD (ACE Ⅲ < 83) 30 days postoperatively



	POCD (n= 12)	No POCD (n=88)	P value
Age (in years)	69.25±8.07	67.52±6.01	0.055
Duration (in mins)	87.92±28.24	71.25±24.38	0.310
Equianalgesic dose (µg of fentanyl)	186.67±37.01	183.01±40.52	0.868
Fentanyl dose (µg)	175.42 ±48.96	158.81±51.68	0.904
Morphine dose (mg)	1.13±2.04	2.42±2.69	0.000

2024-0028

Ex-Utero Intrapartum Therapy (EXIT) Procedures: A Comprehensive Case Series and Anesthesia Analysis in Pediatric and Obstetric Practice in Hospital Tunku Azizah, Malaysia.

Kishorkumar Mahandran[*], Thohiroh Abdul razak[1], Intan zarina Fakir mohamed[1], Khoo Boo hooi[1], Nora Azura dintan[1], Rahimah Abdul rahim[1], Khairunnisa Nadhira talib[1], Benny Lim yen huei[1]

1. Anaesthesia and Intensive Care, Department Of Anaesthesia & Intensive Care, Hospital Tunku Azizah, Kuala Lumpur, Malaysia

Background

The ex utero intrapartum treatment (EXIT) procedure is a unique surgical technique that maintains uteroplacental circulation during a cesarean section, allowing for therapeutic intervention on the fetus while still maintaining uteroplacental perfusion. It is invaluable for managing fetuses with airway-obstructing congenital anomalies, such as congenital neck or mediastinal masses or Congenital High Airway Obstruction Syndrome (CHAOS). This case series highlights the unique practices and protocols developed for the EXIT procedure at our center, showcasing the specific techniques and strategies tailored to enhance outcomes.

Methods

Clinical data for this case series were collected from anesthesia records, operative notes, and clinical progress notes at Hospital Tunku Azizah in Kuala Lumpur from 2019 to 2024. Nine EXIT procedure cases were identified, reviewed, and analyzed to compare our practices and outcomes with those of other institutions.

Results

Between 2019 and 2024, our center conducted 12 EXIT procedures. We meticulously documented preoperative and demographic data, including maternal details and fetal diagnosis. Airway securing methods varied, including direct intubation, bronchoscopy-guided intubation, and tracheostomy, with corresponding fetal outcomes recorded. Preparation commenced with multidisciplinary discussions ensuring safety for mother and fetus. Following aspiration prophylaxis, invasive lines and cannulas were inserted pre-induction. General anesthesia induction utilized rapid sequence induction, with sevoflurane maintenance and hemodynamic stabilization via noradrenaline infusion. Uterine relaxation was maintained with high MAC values, and oxytocin was administered post-delivery. Upon fetal delivery, pulse oximetry and cannulas were secured for airway assessment and intubation, either via direct laryngoscopy or rigid bronchoscopy. Fentanyl was administered for analgesia, with muscle relaxants sparingly used. Out of 9 fetuses, only one fatality occurred, highlighting the procedure's overall success.

Conclusion

In summary, our experience demonstrates that with the appropriate anesthetic and obstetric management, the EXIT procedure can be performed with a high success rate and minimal complications. These findings have significant implications for both obstetric and pediatric anesthesia practices, offering a robust framework for managing similar cases and potentially guiding improvements in clinical protocols across other centers.

2024-0031

Monocyte distribution width (mdw) in detection of sepsis in critically ill patients

Ki yang Soo[1*], Azrina Binti md. ralib[2], Jerry ee siung Liew[3]

1. Anaesthesiology and Critical Care, Hospital Queen Elizabeth II, Malaysia
2. Anaesthesiology and Critical Care, International Islamic University Malaysia, Malaysia
3. Pharmacy, Hospital Queen Elizabeth I, Malaysia

Background

Sepsis is the leading cause of admission in the intensive care unit (ICU) and one of the leading causes of hospital mortality in Malaysia. Delayed recognition of sepsis leads to increased morbidity and mortality. As infection progress to sepsis, the size of white blood cells increases. Monocyte distribution width (MDW) represents the width of a set of monocyte volume values, as a standard deviation. This study validates the diagnostic accuracy of MDW alone and in combination with white blood count (WBC) for early detection of sepsis upon admission to ICU.

Methods

This was a prospective cohort study, where 100 patients were categorized into sepsis or non-sepsis according to Sepsis-3 definition. MDW and WBC which are included in complete blood count (CBC) were collected on admission to ICU, day-1, day-2 and day-3. Patients were subsequently reviewed for evidence of sepsis during the first 3 days of ICU stay.

Results

The area under curve (AUC) for MDW in the detection of sepsis was 0.86 (95% CI, 0.77-0.94), which was higher than in combination with WBC (AUC 0.82, 95% CI 0.74-0.91), with a cut-off threshold at 21.16 (95% CI, 18.38-23.93). MDW has a high sensitivity of 92.4% (95% CI, 83.2%-97.5%) but specificity of only 64.7% (95% CI, 46.5%-80.3%). Positive predictive value and negative predictive value were 83.6% (95% CI, 73%-91.2%) and 81.5% (95% CI, 61.9%-93.7%) respectively. MDW in sepsis group dropped from 28.38 (95% CI, 26.75-30.01) to 26.64 (95% CI, 25.09-28.19) from day-1 to day-3.

Conclusion

MDW is an effective screening tool in detection of sepsis upon admission to ICU. As a differential in CBC, MDW makes a cost effective test at present. Early detection of sepsis allows initiation of sepsis care bundle yielding better clinical outcome.

2024-0031

Figure & Table

Figure 1. AUC of MDW and Estimation of Cut-off Threshold based on Youden Index

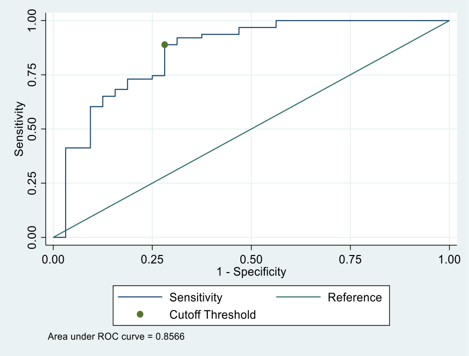


Figure 2. Comparison of AUC between ROC Curve MDW and WBC

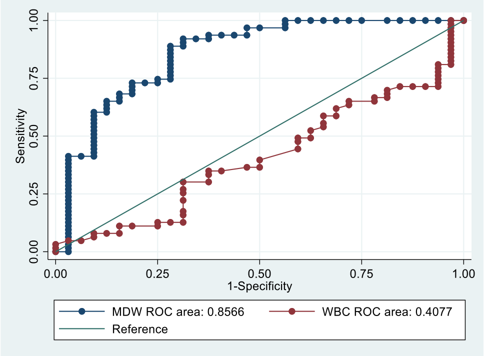


Table 1. Predicted Sepsis based on Youden Index and True Disease Status

True Disease Status on Admission	Sepsis based on Youden Index Sepsis	 Non-Sepsis	Total
Sepsis	61	5	66
NonSepsis	12	22	34
Total	73	27	100

Table 2. Sensitivity, Specificity, PPV and NPV of MDW in Sepsis Detection

	Estimate	95% CI
Prevalence of sepsis upon ICU admission	66.0%	56.0,75.2
Sensitivity	92.40%	83.2%, 97.5%
Specificity	64.70%	46.5%, 80.3%
Positive Predictive Value	83.60%	73%, 91.2 %
Negative Predictive Value	81.50%	61.9%, 93.7%

Table 3. AUC of MDW, WBC and MDW+WBC in Sepsis Detection upon ICU Admission (n=95)

Parameter	AUC
MDW	0.86 (0.77-0.94)
WBC	0.41 (0.29-0.53)
MDW+WBC	0.82 (0.74-0.91)

Table 4. Comparison between MDW, WBC and MDW+WBC in Sepsis Detection (n=95)

Parameter	χ^2 statistic (df)	p-value
MDW vs WBC	26.26 (1)	0.0000
MDW vs MDW+WBC	0.74(1)	0.3882

Figure 3. Comparison of AUC between ROC Curve MDW and MDW+WBC

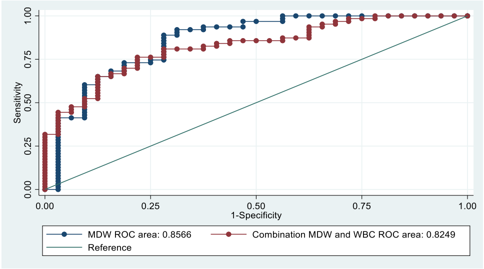


Table 5. MDW Changes between Sepsis and Non-Sepsis after ICU Admission (n=84)

Group	Time	Estimated Mean	95% *CI*	p value
Sepsis	Day 1	28.38	26.75,30.01	<0.001
	Day 2	28.34	26.50,30.19	<0.001
	Day 3	26.64	25.09,28.19	<0.001
Non-Sepsis	Day 1	21.79	19.42,24.16	<0.001
	Day 2	22.59	19.53,25.65	<0.001
	Day 3	24.15	21.25,27.05	<0.001

Linear Mixed Model with 95% Confidence interval

Table 6. Pair Wise Comparison of MDW level (n=84)

Pair	Sepsis Mean difference	 95% CI	 p value	Non-Sepsis Mean difference	 95% CI	 p value
D2 vs D1	-0.03	-1.43, 1.36	0.964	0.81	-1.74, 3.35	0.535
D3 vs D1	-1.73	-3.29,-0.18	0.028	2.35	-0.55, 5.27	0.113

2024-0032

Videolaryngoscopy versus Direct Laryngoscopy in Class 2 and 3 Obesity: A Systematic Review, Meta-analysis and Trial Sequential Analysis

Alyssa Chiew[1], Zhi jie Goh[3*], Aaron Ang[3], Si-xian nicole Ang[3], Shermaine See[3], Jinbin Zhang[2], Kumaresh Venkatesan[1]

1. Department of Anaesthesia, Khoo Teck Puat Hospital, Singapore
2. Department of Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore
3. School of Medicine, Lee Kong Chian School of Medicine, NTU Singapore, Singapore

Background

Morbid obesity with a body mass index (BMI) over 35 kg/m^2 poses significant challenges for anaesthesia and surgery. This group of patients faces increased airway complications such as delay in intubation, risk of hypoxaemia from poorer laryngeal view during intubation. Increased adipose tissue deposition in the pharynx, larger tongue and tonsils make direct laryngoscopy (DL) more challenging due to the narrowed oropharyngeal space for manipulation of the laryngoscope. Videolaryngoscopes (VL) have been reported to improve laryngeal visualisation and may be beneficial for intubating this group of patients. However, the usage of VL also poses challenges for intubation, as reliance on video monitors may lead to a loss of depth perception. The aim of this systematic review is to summarise the current evidence on the benefits and risks of VL over DL in morbidly obese patients.

Methods

We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and a priori registered with PROSPERO (CRD42023428419). Five databases (Medline via PubMed, Cochrane, Embase, Web of Science, Cumulative Index to Nursing & Allied Health Literature) were searched for randomised controlled trials (RCTs) comparing laryngoscopy performed with VL against DL in morbidly obese adult patients undergoing elective general surgery from 1 Jan 2008 to 21 April 2023. Keywords included “Morbid obesity”, “Laryngoscopy”, and “Intubation”. Reference lists of included articles were also manually searched for relevant studies. Exclusion criteria involved non-RCTs, or studies not published in English. Relevant data was extracted and analysed. Risk of bias was evaluated using the Cochrane Risk of Bias 2 tool, and certainty of evidence was appraised using the GRADE approach.

Results

A total of 10 RCTs were included involving 955 patients (481 VL; 474 DL). VL significantly reduced the failed intubation rate (7 studies, RR 0.21, 95% CI 0.08 to 0.55, p=0.001, low certainty), and the incidence of hypoxaemia (7 studies, RR 0.22, 95% CI 0.11 to 0.45, p<0.0001, moderate certainty) as well as significantly improving glottic visualisation (9 studies, RR 0.22, 95% CI 0.11 to 0.44, p<0.0001, low certainty). However, there was no significant difference observed in the time to intubation (10 studies, MD -9.31 seconds, 95% CI -22.48 to 3.87, p=0.17, low certainty), and the first intubation success rate (7 studies, RR 1.07, 95% CI 0.99 to 1.16, p=0.14, moderate certainty)

Conclusion

Other studies investigating the use of VL report conflicting recommendations on the use of VL for different patient groups. Usage of VL allows the narrowed oropharyngeal space in morbidly obese patients to be bypassed due to the location of the camera at the end of the blade. This improves glottic visualisation, which in turn may translate to a higher success rate in intubation and reduced complications such as hypoxaemia. Based on the available evidence, clinicians might benefit from the safer risk profile use of VL compared to DL in adult patients with morbid obesity undergoing tracheal intubation.

2024-0033

Nausea and Vomitting with Gadolinium Contrast in MRI and its Impact on Anesthesia Practice

Thao Bui[1*]

1. Anesthesiology, MD Anderson Cancer Center, USA

Background

Adverse reactions such as nausea and vomiting are common following the administration of gadolinium-based contrast agents (GBCAs) during MRI procedures. These reactions pose significant challenges in the management of anesthesia due to the risk of aspiration, which can cause catastrophic morbidity and mortality. Awareness and appropriate management strategies are crucial to mitigate these risks and ensure patient safety. This report presents two clinical cases highlighting the occurrence of these adverse reactions and discusses strategies to minimize these risks during anesthesia.

Methods

In the first case, a patient experienced vomiting under LMA (laryngeal mask airway) anesthesia after contrast administration during an MRI procedure. Despite premedication with antiemetics, the patient vomited, leading to the abortion of the study. The patient was managed appropriately, suffering several days of self-limited pulmonary sequelae, including oxygen desaturation. In the second case, another patient experienced vomiting under sedation post-contrast during a prone breast MRI. This study was also aborted, but the patient was managed effectively and suffered similar pulmonary sequelae. On subsequent MRI procedures, awareness of the risk led to modified anesthesia management to mitigate the side effects of GBCAs.

Results

First-time patients or those switched to a different contrast agent frequently experience nausea and vomiting. Currently, our institution employs Gadovist for most MRIs, while Vueway is preferred for repeat MRIs within a short timeframe due to its reduced renal impact. The most common side effects of GBCAs include hives and rash, but nausea and vomiting are also significant concerns. According to a 2016 review, the incidence of nausea is 4.48% with MultiHance, and the incidence of vomiting is 2.36% with Magnevist and Gadovist.

These cases underscore the need for vigilance and proactive management strategies. Awareness of the risk of nausea and vomiting associated with GBCAs can significantly influence anesthesia management and improve patient safety. The implementation of a comprehensive premedication protocol is essential to mitigate these adverse reactions. This protocol should include steroids, Benadryl, Pepcid, and Zofran to reduce the incidence of nausea and vomiting. For patients undergoing MRI with LMA anesthesia, gastric contents can be suctioned out after LMA placement to minimize the risk of aspiration. In prone patients, successful intubation to protect the airway and careful management can prevent complications and ensure patient safety.

Recommendations: To mitigate these adverse reactions, a comprehensive premedication protocol including steroids, Benadryl, Pepcid, and Zofran should be used. For patients undergoing MRI with LMA anesthesia, gastric contents should be suctioned out after LMA placement. Prone patients should be successfully intubated to protect the airway and managed without further complications. These incidents highlight the persistent risk of nausea and vomiting associated with MRI contrast agents. Awareness and anticipation of these side effects can significantly influence anesthesia management and patient safety.

2024-0034

The safety of norepinephrine versus phenylephrine in the treatment of post-spinal hypotension in parturients undergoing cesarean section: A systematic review & meta-analysis

Alexandra Christine Lao[1*], Mark anthony Castillejos[1]

1. Department of Anesthesiology, St. Luke's Medical Center, Philippines

Background

Hypotension, common in parturients undergoing cesarean section under subarachnoid block, is a detriment to fetal and maternal safety during delivery and thus can be managed by the use of vasopressors. Phenylephrine is a widely accepted vasopressor for the treatment of post-spinal hypotension. However, there is an increasing roster of studies focused on the benefit of norepinephrine as an alternative as it was found to cause less hypotensive episodes and less bradycardia. This subsequently maintains maternal cardiac output and improves placental perfusion consequently improving fetal status. This study compares the safety and efficacy of phenylephrine and norepinephrine in the treatment of maternal hypotension caused by the subarachnoid block. Efficacy is defined as a lower incidence of hypotension as found in the given studies.

Methods

A comprehensive systematic search through PubMed, clinicaltrial.gov, and Cochrane Library was performed to include randomized control trials spanning from August 2022 to February 2024 with the following PICO criteria: The study population included ASA 2-3 gravid patients scheduled for elective cesarean section under spinal anesthesia. The intervention parturients were exposed to was norepinephrine compared to phenylephrine. The primary outcome pertained to the incidence of bradycardia. Secondary outcomes included incidences of hypotension, nausea and vomiting.

Results

This study included 3 randomized control trials with 406 parturients undergoing cesarean section under subarachnoid block. In the treatment of post-spinal hypotension, a significant decrease in the incidence of bradycardia was found in the norepinephrine group with a risk ratio (RR) of 0.67 (95% CI 0.48-0.95; $p = 0.02$; $I2 = 10\%$) compared to the phenylephrine group. However, both the incidence of hypotension (RR 1.07; 95% CI 0.71-1.61; $p = 0.74$; $I2 = 0\%$) as well as the incidence of nausea and vomiting (RR 1.17; 95% CI 0.74-1.87; $p = 0.35$; $I2 = 6\%$) showed no significant difference between the two groups.

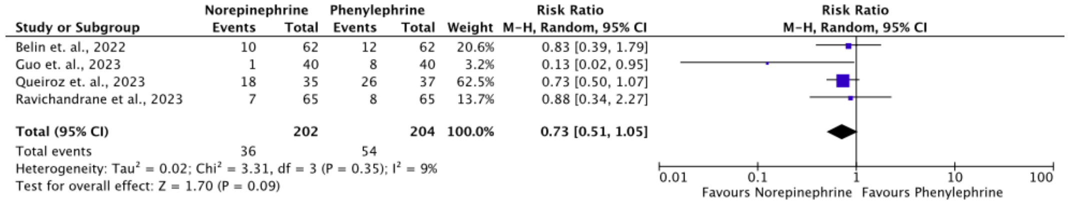
Conclusion

Among parturients undergoing cesarean section under a subarachnoid block, both medications effectively managed hypotension and alleviated nausea and vomiting. However, norepinephrine resulted in a lower incidence of bradycardia, which this study found to be statistically significant due to a risk ratio of 0.67 with minimal heterogeneity. This study concludes that although both medications effectively control hypotension, nausea, and vomiting in this group, norepinephrine demonstrates a superior safety profile compared to phenylephrine mainly due to its ability to reduce the occurrence of bradycardia. Therefore, the use of norepinephrine maintains maternal cardiac output as well as uterine perfusion to the fetus in women undergoing cesarean sections with a subarachnoid block.

2024-0034

Figure & Table

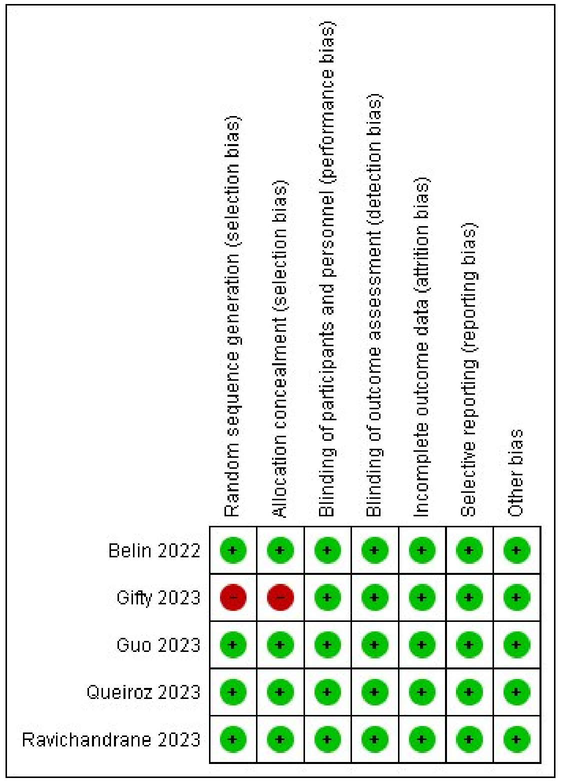
Table 1. Forest Plot Bradycardia



	Norepinephrine		Phenylephrine			Risk Ratio
Study or Subgroup	**Events**	**Total**	**Events**	**Total**	**Weight**	**M-H, Random, 95% CI**
Belin et. al., 2022	10	62	12	62	20.6%	0.83 [0.39, 1.79]
Guo et. al., 2023	1	40	8	40	3.2%	0.13 [0.02, 0.95]
Queiroz et. al., 2023	18	35	26	37	62.5%	0.73 [0.50, 1.07]
Ravichandrane et al., 2023	7	65	8	65	13.7%	0.88 [0.34, 2.27]
Total (95% CI)		**202**		**204**	**100.0%**	**0.73 [0.51, 1.05]**
Total events	36		54			

Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 3.31$, $df = 3$ ($P = 0.35$); $I^2 = 9\%$
Test for overall effect: $Z = 1.70$ ($P = 0.09$)

Figure 1. ROB Summary



	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Belin 2022	+	+	+	+	+	+	+
Gifty 2023	−	−	+	+	+	+	+
Guo 2023	+	+	+	+	+	+	+
Queiroz 2023	+	+	+	+	+	+	+
Ravichandrane 2023	+	+	+	+	+	+	+

2024-0035

Anesthetic management of an adult patient with vocal fold immobility undergoing medialization thyroplasty under monitored anesthesia care with mild sedation using dexmedetomidine in the philippines: a case report

Pristine joy Polido[1*], Fideliz Gutierrez[1]

1. Department of Anesthesiology, St. Lukes Medical Center, Philippines

Background

Unilateral vocal cord paralysis presents with hoarseness of voice and difficulty swallowing which may increase the risk for aspiration. Medialization thyroplasty is a surgical procedure that aims to approximate the vocal folds together in patients with unilateral vocal fold paralysis thereby restoring the efficiency of the larynx. Anesthetic management can be tricky as it requires adequate sedation and analgesia, and the surgery is performed in the airway, which of complications arise, may compromise it.

Methods

This is a case of a 37-year old male, non-hypertensive, nod-diabetic, a person living with HIV on antiretroviral therapy with undetectable viral load who presented with hoarseness of voice for 7 years. Seven years prior to admission, the patient had an episode of difficulty swallowing medications which resulted in an aspiration, coughing episodes. Six years prior to admission, laryngoscopy was done showing left vocal cord paralysis. Vocal cord injection was done with improvement of voice quality. One year prior to admission, there was recurrence of voice hoarseness and patient consented to undergo medialization thyroplasty under monitored anesthesia care with mild sedation. At the OR, the anesthesia machine and airway equipment were prepared. Monitors and O2 support were placed. Patient was induced with midazolam and fentanyl. Dexmedetomidine (4mcg/ml) infusion was loaded at 7 ml per hour. Surgery commenced with intraoperative maintenance doses of midazolam 0.5-1 mg and fentanyl 25 mcg given to maintain Richmond Agitation Sedation Scale score of zero and adequate analgesia. Dexmedetomidine dose was decreased to 2-3.5 ml/hour to maintain the patient awake during voice quality assessment. Voice quality assessment was done by asking the patient to speak and make a sound while the implant was moved to achieve optimal medialization of the vocal cord. Once the surgeons were satisfied with the voice quality of the patient, the implant was secured in place. A final examination of the larynx was done through video laryngoscopy which confirmed good airway and adequate medialization of the vocal cord. In the end, the patient tolerated the procedure well and was discharged the next day.

Results

Median thyroplasty can be done under local anesthesia with mild sedation with great attention to airway and breathing. The combination of midazolam as an anxiolytic, fentanyl as analgesic, helped decrease the requirements for other anesthetics for sedation, in this case, dexmedetomidine. Since the procedure involves the airway and spontaneous breathing is needed, dexmedetomidine appears to be the best choice because it does not depress respiration and allows for airway protection. Good communication and coordination between the surgical and anesthetic teams is integral to the success of the procedure.

2024-0037

Thyroid storm with septic shock: A clinical dilemma and role of therapeutic plasma exchange in thyroid storm management in district critical care

Aimi khairunnisa binti Morti[1], Amir khairi bin Md supar[1*], Nurfadilah binti Mahli[1]

1. Anesthesiology & Critical Care Department, Hospital Bintulu, Malaysia

Background

Thyroid storm and septic shock can present a diagnostic conundrum due to overlapping clinical manifestations. We present a complex case initially diagnosed with severe septic shock secondary to perforated viscus, later revealed to be a coexisting thyroid storm without prior history of hyperthyroidism. The oral administration of antithyroid medications is impractical, and the unavailability of intravenous (IV) form in critical district settings poses a challenge in managing such case. Here, therapeutic plasma exchange (TPE) emerged as a valuable intervention in managing complex cases of thyroid storm.

Methods

A 46-year-old gentleman, previously a healthy patient presented with acute abdominal pain and diarrhea. Upon presentation, he exhibited signs of multiorgan involvement, including tachycardia, high fever, and evidence of abdominal free fluid, hemodynamic instability requiring IVI Noradrenaline and atrial fibrillation (AF), indicating severe illness. Initially, he was treated for severe septic shock secondary to a perforated viscus, complicating the timely identification of thyroid storm. Later, serum thyroid function test showed suggestive of thyrotoxicosis. The clinical dilemma was further compounded by the contraindication of oral antithyroid medications and the unavailability of IV forms in our critical care setting hence, rectal Propylthiouracil (PTU) was initiated. Despite this intervention, his condition continued to deteriorate, characterized by unstable refractory AF and increasing inotropic requirement. Urgent multidisciplinary discussions emphasized the necessity of emergency surgery and to attempt to achieve hemodynamic stability prior. Consequently, urgent plasmapheresis was initiated, led to a partial improvement in the patient's hemodynamic parameters, allowing for the successful execution of exploratory laparotomy and repair of the perforated gastric ulcer.

Post-operatively, a reduction in free T4 levels by 42.9% indicated a positive response to the management approach. Continuous renal replacement therapy (CRRT) was initiated postoperatively to address ongoing renal dysfunction and metabolic acidosis. PTU was discontinued due to worsening transaminitis, and he was switched to oral cholestyramine as he was allowed to feed by the second day postoperatively. Unfortunately, his condition continued to deteriorate, with the development of unstable refractory fast AF that did not respond to electrical and pharmacological cardioversion. As a result, inotropic and vasopressor support requirements increased. CRRT was stopped after 28 hours due to hemodynamic instability. Regrettably, the patient eventually passed away.

Results

This case underscores the intricate nature of diagnosing and managing thyroid storm, as any delay in identification and intervention may result in fatal outcomes. By presenting this case, we aim to emphasize the significance of considering thyroid storm as a differential diagnosis in patients presenting with symptoms consistent with septic shock, especially in the absence of a known history of hyperthyroidism. Additionally, we emphasize the potential utility of plasma exchange in managing complex cases of thyroid storm, particularly in settings with limitations in conventional treatment modalities. Further research is indispensable to elucidate the therapeutic advantages of TPE and its role in thyroid storm management, potentially mitigating associated morbidity and mortality.

2024-0038

Effect of nicotine replacement therapy on pain and opioid requirement in abstinent smokers undergoing spinal fusion: A double blind randomized controlled trial

Ankita Maheshwari[1], Akhil kant Singh[1], Bhavuk Garg[2], Puneet Khanna[1*]

1. Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Orthopaedics, All India Institute of Medical Sciences, New Delhi, India

Background

Smoking rates in India dropped from 27% to 24%, but the absolute numbers of male smokers aged 15–69 increased notably1. When such patients get hospitalized for undergoing surgery they are restricted from smoking inside the hospital premises. Hence, this forced abstinence from smoking might trigger nicotine withdrawal, results in hyperalgesia or lower pain threshold after surgical procedures during the hospital stays 2-4. Nicotine found to have an analgesic property 5. Previous studies on the effect of nicotine replacement therapy with transdermal patch have shown no benefit in the improvement of pain scores or reduction in opioid requirement in smokers 6, 7. The aim of the study is to compare the effect of nicotine replacement therapy on pain and perioperative opioid requirement in abstinent smokers undergoing spinal fusion.

Methods

A total of 100 abstinent tobacco smokers planned for spinal fusion were recruited and randomized into Group A (n=50) and Group B (n=50). Transdermal nicotine patch (21 mg) was applied one day prior to surgery till 48 hours after completion of surgery in group A and transdermal patch without nicotine were applied in group B. PCA pump was attached postoperatively with lock out interval of 10 mins with an hourly maximum of 3 mg morphine. Perioperative baseline data, NRS score with post-operative morphine consumption were recorded. Nicotine concentration was measured from pre and postoperative serum samples using ELISA.

Results

The mean age ± SD of Group A and Group B patients was 43.72 ± 11.8 and 44.36 ± 14 years, respectively. Two samples equal variance test revealed no significant difference in perioperative baseline variables. Pre ($p=0.002$) and postoperative ($p=0.002$) NRS score was significant in Group B.Wilcoxon rank-sum (Mann- Whitney) test found the significant effect (<0.001) of nicotine concentration in the postoperative group. The spearman's rho test founds the non- significant negative correlation of postoperative morphine consumption with nicotine concentration.

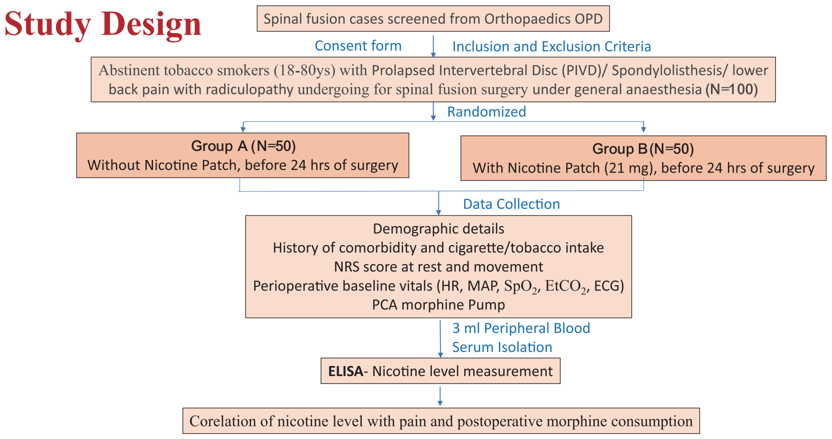
Conclusion

The administration of transdermal nicotine patch (21 mg) one day prior to surgery resulted in a significant reduction in pain score but non- significant negative correlation with postoperative opioid requirement.

2024-0038

Figure & Table

Figure 1. Study Design



Study Design

Spinal fusion cases screened from Orthopaedics OPD

Consent form

Inclusion and Exclusion Criteria

Abstinent tobacco smokers (18-80ys) with Prolapsed Intervertebral Disc (PIVD)/ Spondylolisthesis/ lower back pain with radiculopathy undergoing for spinal fusion surgery under general anaesthesia (N=100)

Randomized

Group A (N=50)
Without Nicotine Patch, before 24 hrs of surgery

Group B (N=50)
With Nicotine Patch (21 mg), before 24 hrs of surgery

Data Collection

Demographic details
History of comorbidity and cigarette/tobacco intake
NRS score at rest and movement
Perioperative baseline vitals (HR, MAP, SpO_2, $EtCO_2$, ECG)
PCA morphine Pump

3 ml Peripheral Blood
Serum Isolation

ELISA- Nicotine level measurement

Corelation of nicotine level with pain and postoperative morphine consumption

Table 1. Demographic and clinical details of the study subjects

Variables	Group A (Without nicotine patch) N= 50	Group B (With nicotine patch) N= 50	p-value
Age (Mean ± SD)	43.72 ± 11.8	44.36 ± 14	0.74
Gender: Male, n	43	43	
Female, n	7	7	
BMI	21.87 ± 3.4	22.08 ± 4.3	0.71
Hypertension	5	2	0.12
Diabetes mellitus	4	5	0.24
Thyroid	1	2	0.14
TB	1	1	0.96
ASA Grade I	42	44	0.06
ASA Grade II	8	6	0.08
PONV	20	12	0.56
Preoperative Nicotine Concentration	13.6 ± 7.3	14.2 ± 4.5	0.98
Postoperative Nicotine Concentration	13.5 ± 4.6	21.0 ± .0	**<0.001**
Postoperative Morphine Consumption	15.86 ± 5.03	11.96 ± 5.07	**0.0002**

Table 2. NRS score

Pain assessment	NRS score at Rest Mean ± SD			NRS score at Movement Mean ± SD		
	Group A	Group B	p-value	Group A	Group B	p-value
Preoperative (0 hours)	7.72 ± 1.9	6.52 ± 2.6	**0.002**	8.34 ± 4.1	6.62 ± 2.7	0.22
Immediately at PACU	5.02 ± 2.2	4.96 ± 2.4	0.34	6.34 ± 1.2	4.51 ± 2.4	0.34
6 hours	4.32 ± 1.4	3.60 ± 1.2	**0.003**	6.03 ± 1.4	7.46 ± 2.4	0.70
12 hours	4.32 ± 1.2	4.01 ± 2.1	0.28	7.03 ± 1.7	6.43 ± 2.0	0.77
24 hours	3.52 ± 0.9	3.44 ± 1.5	**0.002**	6.56 ± 1.5	5.16 ± 1.8	**0.0005**

2024-0039

An experience with the first robotic assisted kidney transplant in the philippines

Christelle Coden[1*]

1. Anesthesiology, St. Luke's Medical Center, Philippines

Background

Robotic assisted kidney transplant is a novel innovation in kidney transplantation. Several anesthetic considerations to maintain hemodynamics and adequate respiration present themselves in the use of this technique, such as in the accommodation of a robot, positioning, introduction of a pneumoperitoneum and steep Trendelenburg position. This is a case report of a 19-year-old male with End Stage Renal Disease (ESRD) who underwent the first robotic assisted kidney transplant in the Philippines using the da Vinci Robotic Surgical System.

Methods

This is the case of a 19-year-old male weighing 56kg, 172cm tall, BMI 18.9, a known case of ESRD secondary to diffuse global glomerulonephrosclerosis. Preoperatively, serum electrolytes, electrocardiogram were within normal limits, his CBC showed anemia, serum creatinine was elevated (10.06mg/dL), echocardiography showed an ejection fraction of 49%. He had secondary hypertension from CKD, heart failure with moderately reduced ejection fraction secondary to COVID myocarditis, sinus, NYHA I and hypothyroidism with right nodular thyroid hyperplasia. On physical exam, the airway is Mallampati class I. Physical examination was unremarkable and there were no signs of congestion.

General anesthesia was induced with 0.04mg/kg IV midazolam, 1.7 mcg/kg IV fentanyl and 2 mg/kg IV propofol, and muscle relaxation was achieved by IV rocuronium at a dose of 1 mg/kg. Airway was secured using an endotracheal tube size 7.5 level 22, cuffed, and anesthesia was maintained with sevoflurane, air and oxygen targeting an end-tidal sevoflurane concentration of 2.5%. Neuromuscular relaxation was maintained using rocuronium at 16mg/hr and was monitored in the form of train-of-four to assess adequate muscle relaxation. Mechanical ventilation mode was PCV-VG and tidal volume was maintained at 400-500 mL, respiratory rate at 12 cpm, PEEP of 5-10 cmH2O. Intraoperative analgesia was provided using IV fentanyl at a dose of 1 mcg/kg.

Pneumoperitoneum was created by insufflating CO2 through a Veress needle. A 30-45-degree Trendelenburg position was executed and afterwards, the robot was docked. The intra-abdominal pressure was maintained at 15 mmHg. After reperfusion, the pneumoperitoneum was completely released for anastomosis.

Intravenous fluid boluses were initiated before completion of vascular anastomosis of the graft targeting a CVP of 10-12 cmH2O. Episodes of desaturations were noted intraoperatively from congestion. Patient was given a combination of furosemide 100 mg and 20% mannitol before reperfusion. Suctioning was done and improvements in oxygen saturations were noted afterwards.

After completion of vascular anastomosis, 100-120 mL of urine output per hour was obtained. Patient was transferred to the intensive care unit intubated and sedated. Upon improvement of respiration, he was extubated the next day and eventually discharged well after a week.

Results

Robotic assisted kidney transplant (RAKT) is a promising new technique in surgery. It allows for precise surgery despite anatomical challenges, thereby reducing operator fatigue. As it is still developing, surgical as well as anesthetic management have yet to be standardized. As presented above, the challenges involved in the anesthetic management of these cases can be overcome with proper preoperative planning and preparation, close intraoperative monitoring, timely intervention, and diligent postoperative observation.

2024-0040

Lipid emulsion reverses loperamide-mediated inhibition of phenylephrine-induced contraction in isolated rat aorta

Soo hee Lee[1], Ju-Tae Sohn[1*], Kyeong-eon Park[1], Yeran Hwang[1], Seong-ho Ok[1]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Republic of Korea

Background

Toxic dose of antidiarrheal drug loperamide, which is highly lipid-soluble, produces cardiovascular collapse through inhibition of cardiac sodium and potassium channels similar to local anesthetics bupivacaine. In addition, loperamide produces relaxation of prostate. Alpha-adrenoceptor activation is important in mediating hemodynamic stability. However, the effect of lipid emulsion on the loperamide-mediated change of the vasoconstriction induced by alpha-1 adrenoceptor agonist phenylephrine remains unknown. Thus, the goal of this study was to examine on the effect of lipid emulsion (Intralipid) on the loperamide-mediated alternation of alpha-1 adrenoceptor agonist phenylephrine-induced contraction in isolated rat aorta, and the underlying mechanism.

Methods

The effects of loperamide (10-6 M) alone and combined treatment with lipid emulsion (0.5%) and loperamide (10-6 M) on the vasoconstriction induced by phenylephrine (10-9 to 10-5 M), 5-hyroxytryptamine (10-8 to 10-4 M) or KCl (10 to 60 mM) in isolated rat aorta were examined. In addition, the effects of centrifuged aqueous extract (CAE), which was obtained from the mixture of 0.5% lipid emulsion and 10-6 M loperamide by centrifugation, and loperamide (10-6 M) alone on the phenylephrine-induced contraction were examined. The effect of lipid emulsion plus loperamide (10-6 M) and loperamide alone on the intracellular calcium level induced by 60 mM KCl in vascular smooth muscle cells was examined. The effect of lipid emulsion (0.5%) plus loperamide (10-6 M) and loperamide alone on the myosin light chain (MLC20) phosphorylation induced by 60 mM KCl or 10-6 M phenylephrine in vascular smooth muscle cells was examined. The effect of lipid emulsion (0.5%) on the loperamide (10-6 M) concentration using high-performance liquid chromatography was examined.

Results

Loperamide (10-6 M) inhibited contraction induced by phenylephrine, KCl and 5-hyrdoxytryptamine in isolated rat aorta. However, lipid emulsion (0.5%) or CAE attenuated loperamide-induced inhibition of contraction induced by phenylephrine, KCl, or 5-hydroxytryptamine. Lipid emulsion (0.5%) attenuated loperamide (10-6 M)-induced inhibition of contraction induced by calcium addition in the calcium-free state with 60 mM KCl-induced contraction. Lipid emulsion(0.5%) attenuated loperamide-induced inhibition of calcium increase induced by 60 mM KCl. Lipid emulsion (0.5%) reversed loperamide-induced inhibition of MLC20 phosphorylation induced by phenylephrine or KCl. Lipid emulsion decreased loperamide (10-6 M) concentration.

Conclusion

Lipid emulsion inhibited toxic dose loperamide-mediated inhibition of phenylephrine-induced contraction, which seems to be associated with reversal of loperamide-mediated inhibition of voltage-operated calcium channels. Lipid emulsion-mediated reversal of loperamide-mediated inhibition of phenylephrine-induced contraction seems to be mediated by lipid emulsion-induced sequestration of loperamide.

2024-0043

Double Fistula: A Conservative yet Comprehensive Staged Approach

Theng Koe Wong[1*], Chen chen Chua[1]

1. Cardiothoracic Anaesthesia and Perfusion, Hospital Queen Elizabeth II, Malaysia

Background

Double fistula, or the presence of both bronchopleural fistula (BPF) and pleurocutaneous fistula, produces persistent air leak (PAL). It is a challenging clinical entity, as it has physiologic implications for pleural mechanics and gaseous exchange, which identified high mortality rate of 67%. To date, antiquated guidelines fail to address PAL management in the context of critical illness.

Methods

A 52-year-old cachexic woman, with history of wide resection of right upper lobe for bronchiectasis secondary to pulmonary tuberculosis in 2019, which further complicated with double fistulas, was intubated for septic shock secondary to bronchopneumonia. Initial resuscitation was carried out. One lung ventilation (OLV) was attempted once hemodynamic improved and discontinued as soon as gases improved. Pleurocutaneous fistula was left open later with intention of allowing permissive air leakage. Pulmonary rehabilitation remained the main core in pathing the recovery. Patient was discharged home on day 57 on foot with tracheostomy.

Fistula repair and OLV is not the mandatory measure in addressing PAL, but should be addressed on case-to-case basis. We approached this patient in three stages: resuscitation, restoring respiratory mechanics with weaning and rehabilitation. Upon presentation, patient was critically ill with multiorgan impairment. Our primary goals throughout the resuscitation phase were lung-protective ventilation strategies, infection control and organ support. Permissive hypercapnia and lower PaO2 were tolerated. The conventional strategy of pre-setting low tidal volume with optimal peep is inappropriate. Rather, to aid in the weaning phase, we emphasized on pulmonary rehabilitation, gradually delivering the lowest driving positive pressure while providing optimal nutritional support. Judicious clinical judgment and blood gas analysis are crucial in the weaning process. Tracheostomy was performed later on to facilitate pulmonary rehabilitation by reducing work of breathing.

Our therapeutic strategy is to treat the predisposing factors, but not a long-standing air leak. Daily optimization of nutritional status and physiotherapy were the main core component in pathing the recovery. Guidelines from American College of Chest Physicians (2001) and British Thoracic Society (2010) fail to address PAL management among the critical ill. These antiquated guidelines do not endorse the importance of non-surgical management for PAL state. Herein, we would like emphasis on the recovery of a patient with persistent air leak by advocating a comprehensive pulmonary rehabilitation.

Results

A comprehensive approach explains the success of conservative treatment. This could benefit the subset of patients who couldn't withstand the stress of corrective surgery.

2024-0043

Figure & Table

Figure 1.

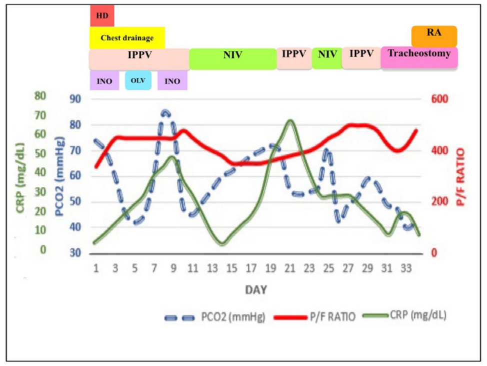


Figure 1: Time course of our staged management:

Resuscitative stage: On day 1, triple inotropic support was administered to achieve adequate organ perfusion pressure. Heamodialysis was initiated for persistent metabolic acidosis. Chest drainage and invasive ventilation were started. Partial pressure of CO_2 ($PaCO_2$) was high. On day 4, one lung ventilation with bronchial blocker was initiated.

Restoring respiratory mechanics and ventilator weaning stage: Two incidents of failed extubations were encountered as evidenced by increasing $PaCO_2$. 1st reintubation on day 19 was mainly secondary to nosocomial infection as evidenced by peak level of CRP. 2nd reintubation on day 25 was thought to be due to generalized poor respiratory power and function (CRP level was reducing in trend).
Oxygenation for our patient was satisfactory throughout hospitalization as evidenced by the relatively linear and satisfactory trend of P/F ratio (persistently > 250).

Rehabilitative stage: Tracheostomy was performed on day 30 to facilitate further pulmonary rehabilitation.

CRP, C-reactive protein; PCO2, partial pressure of CO2; INO, inotropic support infusion; HD, haemodialysis; OLV, one lung ventilation; NIV, non-invasive ventilation; RA, room air; P/F ratio, PaO2/FiO2 ratio.

Figure 2.

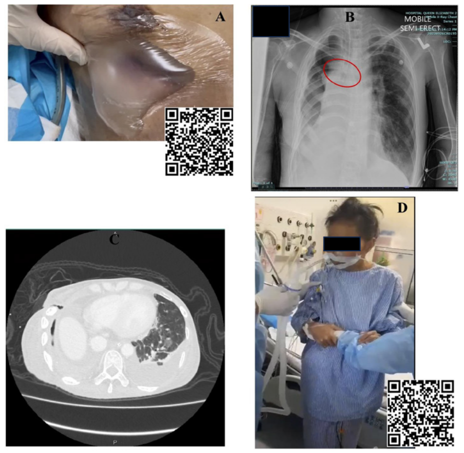


Figure 2: Series of photos showing:

Illustration A: Chest drainage was clamped. PAL has been evidenced over pleurocutaneous fistula over right 5th intrercostal space. QR code is attached to show the video clip of PAL state.

Illustration B: Chest X-ray showing bronchial blocker was inserted over right main bronchus on day 4 of admission.

Illustration C: Axial plane of CT scan showing presence of fistulous communication between the skin and air collection at right anterior lower thorax, suggesting pleurocutaneous fistula.

Illustration D: In order to improve recovery and promote ventilator-free state, bedside pulmonary rehabilitation and early mobilization have been emphasized on daily basis. . QR code is attached to link to the live video clip of physiotherapy being done.

2024-0052

Local anesthetic infiltration of the pterygopalatine ganglion by cotton swab was useful to treat trigeminal postherpetic neuralgia following Ramsay Hunt syndrome type 2.

Anna Koyama[1], Kiyoyuki Miyasaka[1*], Yuka Suzuki[1], Nobuko Fujita[1], Seiki Abe[1]

1. Department of Anesthesiology, St. Luke's International Hospital, Japan

Background

We report a case in which local anesthetic infiltration of the pterygopalatine ganglion by cotton swab was useful to treat trigeminal postherpetic neuralgia following Ramsay Hunt syndrome type 2.

Methods

A 46-year-old woman suddenly developed right facial nerve palsy and right-sided hearing loss and was diagnosed with Ramsay Hunt syndrome type 2, treated with antiviral drugs and steroids. Subsequently, she began to experience dull pain over a wide area of the right face, including the posterior auricular surface, the chin, the nasal cavity, and the cheek. She was treated with NSAIDs and pregabalin, but her symptoms did not improve. At another pain clinic, she was diagnosed with trigeminal neuralgia and prescribed carbamazepine. Although carbamazepine relieved her pain, she discontinued the drug due to the side effect of nausea. The patient was referred to our department for pain control two years following her initial diagnosis. On initial examination, the patient had no facial nerve palsy, but complained of a constant dull pain in the back of the right nasal cavity and cheek (NRS 8/10). No paroxysms of pain were reported. Cooling with an ice pillow relieved the pain. There was sensory insensitivity in the trigeminal nerve area (right supraorbital 5/10, infraorbital 5/10, and chin 3/10), no allodynia, and no sleep disturbance. There was no obvious abnormality in the trigeminal nerve area on head MRI, and treatment was initiated based on the possibility that the facial pain was caused by neuropathic pain attributable to prior history of Ramsay Hunt syndrome type 2. At the initial visit, Chotosan extract and Kakkonto extract were prescribed, and pain was reduced to NRS 7/10. At the second visit, local anesthesia (2% lidocaine) was infiltrated into the pterygopalatine ganglion with a cotton swab inserted into the nasal cavity. Immediately after infiltration of local anesthesia, the patient showed marked improvement, and NRS 0/10 was achieved. The pain remained at a low level of NRS 2/10 thereafter, and the patient's symptoms did not worsen.

Results

Based on the present history and examination findings, we considered the patient to have trigeminal postherpetic neuralgia. The pterygopalatine ganglion is located close to branches of the facial and trigeminal nerves that may be involved in the facial pain in this case. We believe that local anesthetic infiltration into the pterygopalatine fossa functioned as a pterygopalatine ganglion block and contributed to the improvement of pain. Local anesthetic infiltration by cotton swab is relatively simple and safe to perform, and we suggest that it may be useful for patients complaining of facial pain that does not respond to treatment with medication.

2024-0056

Anesthetic Management of a Pregnant Patient with Functional Abdominal Pain Syndrome, In Threatened Preterm Labor via Epidural Catheter Tunnelling

Catherine Sicadsicad[1], Salvador Brodit jr.[1*]

1. Anesthesiologyt, St. Luke's Medical Center Quezon City, Philippines

Background

Functional abdominal pain syndrome (FAPS) is a condition characterized by chronic, continuous abdominal pain with no known organic cause and not otherwise classified under other functional gastrointestinal disorders. Continuous pain during pregnancy may induce preterm labor and subsequent delivery, hence adequate pain control is warranted. Administration of oral or intravenous anesthetic agents may have deleterious effects on the fetus. Thus, neuraxial specifically epidural anesthesia is preferred for pain control for parturients. Epidural catheter insertion is widely used for pregnancy, and once at the epidural space, the catheter can be fixed to the patient's skin via different securement devices. However, the risk of catheter migration and infection is less through subcutaneous tunnelling. Through epidural catheter tunnelling, pregnant patients with chronic pain may be managed in an outpatient setting through proper education and catheter care until the fetus is ready for delivery.

This case report aims to discuss a case of a parturient with FAPS in threatened preterm labor. Specifically, this paper intends to define FAPS and its implications on pregnant patients, and present an ideal anesthetic pain management for patients with FAPS in threatened preterm labor.

Methods

This is a case of a 34 year old pregnant patient at 15 5/7 weeks age of gestation, with known Functional abdominal pain syndrome, uncontrolled by maintenance pain medications, admitted at our institution due to generalized abdominal pain causing uterine contractions and threatened preterm labor, who underwent epidural catheter tunnelling for pain control.

Results

Pregnancy and delivery is mediated by complex hormonal processes affected by stress induced catecholamine and cortisol release. Therefore adequate pain control during pregnancy complicated by chronic pain is important to prevent preterm labor and delivery. Oral and intravenous administration of pharmacologic agents are generally avoided to prevent maternofetal transfer of these medication causing deleterious effects on fetus. Neuraxial techniques such as epidural catheter placement is therefore preferred for pain control. Epidural catheter tunnelling reduces the risk of infection and catheter migration, prolonging the lifespan of epidural catheters, and is therefore recommended for patients with chronic pain

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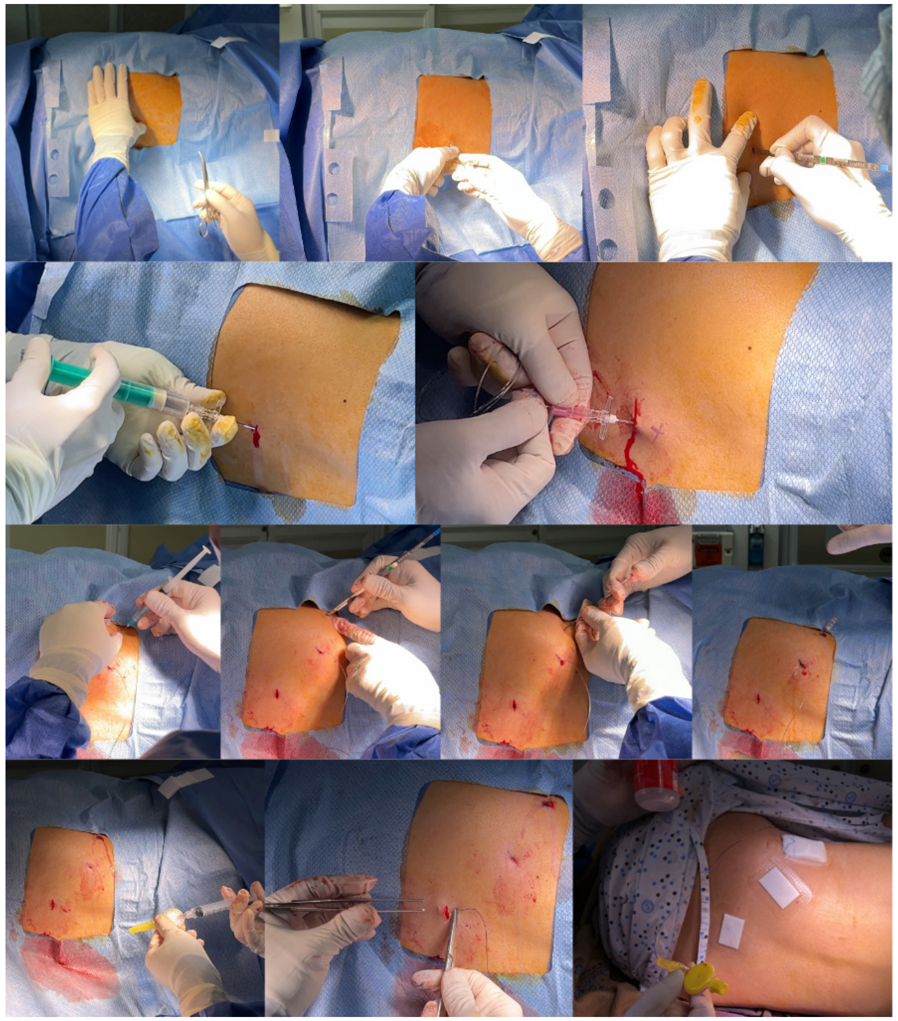
2024-0056

Figure & Table

Figure 1. Epidural Catheter Tunnelling



2024-0057

Neuroanaesthetic management in a child with Lennox Gastaut Syndrome who undergoes Vagus Nerve Stimulation (VNS) placement

Boon Tat[1,2*], Thai hau Koo[3], Laila Ab mukmin[2], Ikhwan nasir Idris[1], Jabraan Jamil[1]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Department of Anaesthesiology and Intensive Care, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Background

Vagus nerve stimulation (VNS) is an option in treating patients with medically resistant epilepsy (MRE). It has been proven to reduce patients' dependency on antiepileptic drugs (AED) and seizure frequency. The usage of VNS in children with MRE has been limited. We present the perianaesthetic challenges in our patient with Lennox Gastaut Syndrome (LGS) who underwent VNS placement.

Methods

A-12-year-old boy, with a background of LGS for 9 years, presented with generalised tonic-clonic (GTC) seizure for more than 20 min. It was associated with uprolling eyeballs and hypersalivation. He had been having recurrent seizures despite being compliant to several AED such as topiramate, clobazam, and phenytoin. His latest cerebral MRI revealed cerebral atrophy. EEG showed generalised discharge with paroxysms of fast activity in the range of 10–20 Hz with the highest amplitude over the frontal region. Lumbar puncture showed no infections.

Clinically, he was conscious with full GCS without any significant neurological deficits. His airway assessment showed Mallampati I. Due to his MRE secondary to LGS, his family consented for VNS placement. He was intubated with a size 6.5mm armoured ETT. BIS was placed and an arterial catheter was inserted at the right radial artery. GA was maintained using TCI remifentanil and propofol as guided by BIS value of 40-60. An external cardiac pacemaker was placed in anticipation of intraoperative bradycardia.

Intraoperatively, the patient's haemodynamics were stable with minimal blood loss. There were no untoward incidences and he was safely extubated after 2 hours of surgery. He was closely monitored in the neuroHDU for a day. A month later, his mother mentioned that he developed one brief breakthrough seizures, which occurred three weeks after VNS placement. 3 months later, the dosages of his three oral AED were reduced by approximately 25%. After a year, his AED was further reduced to just topiramate and phenytoin. The mother claimed that the brief seizure and aura only occurred once every 3–4 months, which were self-aborted.

Research which involved 43 children who were less than 12 years old revealed that more than 51% of them demonstrated a decrease in seizure frequencies after VNS placement. Children with a high baseline seizure frequency may benefit.

The principles of anaesthesia for paediatric patients who undergo VNS placement are to ensure a steady haemodynamic, avoidance of seizure-triggering agents, and immediately manage cardiorespiratory compromise that may arise. The patient's airway should be secured with an armoured ETT to prevent kinking during neck extension. Seizure triggers such as hypoxaemia, hypocapnoea, hypoglycaemia, anaemia, acidosis, hypotension, hyperthermia, hypothermia, hypokalaemia, hypomagnesaemia, hypocalcaemia and hyponatraemia should be avoided.

TCI remifentanil and propofol demonstrated the ideal properties of an antiepileptic agent by providing burst suppression and reduce CMRO2. Epileptiform features have been shown in a dose-dependent manner among inhalational agents such as sevoflurane, desflurane and enflurane in patients with or without seizure.

Immediate complications of VNS placements are bradycardia, asystole, sore throat and hoarseness of voice. Others include infections, electrode break or dislodging from the device, and battery malfunction.

Results

Paediatric patients who under VNS placement requires specific anaesthetic considerations to prevent life threatening perioperative complications.

2024-0062

A Unique Case of Descending Mediastinitis

Anissa Lye[1*], Edith Wong[1], Alyssa Chiew[2], Jian li Tan[3], Vicky Ng[1]

1. Anaesthesia and Intensive Care Medicine, Tan Tock Seng Hospital, Singapore
2. Anaesthesia and Intensive Care Medicine, Khoo Teck Puat Hospital, Singapore
3. Otorhinolaryngology, Tan Tock Seng Hospital, Singapore

Background

Deep neck infections arising from odontogenic, peritonsillar, pharyngeal infections or rarely, esophageal rupture can cause severe morbidity and mortality. 3% of such cases progress to descending mediastinitis as infection tracks along the fascial planes. We present a unique case of a patient, with what we initially thought to be supraglottitis from esophageal perforation, but subsequently progressed to descending mediastinitis.

Methods

A 68 year-old diabetic lady with a history of gastritis presented with 2 days of fever, cough and multiple episodes of vomiting and diarrhoea. A new onset of chest pain prompted her to seek medical attention.

On presentation, she had a hoarse voice, was stridorous with diffuse neck swelling and crepitus. Naso-endoscopy showed a swollen epiglottis and arytenoids with a limited view of the vocal cords and a parapharyngeal bulge. Lateral Neck X-Ray showed thickened prevertebral soft tissue and gas (Fig.1). She was intubated for presumptive supraglottitis. Computed Tomography (CT) reported extensive deep neck space and mediastinal gas and possible oesophageal perforation (Fig.2). Subsequent pan-endoscopy and esophagogastroduodenoscopy did not reveal oesophageal or posterior pharyngeal perforation.

She improved initially with broad-spectrum antibiotics but deteriorated 5 days later. A repeat CT showed retropharyngeal collections communicating with the mediastinum, mediastinal abscesses and bilateral pleural effusions. Emergent drainage of the retropharyngeal, visceral and supraclavicular abscesses was performed. She also underwent a right video-assisted thoracoscopic surgical drainage and pulmonary decortication.

Multiple neck and mediastinal debridements were subsequently required. Initial workup did not reveal a pathogen, but microbiology of mediastinal cultures eventually grew Candida parapsilosis, Trichosporon and difficult-to-treat pseudomonas aeruginosa. The hospital course was complicated by recurrent pneumonia and failed extubation for which she underwent a tracheostomy.

Results

Descending mediastinitis is a rare complication of deep neck infections with high mortality rates of up to 41%. A high index of suspicion is needed to prevent treatment delay especially in the immunocompromised. Prompt repeat imaging and early diagnosis with timely surgical intervention and appropriate antimicrobial therapy is paramount for this group of patients.

2024-0062

Figure & Table

Figure 1.

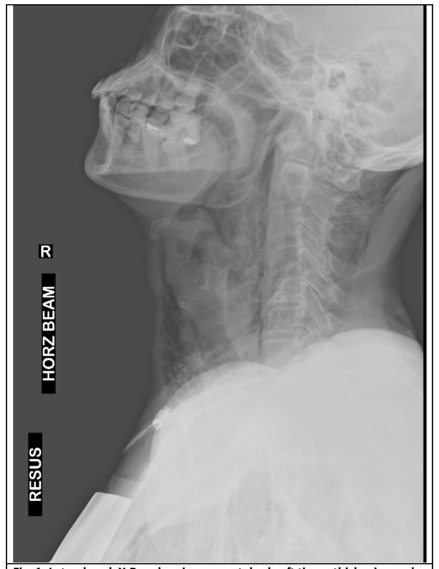
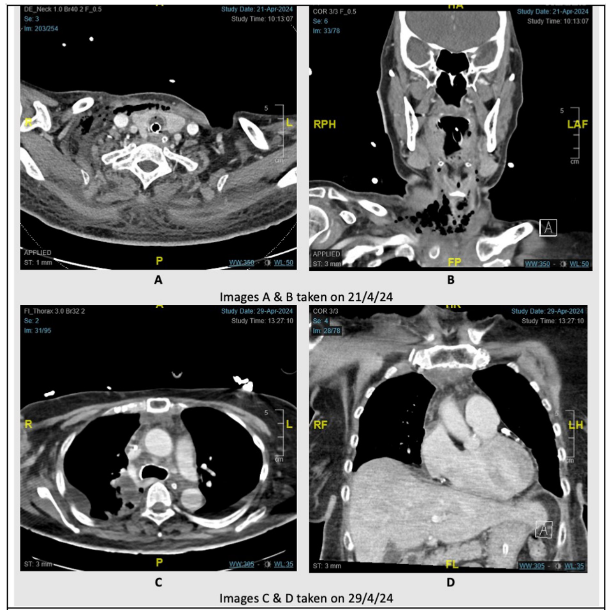


Fig. 1: Lateral neck X-Ray showing prevertebral soft tissue thickening and subcutaneous emphysema

Figure 2.



Images A & B taken on 21/4/24

Images C & D taken on 29/4/24

Fig. 2 Computed Tomography (CT) images showing progression of disease, from free gas in neck spaces on admission, to mediastinal and intrathoracic collections 8 days later.

A. Axial CT at the thyroid gland level with gas tracking into the deep neck spaces. (endotracheal and nasogastric tubes also in-situ).
B. Coronal CT demonstrating gas tracking into the lower neck and upper thorax.
C. Axial CT thorax showing right posterior paratracheal abscess, mediastinal fat stranding, right pleural effusion.
D. Coronal CT with suprasternal collection, right subclavian fat stranding, and superior mediastinal abscess.

2024-0063

Anesthetic Management using Remimazolam in an Adult Patient with Fontan Circulation

Satoshi Hayashi[1,2], Tomoki Sasakawa[2*], Kiyoyuki Miyasaka[1], Satoshi Kurokawa[2], Yasuko Nagasaka[2]

1. Anesthesiology, St luke's international hospital, Japan
2. Anesthesiology, Tokyo Women's Medical University, Japan

Background

Fontan circulation is characterized by elevated central venous pressure and low cardiac output. Considerations for anesthetic management of patients with Fontan circulation include maintenance of cardiac function and early weaning from mechanical ventilation. Choice of anesthetic agent and dose adjustment should be made carefully.
Remimazolam, a novel ultra-short-acting benzodiazepine with minimal hemodynamic effects, was approved as a general anesthetic in Japan in 2020. We report a case of successful anesthetic management using remimazolam in an adult patient with Fontan circulation.

Methods

A 31-year-old female (height: 159 cm, weight: 47 kg) with a history of modified Blalock-Taussig shunt and atriopulmonary connection for single right ventricle was scheduled for surgery for primary hyperparathyroidism. Preoperative examination showed SpO2 95% (Room air), CVP 9 mmHg, and no arrhythmia. Echocardiography revealed normal right ventricular contraction (RVEF 58%) and mild atrioventricular valve regurgitation, with no apparent thrombus.
Anesthetic Management: Total intravenous anesthesia using remimazolam was planned. After preoxygenation, fentanyl 100 mcg, remifentanil 0.3 mcg/kg/min, and 5mg of remimazolam was administered at a rate of 12 mg/kg/hr. Remimazolam was reduced to 0.7 mg/kg/hr after induction, guided by electroencephalogram monitoring. Rocuronium 40 mg was administered, followed by tracheal intubation. Anesthesia was maintained with remimazolam 0.7 mg/kg/hr, remifentanil 0.5-0.65 mcg/kg/min, and dopamine 2-3 mcg/kg/min. Ventilation was managed to avoid hypoventilation, hypoxia, and increased intrathoracic pressure. Dexamethasone and ondansetron were administered for antiemesis. Additional fentanyl (total 400 mcg) and local anesthetics were used for pain management.
Intraoperative cardiac index ranged from 2.8 to 3.6 L/min/m^2. Remimazolam was discontinued and the patient was extubated 3 minutes later, after confirming spontaneous breathing and consciousness. Flumazenil 0.5mg was administered to reverse the effects of remimazolam. The patient experienced no re-sedation, pain, or nausea postoperatively.

Results

Remimazolam may be a useful anesthetic agent for adult patients with Fontan circulation undergoing non-cardiac surgery. Its favorable pharmacokinetic and pharmacodynamic profile, combined with the advantages of total intravenous anesthesia, make it an attractive option for managing these complex cases.

2024-0070

Anesthetic Management of Patient With Single Ventricle Circulation Undergoing Scoliosis Surgery

Ma. Patricia Mae Quintin[1*]

1. Department of Anesthesiology, The Medical City, Philippines

Background

Following multiple cardiac surgeries to partially correct the double outlet right ventricle (DORV) of our 5-year old patient, his circulation operates on a single ventricle where the flow of oxygenated blood from the pulmonary artery to the left atrium is passively dependent on a pressure gradient. Therefore, perioperative control of pulmonary vascular resistance is of prime importance. Aside from his cardiac anomaly, he also presents with congenital scoliosis secondary to a T9-T10 hemivertebrae. Apart from addressing his scoliosis per se, this spine surgery is a pre-requisite to his final corrective cardiac surgery (i.e., Fontan procedure) to optimize cardiopulmonary conditions and outcomes. To prevent iatrogenic injury to spinal nerves, intraoperative neuromonitoring (IONM) was employed for the spine surgery.

Methods

With DORV patients achieving better survival rates after cardiac surgeries, more are presenting for non-cardiac procedures. The main anesthetic challenge of this case is ensuring proper control of pulmonary vascular resistance, while at the same time allowing accurate IONM during his scoliosis surgery.

Induction was carried out using a rapid sequence induction dose of Rocuronium to avoid positive pressure ventilation. No Rocuronium top-ups were given after induction for IONM purposes. Adequate anesthesia was achieved through the balance of propofol infusion and Sevoflurane thereby preventing fluid overload, while at the same time allowing effective intraoperative neuromonitoring. Sevoflurane was maintained at MAC < 0.3 to prevent suppression of SSEPs and MEPs.

Hydration is guided by invasive hemodynamic monitoring using a pulmonary artery catheter. Ventilation strategies targeted adequate oxygenation and CO2 control. Hypercarbia increases pulmonary pressures and was avoided. To prevent pulmonary congestion, FiO2 of 50% was employed to achieve an O2 saturation of 85-92%.

Finally, situations that can trigger catecholamine release, which precipitates pulmonary hypertension, were mitigated. Preoperative anxiety was addressed with Midazolam prior to bed transfer. He was given prophylactic Ondansetron for postoperative nausea and vomiting. Lastly, the patient was referred to pain service and was given Paracetamol and Fentanyl PCA.

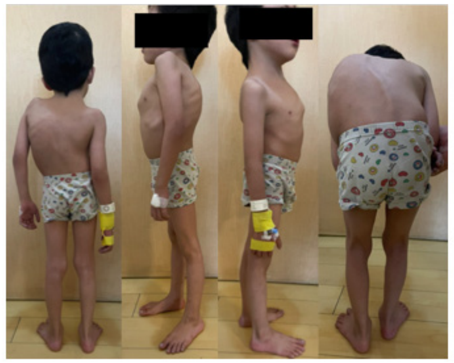
Results

With or without surgical repair, the cardiac physiology of CHD patients is deranged and requires special anesthetic considerations. Increases in PVR can decrease preload and perfusion. Therefore, triggers that can cause pulmonary vasoconstriction should be avoided – catecholamine release due to anxiety, pain and nausea or vomiting. Normovolemia is the goal for these patients. Dehydration can lead to hyperviscosity complications. With intraoperative neuromonitoring, TIVA is the ideal technique. But with the danger of causing fluid overload, support with low-dose inhalatationals at MAC<0.3 can achieve adequate anesthesia and effective SSEP and MEP monitoring. Ultimately, a vital element in this management is goal-directed interventions stemmed from proper understanding of the pathophysiology of the a patient with single-ventricle circulation.

2024-0070

Figure & Table

Figure 1. DORV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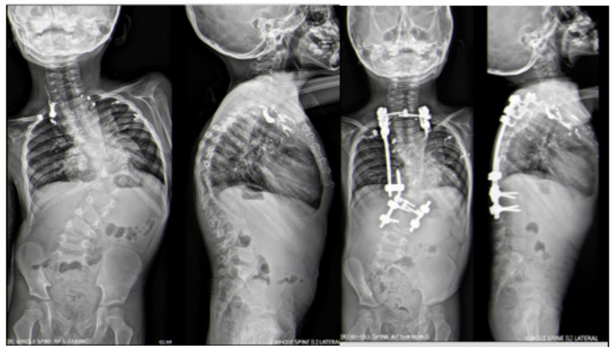


2024-0075

Effective Topical Anesthesia Using a Vibrating Mesh Nebulizer for Awake Intubation (Aerogen Ultra®) in a Super Morbidly Obese Patient : A Case Report

Serabi Tanabe[1*]

1. Department of Anesthesiology, Tokyo Metropolitan Tama Medical Center, Japan

Background

The number of bariatric surgeries for obese patients is increasing, yet cases of super morbid obesity with a BMI over 50 are rare. In such cases, difficulties in mask ventilation and intubation are anticipated, and awake intubation may be chosen, relying on adequate topical anesthesia of the pharynx and larynx.

Methods

We report a successful first case of using a vibrating mesh nebuliser Aerogen Ultra® for local anaesthesia in a 34-year-old woman with a BMI of 63.79 undergoing bariatric surgery.

She presented with genital bleeding and anaemia and was diagnosed with stage 1 endometrial cancer at 205 kg (BMI 73). Considered inoperable due to her weight, she was referred to our hospital. She was given a plan to reduce her weight to less than 150kg through diet and exercise, followed by a total hysterectomy. After three months on a diet, she was reduced to 176 kg and was scheduled for laparoscopic gastric sleeve resection.

Her airway assessment showed an opening of 5 cm, cervical extension of 50 degrees and a Mallampati score of 1. She had obstructive sleep apnoea and asthma requiring CPAP at night. Pre-operative tests showed no abnormalities other than obesity.

On the day of surgery she assumed the ramp position. She inhaled 4% lidocaine (4 mL) over 10 minutes using a vibrating mesh nebuliser (Aerogen Ultra®) with oxygen at 5 L/min. Fentanyl and remifentanil were administered during this time. After nebulisation, a thin intubation tube was attached to an airway scope and carefully inserted while the patient was awake. After visualising the epiglottis and ensuring there was no pharyngeal reflex, a suction tube was inserted into the vocal cords and lidocaine was administered, allowing the tracheal tube to be inserted without a cough reflex.

Anaesthesia was induced with desflurane, propofol and rocuronium and maintained with air, oxygen, desflurane and remifentanil. The total intubation time was 18 minutes. Post-operative analgesia was provided with intravenous PCA, paracetamol and ropivacaine. The patient awoke rapidly without pain or nausea.

Two months later, weighing 153 kg, she underwent curative surgery for uterine cancer under general anaesthesia with similar anaesthetic preparations. The vibrating mesh nebuliser Aerogen Ultra® provided effective awake intubation without coughing, which had been a challenge with previous methods.

Results

Conclusion: Awake intubation using a vibrating mesh nebulizer Aerogen Ultra® for topical anesthesia in super morbid obesity allowed successful intubation without coughing or additional local anesthetics.

2024-0076

Neuroleptospirosis with cerebral venous sinus thrombosis (CVST) In a young farmer: A case report

Boon Tat[1,4*], Thai hau Koo[2], Laila Abd mukmin[3], Song yee Ang[5]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Anaesthesiology & Intensive Care, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
4. Medical Education, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
5. Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Background

Leptospirosis is a zoonotic infection caused by pathogenic Leptospira bacteria, prevalent in tropical regions such as Malaysia. It often presents with nonspecific symptoms and can progress to severe complications, including neurological manifestations like cerebral venous sinus thrombosis (CVST). This case report illustrates the complexity and challenges of diagnosing and managing neuroleptospirosis.

Methods

A 45-year-old farmer from rural Malaysia presented with high-grade fever, vomiting, diarrhea, muscle aches, and headache after exposure to contaminated water in his farm. Initially suspected of having leptospirosis, his condition deteriorated with severe headache, recurrent vomiting, and dysphasia. Upon referral to a tertiary center, he exhibited confusion, neck stiffness, and a Glasgow Coma Scale (GCS) score of 12/15 (E3V4M5). Serological PCR tests confirmed leptospirosis. Imaging revealed a left temporal intracerebral hematoma and CVST. The patient underwent decompressive craniectomy and received intravenous ceftriaxone and anticoagulation therapy.

Postoperative recovery was closely monitored. The patient was initially bridged with subcutaneous enoxaparin (40mg twice daily) and transitioned to oral apixaban (10mg twice daily for seven days, then 5mg twice daily) for a total of six months. This regimen was well-tolerated, with no recurrence of symptoms nor bleeding complications. He was eventually discharged with a significantly improved GCS score of 14/15.

Results

Early recognition and intervention are crucial in managing severe leptospirosis with neurological complications. This case underscores the importance of high clinical suspicion and timely referral to prevent adverse outcomes in endemic regions.

2024-0076

Figure & Table

Figure 1. PRE OPT CT BRAIN PLAIN CVST

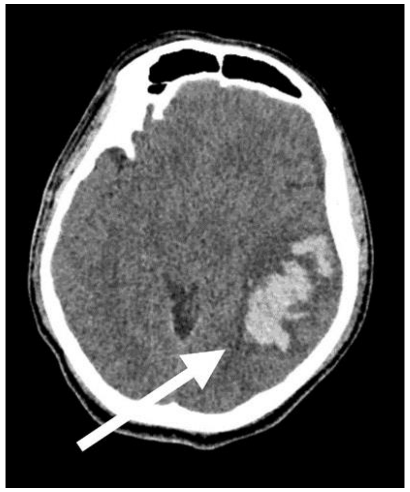
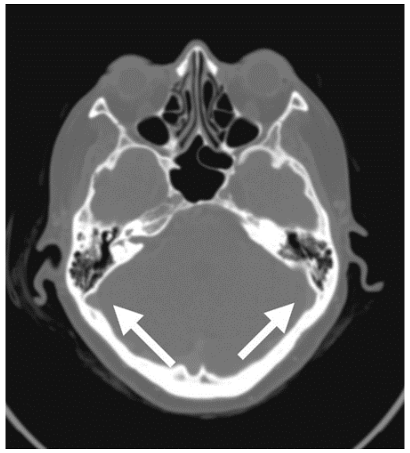


Figure 2. PRE OPT CTV CVST



2024-0077

Comparison of pretreatment with Magnesium sulphate v/s Lignocaine on neuromuscular blockade of Rocuronium in elective surgeries: A randomized, double blinded study

Arhan Pasha[1], Kanika Gupta[1*], Priyanka Gupta[1], Mridul Dhar[1]

1. Anaesthesiology, All India Institute of Medical Sciences, Rishikesh, India

Background

Neuromuscular blocking agents (NMBAs) are an essential part of general anaesthesia, frequently used to facilitate endotracheal intubation and achieve optimal muscle relaxation during surgery. Rocuronium, a non-depolarizing NMBA, is particularly favoured due to its rapid onset and intermediate duration of action, making it a suitable alternative to succinylcholine for rapid-sequence intubation. However, the onset time of Rocuronium can be slower compared to Succinylcholine, highlighting the need for strategies to accelerate its effect. Magnesium Sulphate has been shown to enhance the effects of non-depolarizing NMBA by reducing the release of acetylcholine at the motor nerve terminal by competing with calcium, thus potentiating the blockade. Lignocaine also interacts with NMBAs at the neuromuscular junction by blocking fast sodium channels. Despite the evidence supporting the use of Magnesium Sulphate and Lignocaine as adjuncts in anaesthesia, their comparative effects on the pharmacodynamics of Rocuronium have not been fully elucidated.

Methods

54 adult patients undergoing elective surgeries were enrolled in the study and were randomly enrolled in two groups. Group A received Magnesium Sulphate (60mg/kg diluted in 100 mL normal saline) over 15 minutes and intravenous normal saline (NS) in 10 mL, two minutes before Rocuronium administration and Group B received 100 mL of NS over 15 minutes and Lignocaine, 2mg/kg (diluted in 10 mL), two minutes before Rocuronium administration. After induction of anaesthesia, TOF was used to guide tracheal intubation. We recorded onset time, duration of intense NMB, defined as the time-period when there was no response to PTC, haemodynamic response to laryngoscopy, time of the first top-up dose of NMB, total cumulative dose of Rocuronium required during surgery and time of complete recovery after giving reversal.

Results

The mean onset of neuromuscular blockade in Group A was significantly earlier (94.33 ± 9.16 seconds) than in Group B (117.51 ± 12.84 seconds) ($p<0.001$). The mean duration of intense neuromuscular blockade in Group A was significantly higher (22.29 ± 3.18 minutes) as compared to Group B (12.88 ± 2.51 minutes) ($p<0.001$). The mean duration of requirement of first top-up dose after induction dose in Group A was higher (22.29 ± 3.18 minutes v/s 12.88 ± 2.51 minutes). The mean duration of recovery after giving reversal in Group A was significantly delayed (13.33 ± 1.79 v/s 9 ± 1.81 minutes). There was more requirement of Rocuronium in group B as compared to group A (53.03 ± 7.41mg v/s 61.22 ± 7.08 mg) ($p<0.001$). Haemodynamic variables were comparable between the two groups and were not significant statistically.

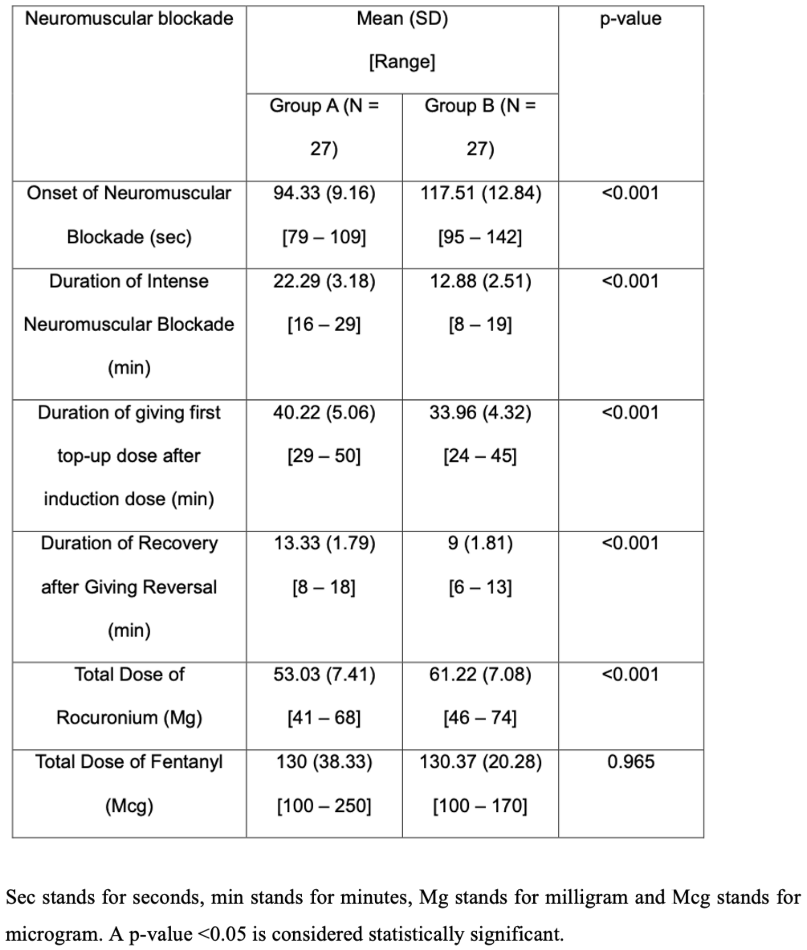
Conclusion

Magnesium Sulphate, as compared to Lignocaine, potentiated the neuromuscular blockade of Rocuronium by significantly decreasing the onset time of block, prolonging the duration of intense block, reducing the frequency of the requirement of maintenance doses of Rocuronium, and prolonging the time of recovery from neuromuscular block after reversal. However, both agents maintained stable haemodynamic profiles in patients during induction of anaesthesia.

2024-0077

Figure & Table

Table 1. Comparison of neuromuscular blockade parameters in the two groups. (n = 54)



Neuromuscular blockade	Mean (SD) [Range]		p-value
	Group A (N = 27)	Group B (N = 27)	
Onset of Neuromuscular Blockade (sec)	94.33 (9.16) [79 – 109]	117.51 (12.84) [95 – 142]	<0.001
Duration of Intense Neuromuscular Blockade (min)	22.29 (3.18) [16 – 29]	12.88 (2.51) [8 – 19]	<0.001
Duration of giving first top-up dose after induction dose (min)	40.22 (5.06) [29 – 50]	33.96 (4.32) [24 – 45]	<0.001
Duration of Recovery after Giving Reversal (min)	13.33 (1.79) [8 – 18]	9 (1.81) [6 – 13]	<0.001
Total Dose of Rocuronium (Mg)	53.03 (7.41) [41 – 68]	61.22 (7.08) [46 – 74]	<0.001
Total Dose of Fentanyl (Mcg)	130 (38.33) [100 – 250]	130.37 (20.28) [100 – 170]	0.965

Sec stands for seconds, min stands for minutes, Mg stands for milligram and Mcg stands for microgram. A p-value <0.05 is considered statistically significant.

2024-0079

Shared decision making in perinatal management of rapidly deteriorating early-onset preeclampsia – a case report

Tomoyo Takahashi[1], Anna Koyama[1*], Kiyoyuki Miyasaka[1], Nobuko Fujita[1]

1. Anesthesia, St.Luke's International Hospital, Japan

Background

Early-onset preeclampsia (EOPE) diagnosed before 34 weeks of gestation is rare, but associated with serious complications. In this report, we describe shared decision making (SDM) for perinatal management of a case of rapidly deteriorating EOPE.

Methods

A 36-year-old healthy woman, gravida two, para zero, conceived through in vitro fertilization. At 21 weeks and 4 days of gestation, she presented with elevated blood pressure of 180/100mmHg, proteinuria, abnormal liver function, and fetal growth restriction, leading to diagnosis of EOPE. The patient opted for termination by cesarean section (CS). Neuraxial anesthesia is the first choice for CS. However, the patient had a history of lumbar disk herniation surgery at the L5-S1 level, and there were concerns that neuraxial anesthesia may not be safe to perform due to progression of coagulopathy associated with preeclampsia, or that it would be ineffective due to previous lumbar spine surgery. On the other hand, management by general anesthesia is associated with risks such as difficult airway, aspiration, and intercranial hemorrhage during induction.

During the SDM process for anesthesia, the risks and benefits of each anesthesia strategy for CS were presented to the patient, and it was agreed that the first choice would be combined spinal-epidural anesthesia (CSEA). CSEA offers greater control over analgesic level, which was expected to help avoid general anesthesia and associated airway and respiratory risks, including extubation failure. Emergency CS was performed the next day at 22 weeks and 4 days of gestation, as maternal condition deteriorated. With preserved coagulation status, CSEA was performed at the L3-4 interspace. Transient hypotension was treated with continuous norepinephrine infusion. While the patient had no serious complications intraoperatively, renal function deteriorated postpartum, and treatment of pleural effusion by non-invasive positive pressure ventilation and drainage were required in the intensive care unit until postoperative day 6. The patient was discharged to home on day 12.

Through the SDM process, we believe that the anesthesia management provided met the patient's expectations despite the associated risks and subsequent complications. Furthermore, sharing this information within our department and with obstetricians allowed the team to respond to patient deterioration without confusion.

Results

Maternal condition with severe complications such as EOPE may deteriorate rapidly, requiring emergent intervention. Shared decision making with the patient regarding perinatal management should be pursued as soon as possible to allow for a coordinated response by the obstetric and anesthesia team.

2024-0081

A Case Series of 3 Patients Who Received Alcohol Chemical Neurolysis of Genicular Nerve for Chronic Knee Pain

Annie Wong[1*]

1. Anaesthesia, Chronic Pain, Intensive Care Unit, Changi General Hospital, Singapore, Singapore

Background

Chronic knee pain is a very disabling medical condition but unfortunately, it remains a common problem in our elderly population. With our population ageing and life expectancy increasing, we see an increased number of patients in our chronic pain clinic suffering from chronic knee pain. Oral/topical analgesia, together with genicular nerve block and radiofrequency ablation has been our mainstay of pain intervention via the physician led service for patients with knee osteoarthritic pain or persistent post-surgical knee pain. Alcohol neurolysis of the genicular nerve can be an alternative method of treatment in this group of patients. This procedure is cheap, safe, quick to perform and effective.

Methods

In this case series, we present 3 cases of alcohol based chemical ablation of genicular nerves using ultrasonography in our patients with chronic knee pain. In our institution, genicular nerve neurolysis is offered to patients with chronic knee pain secondary to osteoarthritis, but who have declined surgery, deemed not suitable for surgery due to their pre-existing medical condition, or patients who still suffer from knee pain after their surgical intervention. Diagnostic blocks with local anaesthetics are usually performed prior to chemoablation to assess for relief. However, was not done in this series of patients due to issues with transportation, and a more definitive form of treatment was thought to offer better value-based care.

Chemical neurolysis is performed as a day surgery case. Light sedation was given for anxiolysis. Ultrasonography was used to identify the genicular nerves. Usually, four sites are located namely the Superolateral genicular nerve (SLGN), Superomedial genicular nerve (SMGN), Inferomedial genicular nerve (IMGN) and Inferolateral geniculate nerve (ILGN). The skin and soft tissues was anaesthetised with 1% lignocaine. At each target, needle was advanced next to the vessel (if seen) or till bony contact was felt using either an in-plane or out-of-plane approach. After confirming the correct position, 2-4 ml of agent was injected. The ILGN is usually target omitted, as it may be too superficial and may lead to involvement of the superficial peroneal nerve. The ideal volume/concentration of neurolytic agent used remains debatable, as there is no reported major study comparing the volumes of neurolytic used for the genicular nerves. In our cases, we administered 66% Alcohol which was deposited to each target site.

Results

All three patients demonstrated significant pain reduction, with observable improvement in daily function and quality of life. WOMAC Score in all three patients showed 50% improvement in pain, stiffness, and functional status. In our experience, we noticed that the chemical neurolysis provide good pain relief which provides a pain reduction period of 6 to 12 months. No complication has been reported thus far including neuroma and worsening of pain.

Conclusion

In conclusion, chemical neurolysis of the genicular nerve block for treatment of chronic knee pain is a cheaper and easier method to perform when compared to radiofrequency neurolysis. This is an effective method for pain relief which last around 6 to 12 months. This allow our patients to have a pain free period to improve on physiotherapy progress and ambulation. However, larger randomized controlled trials are needed to substantiate its use and we look forward to that in the near future.

2024-0084

A Comprehensive Comparison of the Technical Parameters in Single-Use Disposable Flexible Bronchoscopes

Samuel Tong[1], Xianyi timothy Yang[1*], David yew chuan Chong[1]

1. Department of Anaesthesia and Operating Theatre Services, Queen Elizabeth Hospital, Hospital Authority, Hong Kong, China

Background

Flexible bronchoscopy plays an important role in the clinical practice of anesthesia and intensive care. After the COVID-19 epidemic, concerns of cross-contamination have risen and hence the use of single-use disposable flexible bronchoscopes (SUDFB) has become more popular. Multiple manufacturers have produced their own SUDFB, which comes in various sizes and technical parameters. Detailed information is often not provided by the manufacturers. Even if certain parameters were provided, it is difficult to compare SUDFB between manufacturers when measurements have not been standardized.

Methods

12 bronchoscopes from 6 manufacturers were compared. Six parameters with clinical significance have been chosen – brightness, field of view, suction, weight, length & angulation. Multiple measurements were done by blinded examiners, and results with averages and standard deviations were tabulated.

Results

The CMAC 3.5 had the strongest light intensity while the Vathin slim had the weakest light intensity. All devices had a similar angular field of view. The Bronchoflex Vortex had the strongest suctioning ability. The anterior and posterior angulation of all devices were similar. The Bronchoflex Agile, Vortex and CMAC devices were lighter than the other devices.

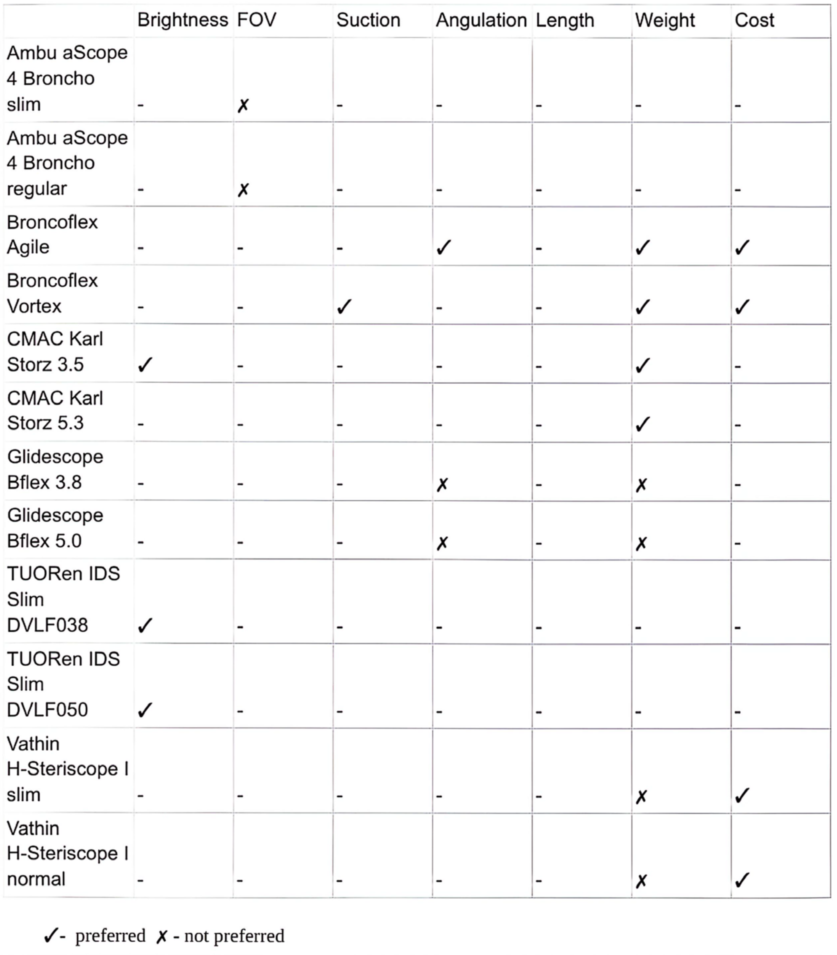
Conclusion

While the different models of SUDFBs had comparable specifications, there were differences in their parameters and costs (Figure 1). Choosing an appropriate SUDFB for bulk purchase is a multi-factorial decision that will also need to take into account operator preference.

2024-0084

Figure & Table

Figure 1. Bronchoscope



	Brightness	FOV	Suction	Angulation	Length	Weight	Cost
Ambu aScope 4 Broncho slim	-	✗	-	-	-	-	-
Ambu aScope 4 Broncho regular	-	✗	-	-	-	-	-
Broncoflex Agile	-	-	-	✓	-	✓	✓
Broncoflex Vortex	-	-	✓	-	-	✓	✓
CMAC Karl Storz 3.5	✓	-	-	-	-	✓	-
CMAC Karl Storz 5.3	-	-	-	-	-	✓	-
Glidescope Bflex 3.8	-	-	-	✗	-	✗	-
Glidescope Bflex 5.0	-	-	-	✗	-	✗	-
TUORen IDS Slim DVLF038	✓	-	-	-	-	-	-
TUORen IDS Slim DVLF050	✓	-	-	-	-	-	-
Vathin H-Steriscope I slim	-	-	-	-	-	✗	✓
Vathin H-Steriscope I normal	-	-	-	-	-	✗	✓

✓- preferred ✗ - not preferred

2024-0093

Antibiotic-impregnated central venous catheter(CVC) coating technique for long-term prevention of CRBSIs

Seung zhoo Yoon[1], Hye won Shin[1*], Choon hak Lim[1], Jang eun Cho[1], Sung uk Choi[1], DongHyun Na[1]

1. Department of anesthesiology, Korea Univ. hospital, Anam, Republic of Korea

Background

Doubts have been raised about the long-term antibacterial effectiveness of chlorhexidine and silver sulfadiazine-impregnated central venous catheter (CSS-CVC), which is used to reduce catheter-related bloodstream infections (CRBSIs). In response, this study investigates the antimicrobial efficacy and coating durability over time of newly developed antibiotic-impregnated CVCs, coated in nanofiber form, using a bloodstream model.

Methods

We developed ampicillin-impregnated CVCs by coating them in nanofiber form using three distinct methods (S-1, S-2, S-3). Each CVC was subjected to a bloodstream model at a flow rate of 4L/min and analyzed at wear-out times of 24 and 72 hours. The analyses included optical density (OD) measurements at 600 nm after a Staphylococcus aureus incubation, energy-dispersive X-ray spectroscopy (EDS), and scanning electron microscopy (SEM).

Results

In the S. aureus incubation test, the OD600 values of the ampicillin-impregnated CVCs for all three methods were significantly lower compared to the OD600 value of the standard CVC at both 24 and 72 hours ($P < 0.001$). SEM imaging revealed no significant decrease in the coating thickness across the entire surfaces of S-1 ($P=0.08$) and S-2 ($P=0.11$) CVCs, with the exception of S-3 ($P=0.04$).

Conclusion

Using a nanofiber coating technique, the ampicillin-impregnated CVCs provide sustained antimicrobial effects and coating durability for up to 72 hours. Therefore, antibiotic-impregnated CVCs manufactured using this method can be safely used in clinical settings for extended periods (over 3 days) without concerns of contamination.

2024-0093

Figure & Table

Figure 1.

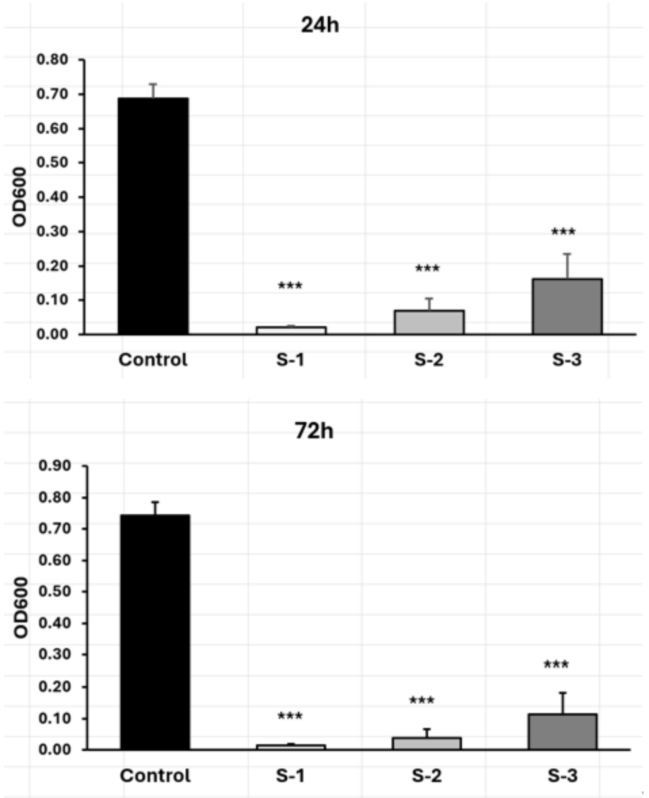
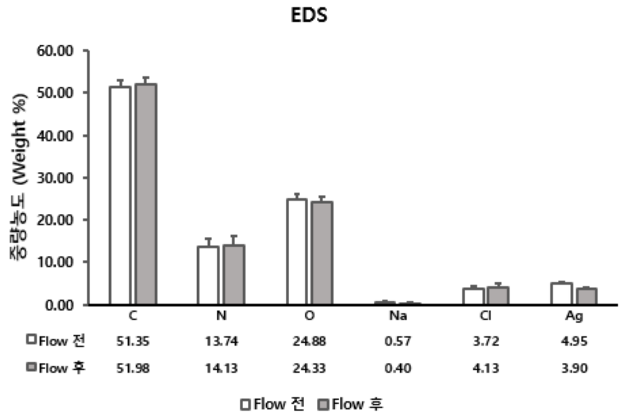


Figure 2.



2024-0094

A case of successful continuous sacral epidural administration of ethanol therapy for anal pain due to multiple metastasis of malignant pheochromocytoma

Takehito Sato[1*], Ichiko Asano[1], Takahiro Ando[1]

1. Department of Anesthesiology, Nagoya University Hospital, Department of Anesthesiology, Japan

Background

Anal pain caused by the invasion of malignant tumors is often difficult to control with opioids alone, and this is one of the factors that significantly reduces the patient's quality of life. Catheter placement in the sacral epidural space and continuous administration of absolute ethanol can eliminate sensation only around the perineum, and compared to blocks using other neurodestructive drugs,such as intrathecal phenol block, it is less likely to cause bladder-rectum disorders, making it a good option for patients with preserved excretory function.

Herein,we report a case in which performed sacral epidural ethanol injection therapy and managed good pain control in a patient with anal pain caused multiple metastases of malignant pheochromocytoma.

Methods

The patient was a 45-year-old woman. She had been undergoing chemotherapy for multiple metastases of malignant pheochromocytoma, but it was not effective and she was diagnosed with about three months left to live. Due to the worsening pain, the patient was admitted to the hospital urgently and started on hydromorphone hydrochloride 18 mg/day, which controlled the pain and improved the patient's condition. However, the anal pain at rest, which worsened when standing, did not improve with opioid rescue administration, so the patient was referred to our department.

Currently, the patient's bladder and rectal function remained and she was able to walk, but she had anal pain of about NRS 8, which worsened especially when standing, so she was only able to move around the ward. CT showed a large tumor mass near the uterus and anus, and it was speculated that the anal pain was caused by the tumor moving toward the anus due to weight bearing while standing. We determined that the patient was suitable for sacral epidural ethanol injection therapy, and placed an epidural catheter through the sacral hiatus under fluoroscopy. After a test block was performed and the pain-relieving effect was confirmed, 2% xylocaine was continuously administered overnight at 2 ml/h (approximately 14 hours), followed by slow administration of 1.5 ml of absolute ethanol, followed by continuous administration at 2 ml/h. A total of 13.5 ml was administered and the treatment was completed. After the administration was completed, the anal pain decreased to about NRS 0-1, and the pain that worsened when standing disappeared, and the patient was able to walk. There was no recurrence of pain thereafter, and the plan was to provide palliative care at home, so the patient was discharged home on the 5th day after the ethanol injection.

Results

We report a case in which sacral epidural ethanol injection therapy was successful for anal pain that worsened when standing due to multiple metastases of malignant pheochromocytoma.

2024-0095

Postpartum Hemorrhage in Epidural Labor Analgesia

Kei Komatsu[1*], Anna Koyama[1], Tsukasa Yoshida[2], Ami Satou[2], Michiko Yamanaka[2],
Sachiko Ohde[3], Nobuko Fujita[1], Seiki Abe[1]

1. Anesthesiology, St. Luke's International Hospital, Japan
2. Gynecology, St. Luke's International Hospital, Japan
3. Public Health, St. Luke's International University, Graduate School of Public Health, Japan

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Background

One complication of epidural labor analgesia is prolonged labor due to secondary uterine inertia, which can lead to postpartum hemorrhage (PPH, ≥1000 mL). Oxytocin is commonly administered to prevent prolonged labor, but prolonged exposure may increase the risk of atonic hemorrhage due to receptor desensitization. This study investigates the optimal timing of oxytocin administration under epidural analgesia and its impact on blood loss.

Methods

A retrospective cohort study was conducted on patients who received oxytocin during epidural labor analgesia from January 1, 2019, to March 31, 2023. Exclusion criteria included prior labor induction, multiparity, and cesarean delivery. The primary outcome was the incidence of PPH (≥1000 mL). Secondary outcomes included umbilical artery blood gas (pH <7.2/≥7.2) and delivery outcomes (instrumental/vaginal delivery). Statistical analysis was performed using t-tests.

Results

The study included 280 cases (PPH: 235, median age: 34 years, pH <7.2: 21 cases, instrumental delivery: 53 cases). No statistically significant difference was found between the timing of oxytocin administration and PPH (p=0.446). No significant differences were observed in umbilical artery blood gas pH <7.2 (p=0.809) or instrumental delivery rates (p=0.971).

Conclusion

The timing of oxytocin administration after epidural labor analgesia is not associated with the incidence of postpartum hemorrhage. Further studies are needed to confirm these findings.

2024-0100

Development of nomogram for predicting post-liver transplant survival using cardiac biomarkers in patients with acute-on chronic liver failure

Hyeon-seok Lee[1], Sang-bin Han[1], Hye-mee Kwon[1], In-gu Jun[1], Jun-gol Song[1], Gyu-sam Hwang[1*]

1. Department of Anesthesiology and Pain Medicine, Laboratory for Cardiovascular Dynamics, Asan Medical Center, Ulsan University College of Medicine, Republic of Korea

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Background

Acute-on-chronic liver failure (ACLF) is a complex clinical syndrome, characterized by four organ failures: the kidney, brain, circulatory system, and respiratory system, according to the North American Consortium for the Study of End-Stage Liver Disease's ACLF definition (NACSELD-ACLF). We hypothesized that the NACSELD-ACLF score may not be wholly indicative of multiorgan failures if it overlooks critical cardiac impairment. Therefore, we evaluated the severity of cardiac involvement using cardiac biomarkers in patients with ACLF and generated a simplified nomogram that integrates cardiac biomarkers to NACSELD-ACLF score to predict early post-liver transplant (LT) survival.

Methods

Among 3686 patients who underwent LT from 2008 to 2019, 710 (19.3%) patients with ACLF who measured both preoperative B-type natriuretic peptide (BNP) and high-sensitivity troponin I (hsTnI, the 99th percentile upper reference limit (URL)=0.04 pg/L, lower limit=0.006 pg/L) were evaluated. With cutoff values of BNP > 400 pg/mL for "acute heart failure likely" and hsTnI > 10 times URL for significant myocardial injury or infarction, nomograms were created with the 'rms' package in R. The hsTnI cutoff was derived from the conditional inference tree model with the smallest P values.

Results

The median BNP and hsTnI levels were 145 (IQR, 64–360) pg/mL and 0.014 (IQR, 0.006–0.053) ng/mL in patients with ACLF, respectively. Among patients with NACSELD-ACLF positive status, indicating failure > two organs, 34.2% had BNP> 400 pg/mL, and 12.0% exceeded 1000 pg/mL. Additionally, 12.5% had hsTnI> 10 times URL, and 4.3% had hsTnI> 30 times URL. Overall post-LT mortality rates at 30, 90, 180, and 365 days were 14.1%, 22.8%, 31.5%, and 35.3% in patients with NACSELD-ACLF positivity, respectively. The C-index for 30-day post-LT mortality was improved when cardiac biomarkers were integrated to NACSELD-ACLF positivity (0.679 to 0.749, P<0.001). A simplified nomogram using the NACSELD-ACLF score, BNP> 400 pg/mL, and hsTnI> 10 times URL were generated to predict post-LT survival probability at 28-, 90-, 180-, and 365-days, respectively.

Conclusion

In patients with NACSELD-ACLF positivity, cardiac impairment was prevalent and significantly impacted early post-LT survival. Our findings provide insights into the cardiac risk associated with ACLF, thereby potentially improving survival rates through timely cardiac interventions both before and after LT.

2024-0100

Figure & Table

Figure 1.

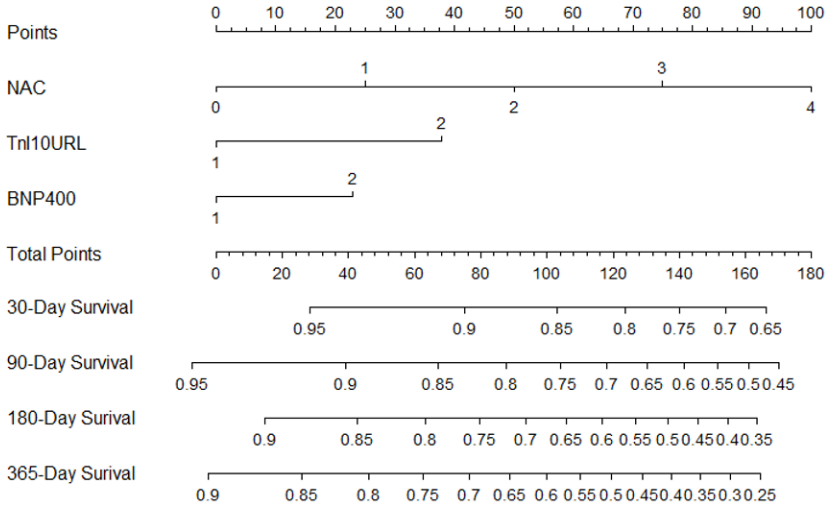


Figure: Nomogram predicting post-transplant survival probability in acute-on-chronic liver failure, NAC: NACSELD-ACLF score, BNP400: BNP>400 pg/mL, TnI10 URL; hsTnI >10 times URL (i.e., >0.4 pg/mL)

2024-0102

Knowledge and practice of preoperative clear liquid diet fasting among medical staff and nurses in medical school hospital

Phirunrat Senlin[1*], Jeerawan Kitijan[1], Chaowanan Khamtuikrua[1], Sirilak Suksompong[1]

1. Anesthesiology, Siriraj hospital, Thailand

Background

The American Society of Anesthesiologists (ASA) recommendation suggests a 2-hour clear liquid fasting period for elective surgery, aiming to improve preoperative comfort and decrease the length of hospital stay. However, knowledge and practice following the guidelines among medical staff and nurses are still poorly determined. The study aimed to assess the knowledge and practical application of preoperative clear liquid diet fasting, understanding ASA guidelines, and actual implementation among medical staff and nurses in a medical school hospital.

Methods

The methodology involved mailing questionnaires and inviting responses to an online questionnaire, which included surgical specialists, anesthesiologists, and nurses working at the Faculty of Medicine Siriraj Hospital. This data collection period spanned from October 2023 to April 2024

Results

A total of 273 participants responded. Participants could not correctly describe the practice guidelines for preoperative drinking water and clear liquid diet fasting were 26.4% and 22.3%, respectively. Non-anesthesia personnel significantly provided a wrong answer about clear liquid diet fasting ($p< 0.01$). Of all participants, 70.3% provided incorrect orders for preoperative clear liquid diet fasting for patients undergoing elective surgery, and personnel who did fasting order for less than 20 patients per month had significantly provided incorrect order ($p< 0.01$).

Conclusion

It's concerning that despite most surgical specialists, anesthesiologists, and nurses understanding ASA guidelines for preoperative clear liquid diet fasting. There are still inappropriate current practices for the fasting period. This indicates a gap between knowledge and implementation. Therefore, there is a need for educational efforts for best practices and improved patient outcomes.

2024-0103

Clavipectoral Plane Block, A Rising Analgesia Modality for Clavicle Fracture Surgery: A Case Series

Jessica Yeo[1], **Mu jung Lee**[1*]

1. Anesthesiology, Shin Kong Wu Ho-Su Memorial Hospital, Taiwan, China

Background

Clavicle fractures are common in Taiwan and mostly due to external impacts, pose a challenge for pain management because of the complex innervation of sensory nerves. Single regional anesthesia techniques often fall short in providing adequate pain relief. In 2017, Dr. Luis Valdés introduced the clavipectoral fascial plane block (CPB), which involves injecting local anesthetic between the clavipectoral fascia and the periosteum at the fracture site. CPB is a promising alternative for clavicular fracture surgery due to its simplicity and favorable safety profile.

Methods

Four patients (table 1) scheduled for clavicle-related surgeries were identified as suitable candidates for CPB. They received a regional anesthesia mixture consisting of 0.4% Ropivacaine, Dexamethasone 5mg, and Epinephrine 0.1mg. Patient-controlled analgesia (PCA) was available as rescue analgesia. Preoperative CPB was performed with continuous monitoring of vital signs. Follow-up data were collected from electronic medical records, and consent was waived for a case report submission.

Overall, CPB appears to be an effective regional anesthesia technique for clavicular fracture surgery in terms of reducing postoperative pain and opioid use. Across the four case studies as in table 1, CPB resulted in minimal postoperative pain, reduced opioid consumption, and high patient satisfaction. The use of 0.4% Ropivacaine showed consistent positive outcomes, indicating its potential as a reliable analgesic approach.

Results

Clavicle fractures complicate pain management due to complex innervation while combining superior trunk and interscalene blocks carries risks of adverse effects. CPB emerges as a safer alternative, targeting cutaneous sensory nerves without such complications. Four cases highlight CPB's effectiveness in reducing postoperative pain and opioid use. Its suitability varies by fracture location, warranting further research for optimization.

Figure & Table

Table 1. Supplementation results

Case	VAS in POR	PCA bolus		Total Morphine use (mg)
		During 1hr-POR stay	First PCA bolus after block performed (hr)	
#1	2	0	20	1
#2	0	0	16.5	1
#3	0	0	5.5	3
#4	1	0	6.5	2

2024-0104

Local anesthetic systemic toxicity caused by non-anesthesiologists: analysis of case reports and review

Ho kyung Yu[1], **Soo hee Lee**[1], **Ju-Tae SOHN**[1*]

1. Department of Anesthesiololgy and Pain Medicine, Gyeongsang National University Changwon Hospital, Gyeongsang National University College of Medicine, Republic of Korea

Background

Local anesthetics are widely used for various purposes by both anesthesiologists and non-anesthesiologists, including postoperative analgesia, pain control for procedures, and arrhythmia treatment. Local anesthetic systemic toxicity (LAST), primarily due to accidental intravascular absorption or overdose of local anesthetics, is rare but potentially fatal. Although local anesthetics are commonly used by non-anesthesiologists, there is limited analysis of cases involving LAST induced by non-anesthesiologists. This study analyzed case reports of LAST induced by non-anesthesiologists, focusing on the types of local anesthetics used, presumed causes, routes of administration, and lipid emulsion treatment.

Methods

Case reports regarding LAST induced by non-anesthesiologists were retrieved from PubMed using the following keywords: "bupivacaine toxicity," "levobupivacaine toxicity," "lidocaine toxicity," "ropivacaine toxicity," "tetracaine toxicity," and "prilocaine toxicity" until December 31st, 2023.

Results

A total of 56 articles were retrieved, involving 59 patients (one article reported on two patients, and another on three patients). The incidence of local anesthetics associated with LAST was as follows: lidocaine alone (59%), lidocaine plus prilocaine (12%), bupivacaine alone (10%), and ropivacaine alone (10%). The most common routes of administration associated with LAST were subcutaneous infiltration (37%) and topical application (37%). Local anesthetics associated with LAST induced by non-anesthesiologists were primarily used for pain control during various procedures (69%) and postoperative analgesia (12%). The most common presumed cause of LAST was an overdose of local anesthetics (76%). The common symptoms associated with LAST were central nervous system symptoms alone (40%) and combined central nervous and cardiovascular system symptoms (24%). Twenty-nine percent of patients with LAST induced by non-anesthesiologists received lipid emulsion treatment in addition to supportive treatment, resulting in full recovery. Seventy-one percent of patients with LAST induced by non-anesthesiologists received only supportive treatment without lipid emulsion, leading to a 74% full recovery rate. The likelihood of recommending lipid emulsion treatment for LAST induced by non-anesthesiologists was highest among anesthesiologists, followed by emergency physicians, and then rapid response teams, intensivists, or poison control centers.

Conclusion

These results suggest that subcutaneous infiltration or topical application of lidocaine, particularly in overdose situations, by non-anesthesiologists is a significant contributor to LAST. Preventive measures, including education on the maximal recommended doses of local anesthetics and predisposing risk factors for LAST, should be implemented. Additionally, lipid emulsion should be readily available to treat LAST in any setting where local anesthetics are used.

2024-0107

Ultrasound guided thoracic paravertebral block as post operative pain control in a rare case of myasthenia gravis who underwent video assisted thoracoscopic surgery (VATS) for thymectomy

Sittie haynnah Monte[1], Norjana Lao[1*]

1. Anesthesiology, Amai Pakpak Medical Center, Philippines

Background

Postoperative pain control in a VATS patient with myasthenia gravis is a delicate balancing act. These patients present unique challenges to anesthesiologists due to their underlying neuromuscular weakness. Inadequate analgesia can lead to increased oxygen demand, tachypnea, and ultimately, respiratory compromise post operatively. Excessive opioid use can also exacerbate neuromuscular blockade. We present a successful use of ultrasound guided thoracic paravertebral block using ropivacaine as postoperative pain control in Myasthenia Gravis (MG) patient who underwent video-assisted thoracoscopic surgery (VATS) for thymectomy.

Methods

A 57-year-old/F, Filipino, 75 kg, ASA II with MG, controlled with Pyridostigmine and Prednisone, underwent VATS for thymectomy. Medical history includes hypertension maintained with Telmisartan 80 mg + Amlodipine 10 mg, pulmonary tuberculosis – treated, and chronic hepatitis B infection. Preoperatively, she was given Ondansetron 4 mg, Dexamethasone 8 mg, and Neostigmine 0.75 mg IV. Anesthesia was induced with Midazolam, Fentanyl, Propofol, and Rocuronium with train-of-four (TOF) monitoring to guide dosing. Double-lumen tube (DTL) placement was confirmed with fiberoptic bronchoscopy. Sevoflurane was used to maintain anesthesia, with depth monitored by bispectral index (BIS). For postoperative pain, ultrasound guided single shot thoracic paravertebral block with 0.5% Ropivacaine 20 mL each at T3 and T8 was performed. Sugammadex was given and within 5 minutes, patient's TOF returns to baseline indicating a full reversal of residual neuromuscular blockade. Extubation then proceeded uneventful.

On post operative days 1 and 2, pain score was 1/10 NRS. She received paracetamol 1,000 mg IV every 8 hours for two days as part of multimodal analgesia, and received no oral or IV opioids. Course in the ward was unremarkable hence patient was sent home post op day 4 with daily follow up assessment revealing satisfactory pain control of 1-2 NRS.

Results

This paper highlights two things: (1) successful reversal of rocuronium after use of sugammadex in a patient with MG, and (2) the use of ultrasound guided thoracic paravertebral block, a minimally invasive technique offering excellent analgesia without utilizing opioid. The combination of these treatment options optimized the patient's respiratory function which hastened her recovery following VATS.

2024-0107

Figure & Table

Figure 1.

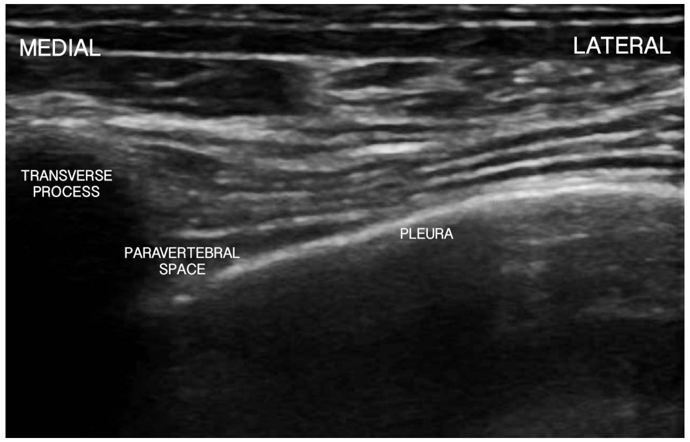
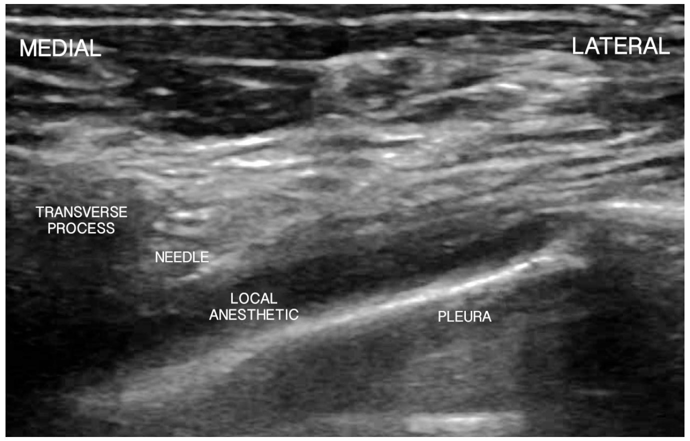


Figure 2.



2024-0110

Diagnosing and Managing Post-Thyroidectomy Diaphragmatic Paralysis: A Case Report

Masayuki Akatsuka[1*], Kotaro Yamano[2], Hiroomi Tatsumi[1]

1. Department of Intensive Care Medicine, Sapporo Medical University School of Medicine, Japan
2. Division of Rehabilitation, Sapporo Medical University Hospital, Japan

Background

Diaphragmatic paralysis is a rare but severe cardiac surgery complication with poor outcomes including a high rate of mortality and prolonged ventilation [1]. Although this condition frequently occurs in pediatric cardiac surgery [2, 3], there are limited data on its occurrence in adult patients, for whom the prevalence is 0.8%–6% [4]. Furthermore, the incidence of phrenic nerve paralysis that occurs after other surgeries remains unclear. Here we present a case of diaphragmatic paralysis after thyroid surgery.

Methods

A 76-year-old man was diagnosed with thyroid cancer, multiple cervical lymph node metastases, and mediastinal lymph node metastasis. Total thyroidectomy, bilateral neck dissection, and mediastinal lymph node dissection were performed. After surgery, the patient was extubated in the operating room and discharged to the general ward. Although he had right recurrent laryngeal nerve paralysis, the postoperative course was uneventful. However, on the fourth day after surgery, he developed dyspnea, and examination using a laryngeal fiberscope revealed edema of the right vocal cord. A tracheotomy was performed on that day. Even after the tracheotomy, the patient occasionally complained of dyspnea and had decreased oxygenation, leading to ICU admission on the ninth postoperative day. A chest X-ray showed that the left diaphragm was elevated, suggesting phrenic nerve paralysis. After mechanical ventilation was started, the patient's dyspnea was alleviated and oxygenation was maintained. Left diaphragm ultrasound revealed diaphragmatic excursion of 0 mm with minimal diaphragm contraction. On the third day in the ICU, the patient was discharged to the general ward while still attached to the ventilator. The patient continued to receive rehabilitation from a physical therapist and was weaned from the ventilator on the 18th postoperative day. A chest X-ray showed that the elevation of the left diaphragm had disappeared and that the diaphragm had returned to its normal position.

Results

We presented a case of diaphragmatic paralysis after thyroidectomy. Radiological findings and diaphragm ultrasound in addition to clinical assessment were useful for the diagnosis of diaphragmatic nerve paralysis. Early diagnosis and continued long-term rehabilitation may make it possible to wean the patient from the ventilator.

2024-0111

Delayed Neurological Deficit After Posterior Spinal Instrumentation & Fusion In Adolescent Idiopathic Scoliosisiosis

Nik Rowina Nik Mohammed[1*], Janes belinda Tan geil nii[1]

1. Anaesthesiology & Intensive Care, Universiti Putra Malaysia, Malaysia

Background

Adolescent idiopathic scoliosis (AIS) is the most common form of pediatric scoliosis occurring in individuals age 10-18 years old. The neurological complications following scoliosis surgery is demonstrated to be 0.69%. Most of the neurological insults occur at the time of surgery due to vascular injury during the spinal cord correction or direct trauma to the spinal cord during exposure or instrumentation. Spinal cord ischemic injury on the other hand could be multifactorial in etiology which could be exacerbated by hypotension, local postoperative edema and oxygen tension.

Methods

A 12-year-old girl with scoliosis and cobb angle of 72 degrees at the thoracic level underwent a posterior spinal instrumentation and fusion for adolescent idiopathic scoliosis. Preoperatively, her neurology was intact and surgery was performed under total intravenous anaesthesia (TIVA) using TCI propofol and remifentanil. Intraoperative neuromonitoring (IONM) with transcutaneous motor evoked potential (TcMEP) and somatosensory evoked potential (SSEP) was also used. Spinal instrumentation was done from T1 to L3 level and intraoperatively the procedure was uneventful. Throughout the surgery, neuromonitoring showed no drop in signal from the TcMEP and surgery was uncomplicated. She was sent to Post Anesthetic Care Unit (PACU) for observation post-operatively where she had one episode of hypotension with mean arterial pressure (MAP) of 41mmHg and tachycardia. She was given IV fluid bolus and transfused 1 pint of pack cell. IV noradrenaline infusion was also started to maintain a higher MAP>75mmHg. Her condition eventually improved and she was extubated 3 hours post surgery. Immediate neurological examination showed both sensory and motor functions to be fully intact. However, subsequent review 2 hours later found that she had developed sudden motor weakness in bilateral upper and lower limbs with decreased sensation at the T5-S1 distribution. Decision was made to remove the spinal implant in OT as the impression was spinal cord traction had caused hypoperfusion. Intraoperatively, neuromonitoring showed no signal below T1 level and her neurological recovery did not improve even after the procedure. A spine MRI was later performed which showed cervical central cord syndrome with cord edema at C3-T1 level, worst at the C5 & C6 level secondary to reperfusion injury. Intravenous methylprednisolone was administered and continued for 48 hours. However, she showed no improvement with minimal motor movements in the upper limbs and no motor movement in the lower limbs. She remained in the ICU for 3 months and had tracheostomy done for slow neurological recovery.

Results

Delayed neurologic deficit after posterior spinal fusion is very rare with an incidence of 0.01% and only a few case reports in the literature have been reported to date. In this case, the findings were even more unusual as the zone of injury was remote from the site of deformity and surgery. The transient episode of hypotension in this patient could not be ruled out as the cause of the delayed complication. This highlight the importance of regular monitoring and maintaining adequate spinal cord perfusion pressure throughout the surgery and post-operatively to avoid ischemia which could further complicates the situation.

2024-0112

Low dose intrathecal morphine in thoracic surgery

Thanaphon Srimueang[1*], **Sunittra Yuencheevit**[1]

1. Anesthesiology, Khon Kaen University, Thailand

Background

Intrathecal morphine (ITM) can be a part of multimodal analgesia, safe, simplicity, effective, require small dose. The specific to mu receptor in spinal cord with fewer systemic absorption and spare sensory, motor or sympathetic blockade can be used to cover postoperative pain control in thoracic surgery. We reviewed the amount of postoperative morphine consumption after thoracotomy, video-assisted thoracic surgery (VATs), and sternotomy after combined general anesthesia and ITM.

Methods

Retrospective study during January 1, 2014 to March 15, 2018 in patients underwent thoracic surgery with ITM 0.1 or 0.2 mg. The primary outcome was the amount of postoperative morphine consumption in 24 h. The secondary outcomes were the amount of postoperative morphine consumption in 24-48 h, numerical pain score at rest, at movement, and adverse events in the two time periods.

Results

There were 151 patients analyzed, 96 for ITM 0.1 mg, and 55 for ITM 0.2 mg. Similar surgical approach via thoracotomy, video-assisted thoracic surgery (VATS), and sternotomy of both groups. There were no statistical differences in postoperative morphine consumption between ITM 0.1 and 0.2 mg. At 24 h there were 10.5±9.3 mg vs 8.8±7.9 mg (p=0.245). During 24-48 h were 7.0±5.8 mg vs 6.7±7.1 mg (p= 0.798). Pain score were similar in both groups and time. No respiratory depression was observed. The adverse event in 24 h, there was higher nausea and vomiting of the group ITM 0.1 mg, 30.2% vs 18.2%, but no statistical difference, p=0.144. Pruritus occurred low in both group.

Conclusion

Low dose ITM seems safe and quite effective for postoperative analgesia for thoracic, non-cardiac surgery in three approaches.

2024-0115

Propofol use and dose for sedation during Endos copy in Mongolian adult. Single center study

Batkhurel Batbayar[1,2], **Enkhchimeg Tuul**[1,2], **Chantsal Bold**[3*]

1. Anesthesiology, Brilliant hospital IGIC Center, Mongolia
2. Anesthesiology, IGIC Center, Mongolia
3. Anesthesiology, EMJJ hospital, Mongolia

Background

Over the past decade at for international level, gastrointestinal endoscopic examination for the pain relief and sedation has become common. In Mongolia for the first time, diagnostic endoscopy with sedation was performed at UB Songdo hospital in 2007 and since the establishment of IGIC Endoscopic Center in 2019, a total of 23500 patients have undergone diagnostic endoscopy with sedation.

In Japan, the dose of propofol for pain relief and sedation dor GI endoscopy is 0.4-0.8 mg/kg, in South Korea 1.67-2.66mg/kg, in China 1.89-2.0mg/kh, and in USA 1.2-2mg/kg. Therefore, it has become a reason to stude how many there are in Mongolia.

Methods

The determination of the effective dose of propofol during diagnostic endoscopy with pain relief and sedation according to the age and body weight of Mongolian people. Since 2019, a total of 23500 patients have undergone diagnostic endoscopy with sedation and we collected 1000 patients randomly. In the statistics program, we used SPSS and Microsoft Excel.

Results

Of the 1000 patients, there were 616 women and 384 men; 91 (20–30 years old), 225 (31–40 years old) 258 (41–50 years old), 204 (51–60 years old), 151 (61–70 years old), and 71 (over 71 years old) people participated. The average dose of propofol was 17ml (20-60 years old), 16ml (61-70 years old), 14.8ml (over 71 years old). It appears that there is a small age difference in terms of the effective dose of the propofol but it affects older people more.

The average dose of propofol injection during sedated endoscopy lasting 10–12 minutes is 14 ml for 40–50 kg, 14.4 ml for 46–50 kg, 16 ml for 51–55 kg, 15.9 ml for 56–60 kg, 16.5 ml for 61–65 kg, 17 ml for 66–70 kg, 17.6 ml for 71–75 kg, 17.9 ml for 76–80 kg, 17.5 kg for 81–85 kg, 18.8 kg for 86–90 kg, and 19.3 ml for more than 91 kg. The average dose for Mongolian people was 2.5mg/ kg compared to the total weight.

2024-0116

Anesthetic challenges in a Patient with Huge Multinodular goiter for Emergency Lower Segment Cesarean Section Surgery: A Case Report

Boon Tat Yeap[1*], Thai hau Koo[2], Ikhwan Nasir[1], Mohd fauzy Mat sani[3], Shari Nor[4]

1. Anaesthesiology & Intensive Care, Faculty of Medicine & Intensive Care, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
2. Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
3. Anaesthesiology & Intensive Care, Tawau Specialist Medical Centre (Tsmc), Tawau, Sabah, Malaysia
4. Obstetrics & Gynaecology, Tawau Specialist Medical Centre (Tsmc), Tawau, Sabah, Malaysia

Background

Thyroid disease is the second most common endocrine disorder affecting women of reproductive age, and its management during pregnancy is critical especially untreated thyroid disease due to the associated risks of miscarriage, placental abruption, hypertensive disorders, and growth restriction. Pregnant women with large multinodular goiters present unique anesthetic challenges, necessitating careful planning and a multidisciplinary approach. This case report discusses the anesthetic management of a pregnant patient with a large multinodular goiter undergoing an emergency lower segment cesarean section (LSCS).

Methods

A 34-year-old gravida 3, para 2 woman at term, with an antenatally uneventful history, had two previous lower segment cesarean sections in 2016 and 2020. Diagnosed with a large thyroid swelling in 2021, she initially presented with hyperthyroidism, treated with carbimazole for a year. Subsequently, she became hypothyroid and was taken off medication. In 2023, she became pregnant and was biochemically and clinically euthyroid throughout the pregnancy. Despite no compressive symptoms, she noted a gradual increase in the size of her thyroid gland since the first trimester. She presented with poor labor progress and fetal distress, necessitating an emergency LSCS. Preoperative evaluation revealed a multinodular goiter, with normal thyroid function tests. She received a subarachnoid spinal block at the L3-L4 level with 0.5% heavy bupivacaine (3 ml) and fentanyl (25 mcg). Intraoperatively, she developed tachycardia and hypertension, managed with labetalol, and was diagnosed with late-onset pregnancy-induced hypertension (PIH). The surgery was uneventful, and both mother and baby recovered well.

Results

The association of thyroid disease with pregnancy is well-documented, with increased thyroid volume and hormone levels due to the enhanced functional activity of the thyroid gland and nodular remodeling of goiters. This case highlights significant anesthetic challenges, primarily airway management. The enlarged thyroid posed a risk of tracheal deviation and difficult intubation, making spinal anesthesia a preferred choice to avoid airway manipulation and potential hypertensive responses to laryngoscopy. Maintaining hemodynamic stability was crucial, given the cardiovascular changes induced by pregnancy, including increased blood volume, cardiac output, and heart rate. Spinal anesthesia effectively provided adequate anesthesia without compromising maternal and fetal safety by avoiding the hemodynamic responses associated with intubation. The altered pharmacokinetics of anesthetic drugs in pregnancy necessitated careful dosing and monitoring. Continuous monitoring of thyroid function and hemodynamic parameters was essential to detect any signs of thyroid dysfunction. This case underscores the importance of a multidisciplinary approach involving obstetricians, endocrinologists, and anesthesiologists. Such collaboration ensures optimal maternal and fetal outcomes through careful planning, thorough preoperative assessment, and continuous monitoring to address the complex needs of these patients and provide safe and effective anesthesia.

2024-0118

Challenging airway in a giant neurofibroma case: A novel life saving approach

Supreet Kaur[1*]

1. Anaesthesiology, All India institute of medical sciences, Patna, Bihar, India

Background

Plexiform neurofibromas are autosomal dominant disorders causing abnormalities of involved or adjacent structures. These can be found in the oropharynx, larynx and around face which may further produce difficulties with laryngoscopy and tracheal intubation. Large masses around face poses a challenge for bag and mask ventilation. Both oxygenation and ventilation can become questionable in these circumstances. We report a case of using I-gel for difficult bag and mask ventilation in a patient with giant facial neurofibroma. Informed written consent was taken from the patient.

Methods

A 33 year old male presented with a giant swelling over face and was posted for debulking surgery. He had normal physical status and investigations, with no comorbidities. Airway examination revealed mouth opening > 3 fingers and normal neck movements. ENT consultation revealed patent airway. Patient did not give consent for awake tracheal intubation. Bag and mask ventilation was perceived to be difficult. I-gel insertion was planned after induction. Surgeons were informed regarding urgent need for tracheostomy.

Pre-operatively patient was prepared for awake intubation and shifted to OR. Trans tracheal block was given with 4 ml of LIGNOCAINE 4%. ASA standard monitors attached and pre oxygenation was done. After administering Inj FENTA. 50 mcg and Inj PROPOFOL 20 mg, I-gel of size 4 was placed for ventilation. Visualization via I-gel by pre lubricated AmbuScope was done and I- gel then removed. Pre lubricated AmbuScope was introduced through mouth and directed till vocal cords were visible. Inj. SUCOL 100 mg was administered I.V. Bronchoscope was directed further through vocal cords till carina was visualized. A reinforced Endotracheal tube of size 7.5 mm was railroaded and advanced. Bilateral air entry checked, position of ET tube ensured and fixed at 22 cm. Inj. ATRACURIUM 30 mg was given and anaesthesia maintained on inhalational agents and controlled mechanical ventilation. Surgery was completed in 4 hours. Weaning trial was given and Inj. Myopyrolate 6 ml used as a reversal agent. Patient was extubated on complete return of motor power and adequate tidal volume generation. Post extubation, oxygen was supplemented with use of face mask and oral airway. Patient was shifted to ICU for further management.

Results

Neurofibromas have higher chances of airway distortion and hence awake fibreoptic intubation is considered the gold standard. We had to place a supraglottic device in order to allow for ventilation and proceeded successfully with the same. We can conclude that the use of the laryngeal mask airway and other supraglottic devices like combitube, laryngeal tube should be encouraged when facemask ventilation is difficult and it can help provide newer and effective ways of dealing in absence of awake intubation.

2024-0118

Figure & Table

Figure 1.

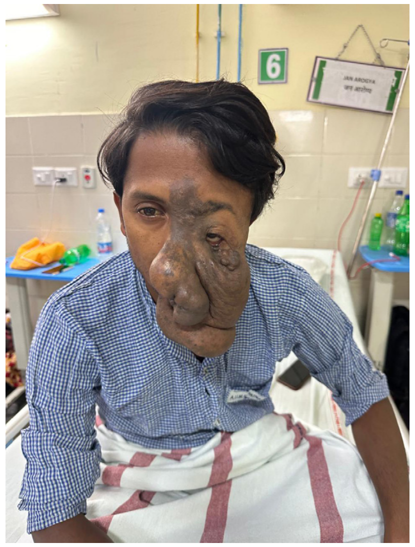
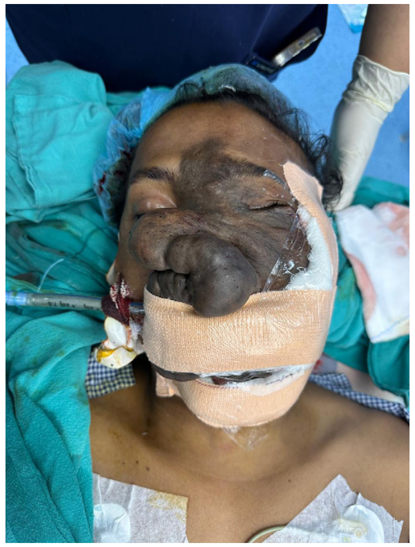


Figure 2.



2024-0119

Unanticipated Difficult Intubation in the Presence of an Undiagnosed Large Asymptomatic Lingual Thyroid: A Case Report

Sandy Lim[1*], Chi ho Chan[2], Fook onn Lai[3]

1. Anaesthesiology, SingHealth, Singapore
2. Anaesthesiology, SingHealth (Sengkang General Hospital), Singapore
3. Anaesthesiology, SingHealth (Sengkang General Hospital), Singapore

Background

A lingual thyroid is a rare anomaly caused by the failure of thyroid gland migration during embryogenesis. Majority are asymptomatic, yet presence of this aberrant mass at the base of tongue can make airway management challenging. We present a case of an unanticipated difficult intubation as a result of a large asymptomatic lingual thyroid that was discovered during routine intubation in a patient undergoing elective laparoscopic anterior resection.

Methods

A 75-year-old Chinese lady presented for an elective anterior resection for a sigmoid malignancy. Patient had a history of hypertension, hyperlipidaemia, and was incidentally diagnosed with primary hypothyroidism during routine investigation for sigmoid malignancy. Patient had no prior thyroid symptoms, globus sensation, vocal changes or obstructive symptoms. Pre-operative assessment of the airway was unremarkable, with no visible mass in the oral cavity on tongue protrusion, nor was there a palpable mass on neck examination. After induction, manual ventilation was adequate with an oral airway. Initial attempt at laryngoscopy with a McGrath video laryngoscope showed a large anterior pharyngeal mass which obstructed visualisation of the glottis. Fibreoptic nasal intubation with a disposable Ambu bronchoscope was then attempted, but encountered difficulty navigating past the mass despite employing a jaw thrust manoeuvre. A hybrid laryngoscopy-fibreoptic bronchoscope technique was used, and the bronchoscope could then successful navigate past the mass to reveal the glottis. Railroading of the endotracheal tube past the pharyngeal mass and into the glottis was uneventful. After successful intubation, surgery proceeded uneventfully. Post-operatively, a computed tomographic scan of the neck was performed and showed a heterogeneously enhancing well defined 2.7 x 2.3 x 2.6 cm nodule arising from the base of tongue in the midline, abutting the oral surface of the epiglottis. Additionally, no thyroid tissue was found in the expected location of the thyroid bed, suggesting the presence of a lingual thyroid.

Results

This case report details a rare instance of an unanticipated difficult airway caused by an undiagnosed large asympatomic lingual thyroid. The management involved maintaining presence of mind and employing a combination of airway techniques as necessary, which ultimately led to overcoming the airway challenges and achieving a successful outcome.

2024-0119

Figure & Table

Figure 1. Large anterior pharyngeal mass encountered during videolaryngoscopy

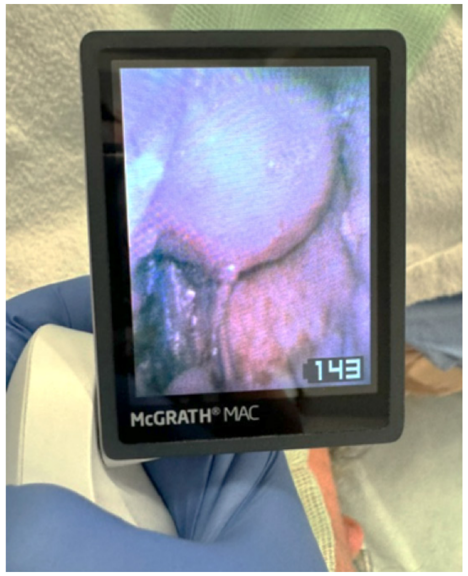
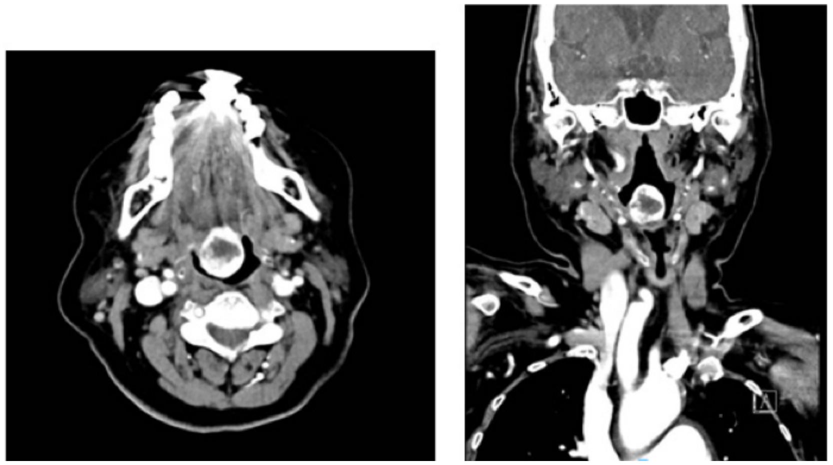


Figure 2. Computed tomographic scan of the neck showed a heterogeneously enhancing well defined 2.7 × 2.3 × 2.6 cm nodule arising from the base of tongue in the midline, abutting the oral surface of the epiglottis. There is no thyroid tissue in the expected location of the thyroid bed.



2024-0123

Botulinum Toxin as an Effective Treatment for Persistent Twitching in first toe: A Detailed Case Study

Jaesuk Kim[1], Seongjin Park[1], So young Kwon[1*]

1. Anesthesia and Pain medicine, The Catholic University of Korea, ST. Vincent's Hospital, Republic of Korea

Background

Continuous fasciculation that occurs without weakness is referred to as benign fasciculation. Although generally considered non-threatening, cases that persist can significantly impact an individual's quality of life.

Methods

This study presents a case of a 36-year-old male patient experiencing unyielding twitching localized to his left sole for two years. His medical history was devoid of any notable neuromuscular diseases. Results from electromyography (EMG) testing were also normal for all parameters. Attempts with pharmacological intervention did not yield any improvement of his condition. Although a nerve block targeting the left tibial nerve managed to reduce the severity of the twitching, it failed to decrease its frequency or provide a lasting solution.

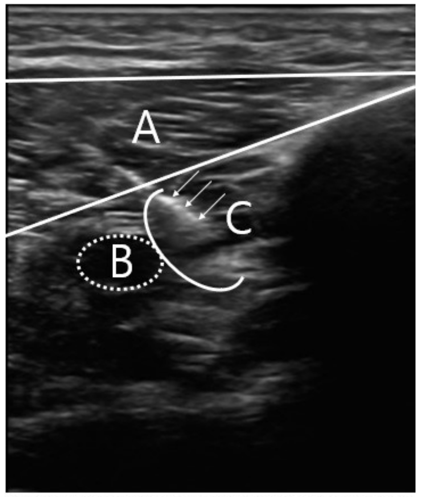
In search of a more effective treatment, botulinum toxin was administered via ultrasound guidance into the flexor hallucis and digitorum longus muscles. This approach resulted in a marked reduction in both the frequency and severity of the twitching, enabling the patient to resume his daily activities and achieve restful sleep without experiencing any adverse effects.

Results

Through this case, the efficacy of botulinum toxin injections as a treatment for intractable twitching is underscored, offering valuable insights into potential therapeutic strategies for similar clinical presentations.

Figure & Table

Figure 1.



A : Soleus muscle, B : Posterior tibial artery, C : Flexor digitorum longus muscle
Arrow : Needle in Flexor digitorum longus muscle

Determine outcomes of continuous sedation among mechanically ventilated adult patients in the ICU of a tertiary hospital in the Philippines

Fatima hayranie Guro[1,2*], Viena flor Del prado[1]

1. Acute and Critical Care Institute, The Medical City, Philippines
2. Internal Medicine, Amai Pakpak Medical Center, Philippines

Background
Sedation is an essential management in ICU. Latest guidelines recommend the use of light sedation and reduced use of benzodiazipines. This study aimed to characterize ICU sedation practices of a tertiary hospital in the Philippines and to record outcomes of continuous sedation for ≥48hours using propofol or midazolam among mechanically ventilated adult patients.

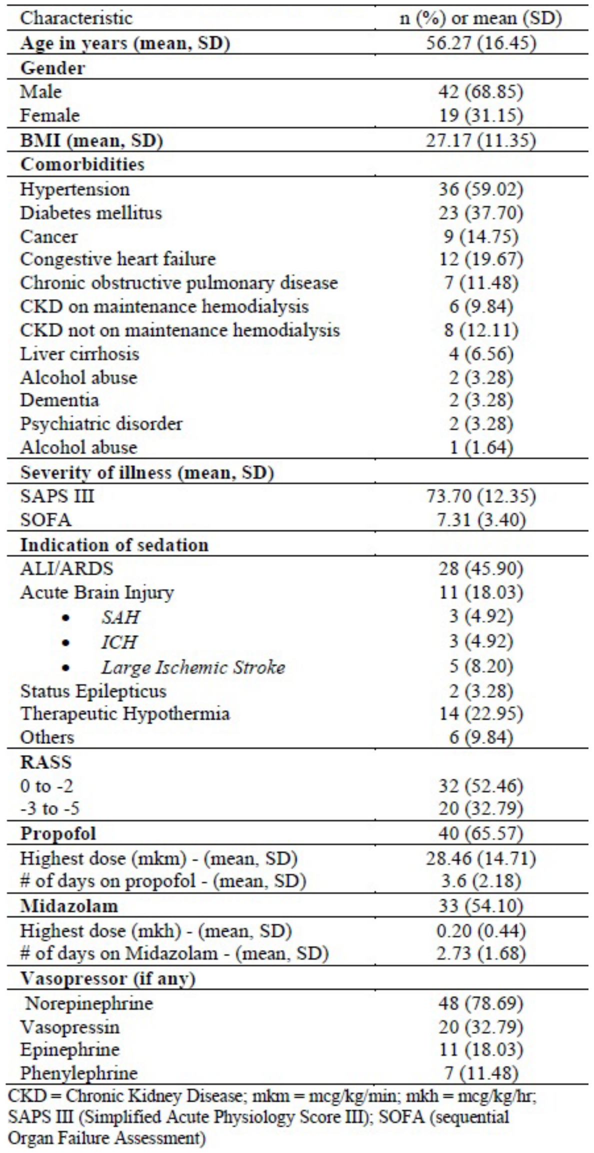
Methods
This 1-year retrospective descriptive study included adult patients (≥18 years old) who were mechanically ventilated on index ICU admission and sedated for ≥48 hours. Patients on palliative care and with advance directives were excluded. Baseline data, illness severity score, sedation dose, number of days on sedation, and complications were recorded. These end points were recorded: time to extubation, ICU length of stay (LOS), hospital LOS and ICU mortality. Descriptive statistics were used to summarize outcomes.

Results
There were 61 patients (out of 158 patients screened) included in the study. The 97 patients excluded were due to: sedation <48 hours, advance directives, transfer to another hospital, palliative care, and duplication. Indications recorded were conditions necessitating deep sedation (RASS -3 to -5), contradictory to the study findings where majority of the patients (52.46%) were on light sedation (RASS 0 to -2). Patients under prolonged sedation had a mean time to extubation of 10.77 days (SD 7.94), ICU LOS 17.38 (SD 14.39), hospital LOS 27.77 (SD 24.33), and 37.70% of them expired during ICU admission. Light sedation and reduced usage of benzodiazepine were also recorded which is consistent with the latest recommendations.

Conclusion
The results showed that the current sedation practice in a tertiary hospital in the Philippines is at par with the current guidelines. The increased utilization of sedation for therapeutic hypothermia could be correlated with the institution's established post-resuscitation protocol. The main indication for continuous sedation in the ICU is ALI/ARDS, with hypotension and bradycardia as the most common complication.

Figure & Table

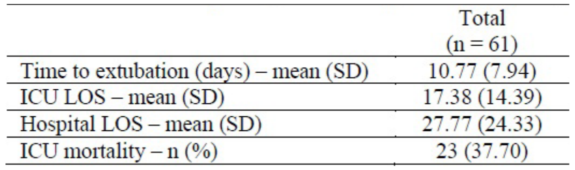
Table 1. Baseline characteristics. (n = 61)



Characteristic	n (%) or mean (SD)
Age in years (mean, SD)	56.27 (16.45)
Gender	
Male	42 (68.85)
Female	19 (31.15)
BMI (mean, SD)	27.17 (11.35)
Comorbidities	
Hypertension	36 (59.02)
Diabetes mellitus	23 (37.70)
Cancer	9 (14.75)
Congestive heart failure	12 (19.67)
Chronic obstructive pulmonary disease	7 (11.48)
CKD on maintenance hemodialysis	6 (9.84)
CKD not on maintenance hemodialysis	8 (12.11)
Liver cirrhosis	4 (6.56)
Alcohol abuse	2 (3.28)
Dementia	2 (3.28)
Psychiatric disorder	2 (3.28)
Alcohol abuse	1 (1.64)
Severity of illness (mean, SD)	
SAPS III	73.70 (12.35)
SOFA	7.31 (3.40)
Indication of sedation	
ALI/ARDS	28 (45.90)
Acute Brain Injury	11 (18.03)
• *SAH*	3 (4.92)
• *ICH*	3 (4.92)
• *Large Ischemic Stroke*	5 (8.20)
Status Epilepticus	2 (3.28)
Therapeutic Hypothermia	14 (22.95)
Others	6 (9.84)
RASS	
0 to -2	32 (52.46)
-3 to -5	20 (32.79)
Propofol	40 (65.57)
Highest dose (mkm) - (mean, SD)	28.46 (14.71)
# of days on propofol - (mean, SD)	3.6 (2.18)
Midazolam	33 (54.10)
Highest dose (mkh) - (mean, SD)	0.20 (0.44)
# of days on Midazolam - (mean, SD)	2.73 (1.68)
Vasopressor (if any)	
Norepinephrine	48 (78.69)
Vasopressin	20 (32.79)
Epinephrine	11 (18.03)
Phenylephrine	7 (11.48)

CKD = Chronic Kidney Disease; mkm = mcg/kg/min; mkh = mcg/kg/hr; SAPS III (Simplified Acute Physiology Score III); SOFA (sequential Organ Failure Assessment)

Table 2. Outcomes of prolonged sedation (≥ 48 hours). (n = 61)



	Total (n = 61)
Time to extubation (days) – mean (SD)	10.77 (7.94)
ICU LOS – mean (SD)	17.38 (14.39)
Hospital LOS – mean (SD)	27.77 (24.33)
ICU mortality – n (%)	23 (37.70)

2024-0125

Tailoring Therapy with FloTrac: Insights from a Case of Mixed Drug Overdose

Xue Lun Yeong[1*], **Sherilyn Seah**[1], **Soak yee Loh**[4], **Alyssa Chiew**[3], **Qing yuan Goh**[1,2]

1. Department of Intensive Care Medicine, Sengkang General Hospital, Singapore
2. Department of Surgical Intensive Care, Singapore General Hospital, Singapore
3. Department of Anaesthesia and Intensive Care Medicine, Khoo Teck Puat Hospital, Singapore
4. Department of Pharmacy, Sengkang General Hospital, Singapore

Background

Beta-blocker (BB) and calcium-channel blocker (CCB) overdoses present significant clinical challenges due to their potential for severe morbidity and mortality. Currently, there is a lack of standardized management guideline for BB/CCB toxicity, with existing practices relying on low-level evidence and expert consensus. Co-ingestion of other drugs further complicates the clinical picture, making diagnosis and management difficult. Advanced haemodynamic monitoring and aggressive cardiopulmonary resuscitation alongside novel adjunct therapies remain the mainstay of treatment.

Methods

We describe the use of the FloTrac system in guiding the management of a mixed overdose by providing assessments of cardiac index (CI), systemic vascular resistance index (SVRI), and stroke volume variation (SVV). An 81-year-old male presented following an unintentional overdose on amlodipine 20mg, atenolol 200mg, losartan 200mg, allopurinol 400mg, simvastatin 40mg, and an unknown amount from his master medication supply. He was admitted to the Intensive Care Unit for persistent unstable bradycardia despite initial treatment with intravenous fluids, calcium gluconate, and atropine. On Day 2, adrenaline infusion was initiated for unstable bradycardia. This was followed by noradrenaline and vasopressin infusions given for recalcitrant hypotension with preserved cardiac contractility on point-of-care ultrasound. In view of the refractory nature of the shock, we started hyperinsulinemic euglycaemic therapy (HIET) at a maximal rate of 10units/kg/hour, alongside a glucagon infusion rate of up to 5mg/hour. We initiated haemodialysis for toxin removal and intubated him for respiratory support. On Day 3, we started Flotrac monitoring. This revealed good CI and SVV, but low SVRI – demonstrating predominantly vasodilatory shock. Hence, we administered methylene blue as a single bolus dosing from Days 2-4 and then as an infusion at 40mg/h from Days 4-5 with an observed improvement in SVRI. The patient's peak inotrope/vasopressor requirement occurred on Day 3, with adrenaline at 0.5mcg/kg/min, noradrenaline at 0.9mcg/kg/min, and vasopressin at 2.4units/hour. By Day 6, with good CI as well as reduced inotrope/vasopressor needs, HIET and glucagon infusions were discontinued. Adrenaline, vasopressin, and noradrenaline infusions were subsequently weaned off on Days 6, 7, and 9 respectively, guided by Flotrac monitoring. He was eventually discharged.

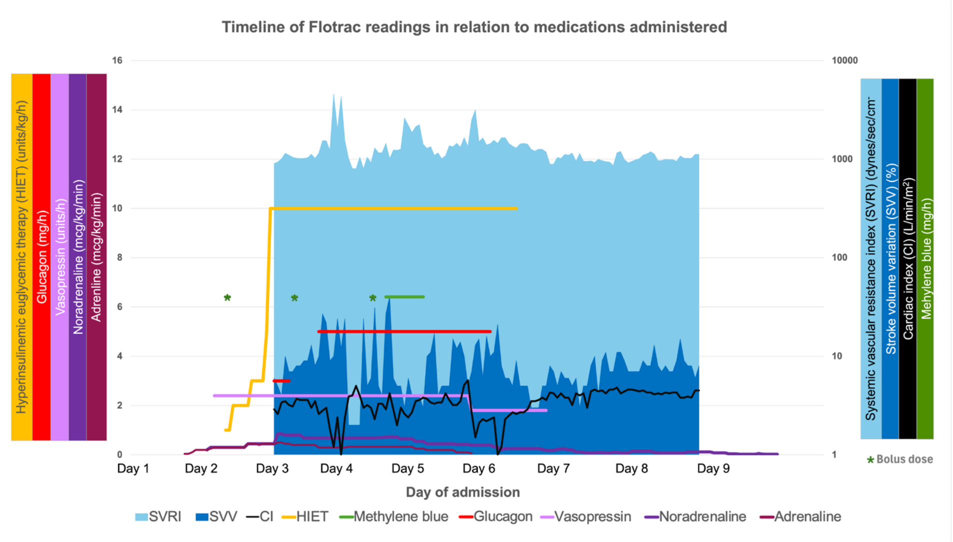
Results

This case report underscores the complexity of managing mixed drug overdoses. Advanced haemodynamic monitoring, such as with the FloTrac system, provides critical insight into the underlying shock physiology and allows for a tailored therapeutic approach to improve patient outcomes. Further research is needed to explore integration of advanced haemodynamic monitoring tools in standardised protocols for managing complex overdoses.

2024-0125

Figure & Table

Figure 1.



2024-0127

Paediatric MELAS crisis for urgent MRI: sedation or general anaesthesia?

Hui yi Tan[1*], Tracy yi shuen Tan[1]

1. Department of Paediatric Anaesthesia, Kandang Kerbau Women's and Children's Hospital, Singapore

Background

Mitochondrial encephalomyopathy, lactic acidosis and stroke-like episodes (MELAS) syndrome is a complex multisystemic disease(1)that has multiple anaesthetic considerations. It is infrequently seen and there are limited case reports on the anaesthetic management of these cases, particularly in the pediatric and remote setting.

Methods

We describe our anaesthetic management of a 15 year old male who presented with altered mental state with concerns of MELAS crisis and required an urgent MRI brain. He was diagnosed with MELAS syndrome with severe global developmental delay at 5 years of age. The associated multisystemic involvement included left ventricular hypertrophy with an ejection fraction of 38%; Wolf Parkinson White pattern on the electrocardiogram; severe oropharyngeal dysphagia for which he had undergone insertion of gastrostomy and fundoplication; refractory myoclonic epilepsy and neuromuscular scoliosis.

He is uncommunicative at baseline but noticed to be drowsier by his family and was therefore brought to the hospital where he was discovered to have hypertensive urgency. A MRI Brain was arranged to rule out an acute stroke. Procedural sedation or general anaesthesia(GA) was required for image acquisition as he was uncooperative.

This case presents anaesthetic challenges in itself, coupled with the remote nature of this procedure which added further considerations to our anaesthetic approach. A decision had to be made between monitored anaesthetic care and a general anaesthetic for this patient with poor premorbid status.

MELAS presents unique challenges to anaesthetic drug choices. It is postulated that they may have increased risk of malignant hyperthermia(2) and the consequent need for heightened vigilance with use of volatile anaesthetics. On the other hand, the use of intravenous anaesthesia with propofol may result in propofol infusion syndrome with lactic acidosis particularly if the infusion is prolonged (3,4).

The patient's concurrent comorbidities – poor cardiac function, daily seizures, limited respiratory reserve and possible new onset intracranial pathology with associated intracranial hypertension demanded special attention. Additionally, this is a remote procedure for which there would be limited access to the patient in the MRI scanner.

With the risks and benefits of sedation versus GA in this patient carefully considered, the eventual decision was made to proceed with sedation using low dose propofol infusion for the scan.

Results

MELAS is a multisystemic disease with potential peri-anaesthetic complications and aberrant responses to various anaesthetic agents. Through our case, we have highlighted the considerations of urgent anaesthetic care in a remote location of a paediatric patient with MELAS. We hope our experience can aid anaesthesiologists should they encounter similar patients in the future.

2024-0130

Severe Aortic Stenosis Detected During Preoperative Assessment by Perianesthesia Nurse in a Patient Presenting for Bladder Cancer Surgery

Yuka Suzuki[1*], Anna Koyama[1], Inoue Daisuke[1], Nobuko Fujita[1]

1. Anesthesia, St. Luke's International Hospital, Japan

Background

In our institution, perianesthesia nurses collaborate closely with anesthesiologists across a wide spectrum of activities including preoperative assessments, intraoperative anesthesia management, obstetric anesthesia, postoperative visits, sedation, and outpatient care in the pain clinic.

This collaborative effort plays a crucial role in delivering high-quality medical care and promoting early intervention. We report a case in which a perianesthesia nurse conducting a preoperative assessment suspected severe aortic stenosis upon auscultation, prompting further evaluation and eventual transcatheter aortic valve implantation prior to non-cardiac surgery.

Methods

A 78-year-old female with a history of breast cancer surgery, chemotherapy-induced neuropathy, and localized edema and pain in the left upper arm to forearm, was being treated in the pain clinic. During her treatment, she was diagnosed with bladder cancer.

Review of systems by a perianesthesia nurse as part of the preoperative assessment for surgery revealed not only upper extremity edema but also lower extremity edema. Although the patient did not complain of dyspnea, systolic murmurs were heard during auscultation. An additional transthoracic echocardiogram was requested, leading to the diagnosis of severe aortic stenosis and subsequent referral to cardiology. Transcatheter aortic valve implantation (TAVI) was performed prior to bladder cancer surgery.

Results

Cases like this highlight the importance of conducting comprehensive assessments and review of systems including auscultation during pre-anesthesia evaluations, aiding in diagnostic discoveries. Perianesthesia nurses can collaborate with anesthesiologists to facilitate early intervention. Moving forward, a team-based approach to anesthesia-related care remains essential for optimizing patient outcomes.

2024-0131

Intra-operative handover checklists: A tool to improve completeness of data transfer

Ruth Yeoh[1*], Guan yee Ng[1], Sandy Lim[1], Zhaohan Goh[1], Shin yuet Chong[1]

1. Division of Anaesthesiology, Singapore General Hospital, Singapore

Background

Intra-operative handovers between anaesthetic care providers are linked with an increase in patient morbidity and mortality because of poor or incomplete data transfer. Several institutions, including WHO, emphasize the standardization of handovers to improve their effectiveness. We propose that a checklist could improve the completeness of data transfer during the changeover between anaesthetic teams during all operations in our centre.

Methods

Over a period of 12 weeks from Feb to May 2023, self-reported surveys of anaesthesia care providers (ranging from medical officers, residents to senior consultants) were initially conducted to assess the completeness of intra-operative handovers at baseline. The survey contained a total of 53 items – identified based on a study which conducted a literature review to determine information generally deemed crucial in perioperative handovers then developed through a Delphi process with seven participants and three final rounds to reach consensus. This was followed by an implementation of a new intra-operative checklist with the same items. Post-intervention data collected through the same self-administered survey over another period of 12 weeks from March to June 2024. Our primary outcome is the completeness of data transfer between anaesthesia care providers.

Results

A total of 67 and 26 participants pre- and post-intervention respectively were surveyed. Mean completeness of handovers was 77.67% in the pre-intervention group and 85.22% in the post-intervention group with an improvement of 7.5% (p-value <0.05). Commonly missed out categories included the patient demographics, pre-operative investigations, monitoring/equipment used and main concerns the primary anaesthetist had. These items showed improvement as shown in Table 1.

Conclusion

The use of handover checklist improves the completeness of data transfer during an intra-operative changeover of anaesthetic care providers and should be implemented in our centre as incomplete handovers can adversely affect patient outcomes.

2024-0131

Figure & Table

Table 1. Frequency of handover of items during intra-operative changeover of anaesthesia care providers

Categories of items in handover	**Pre-Intervention frequency (%)**	**Post-intervention frequency (%)**
Patient demographics	72.16	87.67
Pre-operative Investigation	73.91	86.67
Airway	79.21	90.08
Drugs	85.47	90.10
Fluids	78.11	88.61
Lines	88.84	91.76
Monitoring/Equipment	75.00	83.33
Unexpected Intra-operative Events	85.00	87.50
Post-op Plans	74.75	68.75
Main concerns	69.39	72.73

2024-0135

Enhancing compliance to postoperative glycemic monitoring at Post Anaesthesia Care Unit (PACU)

Malvine Phua[1*], Dorothy Lim[1], Hairil Rizal abdullah[1,2,3], Charlene Kwa[1], Chai lian Teng[4],
Brenda e iyi Tan[1], Celestine Loh[3]

1. Division of Anaesthesiology and Perioperative Medicine, Singapore General Hospital, Singapore, Singapore General Hospital, Singapore
2. Health Services and Systems Research, Duke-NUS Medical School, Singapore, Duke-NUS Medical School, Singapore
3. Duke-NUS Medical School, Singapore, Duke-NUS Medical School, Singapore
4. Division of Surgery & Surgical Oncology, Singapore General Hospital, Singapore, Singapore General Hospital, Singapore

Background

Studies have demonstrated clear associations between perioperative hyperglycemia and adverse clinical outcomes. Correction of hyperglycemia with insulin administration has been shown to reduce hospital complications and mortality rates in cardiac and general surgery patients. Furthermore, poor perioperative glycemic control has been linked to increased risks of adverse outcomes and mortality, including post-operative wound infections and nosocomial infections.

A 1-week audit in 2022 across 4 post-anesthesia care units (PACU) within the institution revealed poor compliance to the monitoring of capillary blood glucose (CBG) – median compliance rate was 55%, with 0% noted in some locations. Infrequent CBG monitoring for patients with prolonged stays in PACU also resulted in dysglycemia on admission to the ward.

The study aimed to increase compliance to post-operative CBG monitoring from a median of 55% to 75% for all elective general surgery patients within a 1 year period, in order to achieve better perioperative glycemic control, and thus improved patient outcomes.

Methods

A root cause analysis was performed and a Pareto chart was used to highlight vital root causes. These included a lengthy perioperative diabetes mellitus (DM) protocol, inadequate awareness and accessibility to this protocol, and lack of instructions during handover to PACU. To further analyze and plan our interventions, a driver's diagram and prioritization matrix were developed. Interventions were implemented across a plan-do-study-act (PDSA) cycle. Our interventions aimed to streamline the existing DM protocol, raise awareness on the importance of DM control and disseminate the revised DM protocol among PACU staff.

Results

Results showed an improvement in CBG monitoring compliance in the PACU for elective cases. Compliance increased from a baseline median of 55% to 69% post-implementation.

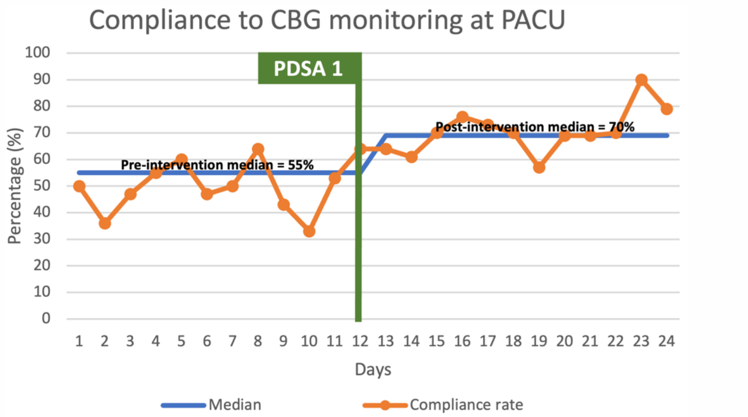
Conclusion

Education on the importance of DM control with a streamlined DM protocol has shown to be effective in improving postoperative compliance to CBG monitoring in PACU. Further strategies will prioritize raising awareness among anaesthetists and reinforcement of this protocol during handover at PACU. Future plans can be extended to the ward level to ensure extended tight glycemic control post-operatively.

2024-0135

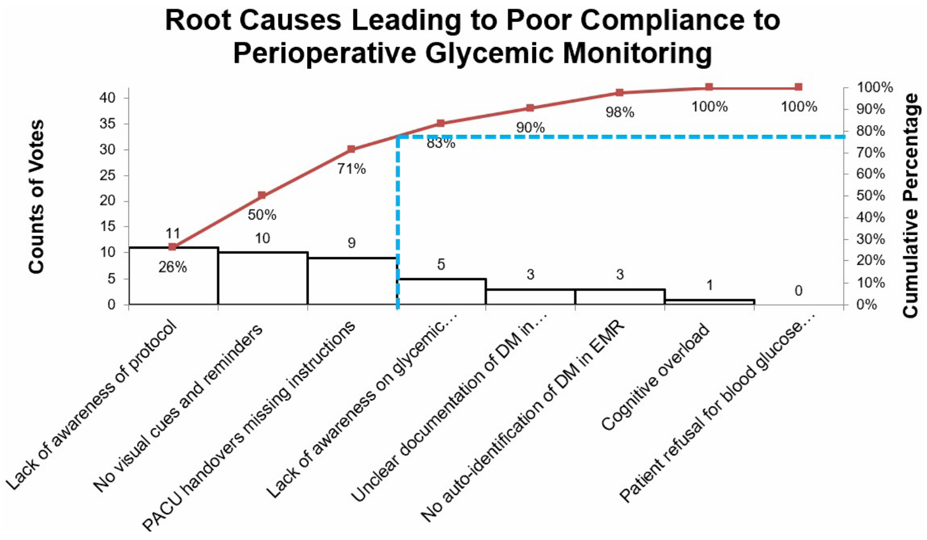
Figure & Table

Figure 1. PDSA 1



Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Total patients	83	83	84	91	90	87	89	87	93	95	87	85	72	83	80	96	105	88	74	90	75	100	81	82
Total DM patients	14	18	25	17	21	24	21	17	27	18	18	17	14	23	20	17	22	10	14	13	13	23	20	14

Figure 2. Prioritization matrix



2024-0142

Metoclopramide induced methemoglobinemia in a g6pd deficient patient with severe dengue fever: A case report

Zhen xiang Hiew[1*], Hui yee Tan[1], Yeh-han Poh[1]

1. Department of Anesthesiology & Intensive Care, Hospital Sungai Buloh, Malaysia

Background

Methemoglobin (MetHb) is formed when the iron in ferrous state get oxidised to ferric state. This structural change causes alteration in the oxygen binding ability of hemoglobin and left shift of oxygen-hemoglobin dissociation curve, resulting in decreased release of oxygen to tissue. Methemoglobinemia occurs when the level of methemoglobin accumulates above 1%. This may be due to congenital or acquired causes in which there is an increase in synthesis due to exposure to toxins, infections or drugs that affect oxidation-reduction reaction or decreased reduction of methemoglobin. Examples of drugs that have been reported to cause methemoglobinemia include salicylates, antimalarial drugs, sulfonamides, nitrofurantoin, naphthalene, dapsone, benzocaine, prilocaine, nitrites/nitrates and metoclopramide. Here, we present a case of metoclopramide induced methemoglobinemia in a G6PD deficient patient with severe Dengue Fever. We obtained the written informed consent from the patient's caretaker.

Methods

A 34 year old gentleman with no known medical illness presented with severe dengue (critical phase) at day 6 of illness, with severe plasma leakage and organ impairment (raised liver transaminases and rhabdomyolysis) and was also covered for community acquired pneumonia. A dose of metoclopramide 10mg was served in view of vomiting, in which he subsequently became restless, tachypneic, cyanosed and was intubated for respiratory distress. Post intubation, oxygen saturation ranging 83-85%, despite 100% fractional inspired oxygen being delivered with an arterial blood gas showed partial pressure of arterial oxygen of 390mmHg. The discrepancy between saturation(Spo2) and partial pressure of arterial oxygenation (Pao2) raised a suspicion of methemoglobinemia. Methemoglobin level was raised highest up to 10.2% and at the same time a drop in hemoglobin level with no evidence of bleeding. Full blood picture showed features of oxidative hemolysis. Patient was tested for G6PD and was found to be deficient of G6PD prior to commencement for methylene blue as a treatment for methemoglobinemia. Patient also developed multiorgan dysfunction with raised transaminases enzyme and acute kidney injury. Ascorbic acid of 1000mg was started as an alternative management for methemoglobinemia as he was G6PD deficient, and the level was reduced and returned to normal level after 7 days of treatment.

Results

Metoclopramide is a common used drug in clinical practise, however the rare event of methemoglobinemia should be bear in mind. Methemoglobin level should be checked if there is a discrepancy between saturation and arterial partial pressure of oxygen. Before commencement of treatment using methylene blue, G6PD status must be investigated to avoid complications from treatment.

2024-0142

Figure & Table

Figure 1. Methem Pathway

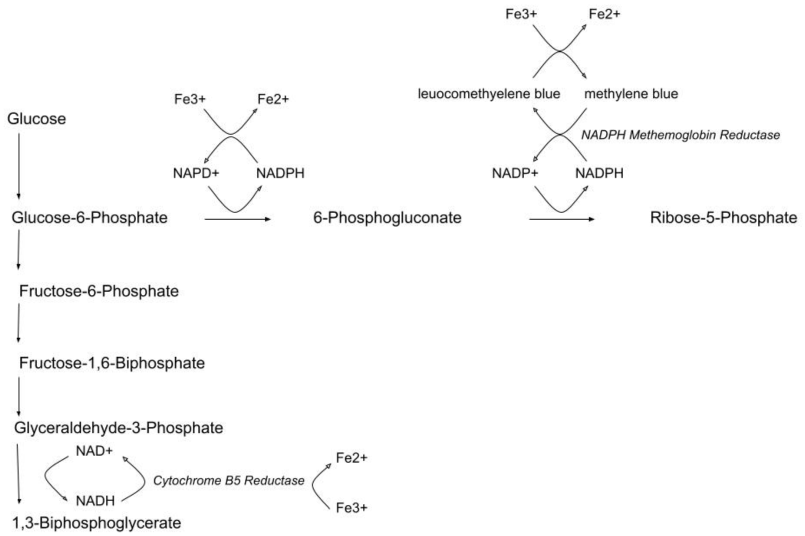


Figure 1.5: Pathway of Cytochrome B5 Redutase and NADPH Methemoglobin Reductase in reducing Methemoglobinemia

Figure 2. Methem trend

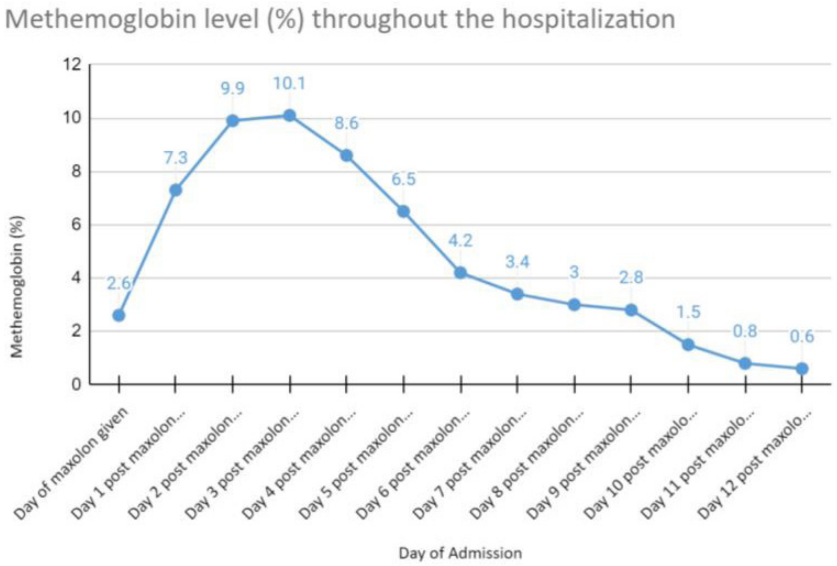


Figure 1.4 The level of methemoglobin (%) throughout the hospitalization. Ascorbic acid 1g started on day 3 post maxolon which at the peak of 10.1% and gradually reduce in trend over 7 days.

2024-0143

Just the Tip of the Iceberg: Anesthetic Management of an Adult patient with Central Airway Obstruction under going Rigid Bronchoscopy and Tracheal Stenting with Intraoperative Manual Jet Ventilation: A Case Report

Antonie Kyna Lim[1*], **Ma. stephanie Balaoing**[2]

1. Anesthesiology, St. Luke's Medical Center Quezon City, Philippines
2. Anesthesiology, St. Luke's Medical Center Quezon City and Lung Center of the Philippines, Philippines

Background

Tracheal Stenosis due to an anterior mediastinal mass can result to significant central airway obstruction requiring immediate intervention. A tracheal stent can be deployed via the rigid bronchoscope to re-establish airway patency. Anesthetic management can be challenging due to the need of sharing the airway with the surgical team while maintaining adequate ventilation and oxygenation in the presence of a stenotic segment and maintaining adequate depth of anesthesia to suppress the stress response of the patient.

Methods

This is a case of a 94-year-old female, with HASCVD and Alzheimer's disease coming in for cough. 3 weeks prior, patient had cough with decreasing appetite. Few hours prior, patient had shortness of breath and desaturation of low as 55%, hence prompted admission. Upon arrival at ER, patient had stable vital signs, oxygen saturation of 99% at 2 LPM nasal cannula with a palpable 3x2cm round, firm, nontender, right neck mass on level IV, and bibasal crackles. Initial diagnosis was CAP-MR. On the 9th day of admission, patient developed dyspnea, stridor, and desaturations as low as 88%. Neck and chest CT scan showed a fairly defined 9.8x6.3x5.7 cm right lower neck mass with bulk in the right lower thyroid fossa, extending to the left midline and upper middle mediastinum. There was leftward displacement and narrowing of the trachea and proximal esophagus. The narrowest tracheal diameter was 3.7mm-4.1mm located in the infraglottic segment just before the thoracic inlet at the level of T1-T2. Patient was then scheduled for rigid bronchoscopy, tracheal stenting and incision biopsy of the cervical node under GA-TIVA. Anesthesia induction was initiated with the patient's position of comfort while maintaining adequate spontaneous respiration in order to prevent conversion to total airway obstruction. The surgeon was available at induction to rescue the airway in cases of conversion to life-threatening airway compression. Once the airway was secured with a rigid bronchoscope, NMBA was given to avoid coughing, bucking and other movements which can result in airway trauma. TIVA is preferred for anesthesia maintenance because propofol has a rapid onset and offset of action, allowing quick adjustment of depth of anesthesia as needed during the procedure. Inhalational anesthesia was not utilized because a rigid bronchoscope involves an open system which result in leakage of anesthetic gas and adequate depth of anesthesia would be difficult to achieve. Ventilation was through a low-frequency jet ventilation system attached to the ventilating port of the rigid bronchoscope. It has a hand-operated valve connected to 100% oxygen, and a pressure-limiting device to deliver gas to the patient at 40 psi or less. Inspiration and insufflation are an active process while expiration is through a passive recoil. Adequate expiratory time prevents air trapping and barotrauma.

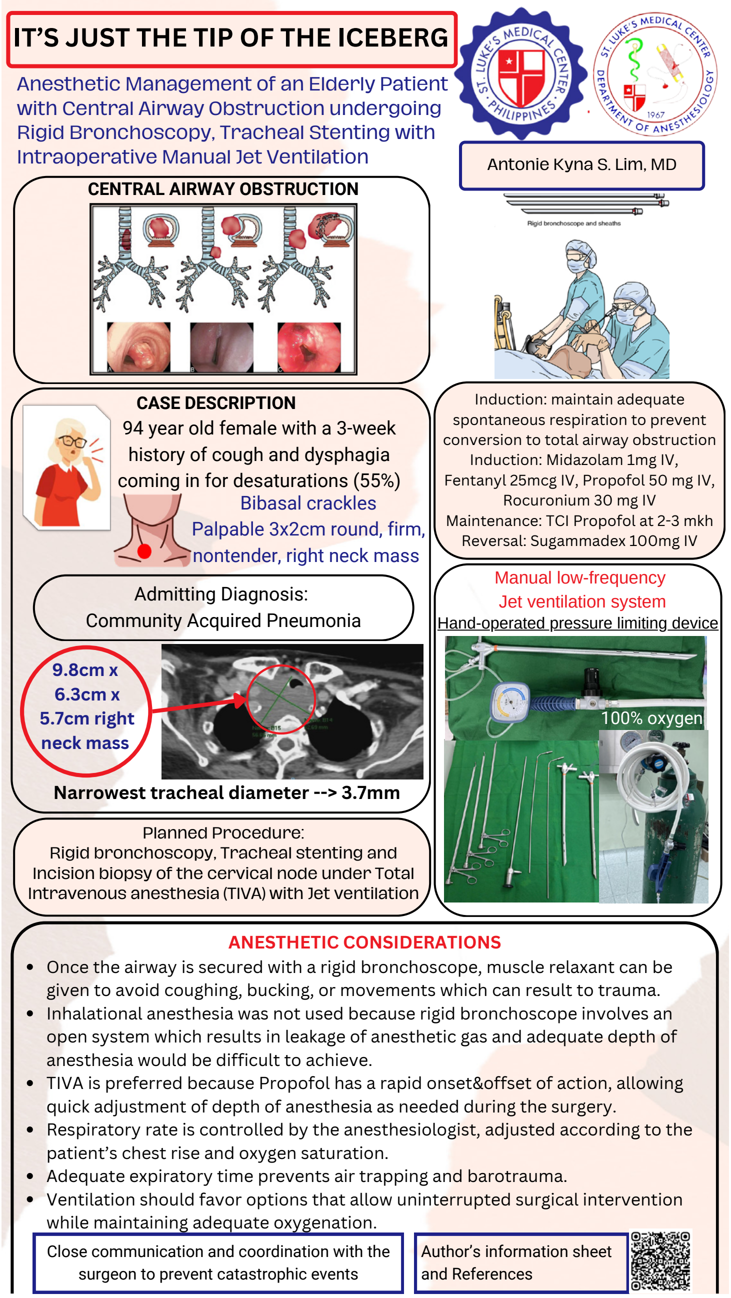
Results

Anesthesia management should be tailored to the patient's clinical condition, focusing on the severity and location of the obstruction. Ventilation should favor options that allow uninterrupted surgical intervention while maintaining adequate oxygenation and ventilation.

2024-0143

Figure & Table

Figure 1.



IT'S JUST THE TIP OF THE ICEBERG

Anesthetic Management of an Elderly Patient with Central Airway Obstruction undergoing Rigid Bronchoscopy, Tracheal Stenting with Intraoperative Manual Jet Ventilation

Antonie Kyna S. Lim, MD

CENTRAL AIRWAY OBSTRUCTION

Rigid bronchoscope and sheaths

CASE DESCRIPTION

94 year old female with a 3-week history of cough and dysphagia coming in for desaturations (55%)

Bibasal crackles

Palpable 3x2cm round, firm, nontender, right neck mass

Admitting Diagnosis:
Community Acquired Pneumonia

9.8cm x 6.3cm x 5.7cm right neck mass

Narrowest tracheal diameter --> 3.7mm

Planned Procedure:
Rigid bronchoscopy, Tracheal stenting and Incision biopsy of the cervical node under Total Intravenous anesthesia (TIVA) with Jet ventilation

Induction: maintain adequate spontaneous respiration to prevent conversion to total airway obstruction
Induction: Midazolam 1mg IV, Fentanyl 25mcg IV, Propofol 50 mg IV, Rocuronium 30 mg IV
Maintenance: TCI Propofol at 2-3 mkh
Reversal: Sugammadex 100mg IV

Manual low-frequency Jet ventilation system
Hand-operated pressure limiting device

ANESTHETIC CONSIDERATIONS

- Once the airway is secured with a rigid bronchoscope, muscle relaxant can be given to avoid coughing, bucking, or movements which can result to trauma.
- Inhalational anesthesia was not used because rigid bronchoscope involves an open system which results in leakage of anesthetic gas and adequate depth of anesthesia would be difficult to achieve.
- TIVA is preferred because Propofol has a rapid onset&offset of action, allowing quick adjustment of depth of anesthesia as needed during the surgery.
- Respiratory rate is controlled by the anesthesiologist, adjusted according to the patient's chest rise and oxygen saturation.
- Adequate expiratory time prevents air trapping and barotrauma.
- Ventilation should favor options that allow uninterrupted surgical intervention while maintaining adequate oxygenation.

Close communication and coordination with the surgeon to prevent catastrophic events

Author's information sheet and References

2024-0144

Intraoperative central venous pressures related to early graft function in deceased donor kidney transplant recipients with low immunological risks

Hyo Eun Ahn[1*], **Jun bae Bang**[2]

1. Anesthesiology and Pain Medicine, Ajou University Hospital, Republic of Korea
2. Transplant and vascular surgery, Ajou University Hospital, Republic of Korea

Background

This study aims to analyze data from patients who received kidney transplantation from deceased donors to investigate the anesthetic factors influencing early and late graft outcomes, including the incidence of slow graft function (SGF), delayed graft function (DGF), and 3-year graft outcomes.

Methods

We retrospectively analyzed 202 recipients who underwent deceased donor kidney transplantation from March 2010 to December 2020. Anesthetic monitoring data during the intraoperative period was analyzed at 5-minute intervals, and basic clinical parameters were evaluated.

Results

The mean recipient age was 46.6 ± 10.3 years, and the mean donor age was 41.7 ± 12.7 years. Anesthetic time averaged 285.8 ± 70.2 minutes, and operation time averaged 223.1 ± 44.0 minutes. The incidence of SGF was 11.8%, and the incidence of DGF was 3.9%. Mean central venous pressures (CVPs) were higher in recipients with SGF or DGF (11.7 mmHg) compared to those with immediate graft function (9.7 mmHg). Higher CVP was identified as an independent risk factor for SGF or DGF (odds ratio 1.219, p = 0.006).

Conclusion

This study suggests that intraoperative monitoring of CVP is crucial for predicting short-term graft function in deceased donor kidney transplantation and should be managed to prevent excessive fluid intake

2024-0144

Figure & Table

Table 1. Basic characteristics between two groups

	IGF group (n = 172)	SGF + DGF group (n = 30)	*P* value
Recipients variables			
Age (yr)	46.4 ± 10.5	47.7 ± 8.8	0.515
Male sex	98 (56.9%)	21 (70.0%)	0.228
Body mass index (kg/m^2)	21.9 ± 2.9	23.9 ± 3.5	0.001
Dialysis modality			1.000
Hemodialysis	152 (87.9%)	26 (86.7%)	
Peritoneal dialysis	21 (12.1%)	4 (13.3%)	
Dialysis duration (month)	101.04 ± 262.3	45.7 ± 51.6	0.277
PRA positivity at transplantation			
Class I	30 (17.4%)	8 (26.7%)	0.368
Class II	30 (17.4%)	9 (30.0%)	0.367
HLA mismatches	3.5 ± 2.0	3.3 ± 1.7	0.552
Operation time (minutes)	223.2 ± 46.5	222.6 ± 56.1	0.951
Anesthesia time (minutes)	283.3 ± 46.9	300.3 ± 145.0	0.528
Total ischemic time (minutes)	286.4 ± 92.9	317.9 ± 90.8	0.087
Warm ischemic time (minutes)	43.4 ± 13.1	54.1 ± 23.5	0.021
Cold ischemic time (minutes)	242.9 ± 90.9	263.8 ± 91.1	0.248
Total fluid intake during operation (mL)	3645.5 ± 954.5	4133.8 ± 1136.5	0.013
Total fluid intake per body weight (mL/kg)	62.2 ± 17.5	61.9 ± 17.1	0.955
Total bleeding (mL)	379.5 ± 340.8	654.3 ± 990.1	0.014
Transfusion during operation (mL)	423.0 ± 285.7	697.2 ± 853.9	0.369
Graft weight (gram)	207.7 ± 40.1	202.7 ± 62.7	0.677
Donor variables			
Age (yr)	41.7 ± 13.2	41.3 ± 10.8	0.886
Male sex	113 (65.3%)	19 (63.3%)	0.833
Donor creatinine level (mg/dL)	0.83 ± 0.31	1.1 ± 0.27	0.001

The continuous variable were expressed by mean ± Standard deviation and number of cases with percentages were for the categorical variables.

PRA = panel reactive antibody.

Table 2. Logistic regression analysis of anesthesiological risk factors developing SGF or DGF

Variables	Unadjusted OR	*P* value	Adjusted OR	*P* value
Age (per 1 year)	1.013	0.513		
Baseline CVP (mmHg)	1.172	0.008	1.186	0.006
Recipient's BMI (per 1 kg/m^2)	1.223	0.001		
Donor Cr (per 1 mg/dL)	12.229	0.001		
Warm ischemic time (per min)	1.038	0.002		
Total fluid intake (per liter)	1.522	0.018	1.393	0.094

CVP = central venous pressure, SBP = systolic blood pressure, Cr = creatinine,

2024-0145

Anesthetic Management of Cesarean Delivery in a case with Systemic Lupus Erythematosus: A Case Report

Manish Kumar Tiwary[1*], **Yasir Ahmed**[1]

1. Anaesthesia, Sheikh Khalifa Medical City Ajman UAE, United Arab Emirates

Background

Systemic lupus erythematosus is an multi system autoimmune disease with female predominance and mediated by autoantibodies. Considerably predominant in reproductive years during third and fourth decade of life. Parturients with SLE are at risk of complications like exacerbations of disease during pregnancy, preterm delivery, pre-eclampsia, eclampsia, intrauterine foetal death and intrauterine growth retardation. In this case report we summarizes the perioperative optimization and anesthetic management of a pregnant patient with SLE and poor obstetrics history underwent elective cesarean section (LSCS).

Methods

28-year-old woman (G2P0L0) with 37 weeks amenorrhea associated with SLE was scheduled for elective caesarean section in view of poor obstetrics history and precious pregnancy. Her obstetric history revealed that she had one abortion and no live issues. Patient had pallor and pedal oedema and history of easy fatiguability.

Routine antenatal visits, she was investigated in view of poor obstetric history and a diagnosis of SLE was made. She was found to be ANA (antinuclear antibody) positive but negative for antiphospholipid antibody. There was no history suggestive of any systemic involvement. Her complete blood count (CBC), blood sugar, urine examination were normal. Liver and renal function tests (LFT, RFT), electrocardiograph (ECG) were further ordered to rule out any systemic involvement and were found to be normal.

She was on low molecular weight heparin (LMWH) 2500 IU subcutaneously twice daily to improve foetal outcome, She was being monitored by serial bleeding time (BT), clotting time (CT) and activated partial thromboplastin time (APTT) measurements. In view of poor obstetric history and precious pregnancy, an elective caesarean section was planned. Injection LMWH was withheld 24 h prior to surgery. Preoperative investigations revealed a normal BT, CT, APTT and PT, INR.

Patient was shifted to the operation theatre and regional anaesthesia was planned in view of normal coagulation profile. Two 18G iv line was secured and patient was preloaded with 500 ml of Ringer lactate. Routine monitoring was done eg. oxygen saturation (SpO2), heart rate, non-invasive blood pressure and ECG and Foleys catheter was placed to measure hourly urine output. Under all aseptic precautions neuraxial block was performed using 2.2 ml of 0.5% Bupivacaine heavy with 25mcg of Fentanyl in sitting position with 25G Quincke needle. Blockade was achieved till T6 dermatome level. Baby cried immediately after birth with normal APGAR score and no signs of neonatal lupus. Inj. oxytocin 5IU bolus followed by 40IU in 500 ml DNS @125ml/hr was started. The surgery was uneventful with minimal blood loss. After surgery patient was shifted to the recovery room and following successful recovery and monitoring patient was shifted to ward in stable condition and LMWH injections were restarted after 24 h.

Results

SLE requires a multidisciplinary approach for successful anesthetic management and early diagnosis. These patients need close monitoring and delivery should be carried out at a tertiary care centre by multidisciplinary team. Although Regional anesthesia is technique of choice if no contraindications but anaesthesia technique may vary taking into account the multi system nature of the disease. Advancing technology and better understandingof SLE have improved outcomes in parturients over last few years.

2024-0154

Precipitation of tracheal obstruction in a patient with anomalous aortic arch following aneurysmal subarachnoid Haemorrhage

Deepak Ganjigere palaksha[1*]

1. Neuroanaesthesia and Neurocritical care, N.I.M.H.A.N.S, Bengaluru, India

Background

Patients with aortic aneurysm or diverticulum presenting with difficulty in breathing has been reported in literature. A case of asymptomatic aortic diverticulum presenting with coexisting cerebral aneurysmal Subarachnoid Haemorrhage (SAH) is rare. The effects of SAH on preexisting aortic aneurysm/diverticulum is not reported to best of our knowledge.

Methods

A 68-year-old female presented with decreased responsiveness (E4V4M6), headache, and vomiting. CT brain showed diffuse SAH involving bilateral sylvian and suprasellar cisterns, and CT angiography identified a ruptured ACOM artery aneurysm. DSA was unsuccessful due to right aortic arch anomalies. The patient underwent successful surgical clipping of the aneurysm. On POD 4, the patient developed respiratory distress, leading to intubation and ventilatory support. The patient developed VAP subsequently tracheal culture showed Acinetobacter baumannii. During the course, her GCS worsened to E1V1M5. She was planned for tracheostomy considering GCS and respiratory condition. Following tracheostomy, the patient developed higher airway pressures as compared to ETT. A bronchoscope was passed through the tracheostomy tube, it showed a pulsating bulge in the posterior wall of the trachea causing airway obstruction. The narrowing was observed till carina, any flexion in the neck was causing near-total obstruction of the tracheostomy tube by pulsating the posterior tracheal wall. Contrast CT of the thorax confirmed a Type II right-sided aortic arch with aberrant left subclavian artery and Kommerell diverticulum. This increased cardiac output likely to have caused an increased size of the diverticulum hence compressing the trachea. A reinforced adjustable-length tracheostomy tube was inserted to bypassed the compression segment of the trachea. This reduced the airway pressures and facilitated the weaning from the ventilator support.

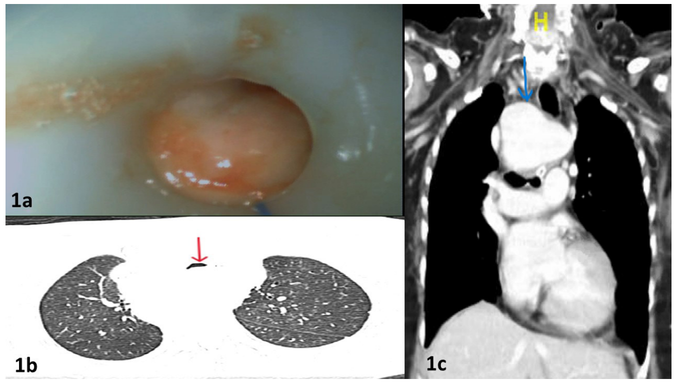
Results

The cerebral aneurysmal SAH can precipitate the respiratory symptoms in a patient with Kommerell diverticulum of aortic arch

2024-0154

Figure & Table

Figure 1.



2024-0156

The Changes in the Age Distribution of Surgical Patients during last 10 years

Hong seuk Yang[1*], Jonh ho Kim[1], Sung mi Hwang[1], Youngsuk Kwoan[1]

1. Department of Anesthesiology and Pain Medicine, Chuncheon Sacred Heart Hospital, College of Medicine, Hallym University, Republic of Korea

Background
Globally, the population increased exponentially in the 1900s, but in the 2000s, the changes of population are occurring due to the aging of the population as a result of longer lifespan and lower birth rates. These changes will be influenced the distribution of surgical ptients. It will be needed to identify these changes and revise the current education curriculums.

Methods
This study was conducted after obtaining IRB (File No. 2024-05-003-001) approval. A total of 337,469 patients underwent surgery at hospitals affiliated with our medical center from January 1, 2014, to June 31, 2024. We analyzed the gender, age, and distribution of patients under 18 and over 60 years of age, as well as changes in disease, type of surgery, and especially the number of Cesarean sections (C-sec).

Results
Over the past 10 years, the number of pediatric patients and C-sec have gradually decreased, and the number of elderly patients has gradually increased. The average age of patients has also increased (42.5 ± 21.3 -> 50.9 ± 21.0 years) (Figure 1), and the population pyramid has shifted to an urn-shaped structure or inverted triangular shape with decreasing birth rate and increasing elderly population. Among elderly patients, those aged 90 or older ranged from 63 (0.2%) in 2014 to 149 (0.4%) in 2023 and 63 (0.5%) in 2024.And 20 patients were over 100 years old, and the oldest patient was 106 years old in this period (Table 1). The proportion of pediatric patients was 3% in 2014 but decreased to 2.7% in 2024. In particular, the number of neonate and infant patients has decreased significantly, and in some hospitals, the number of surgical cases has completely disappeared. C-sec, which accounted for 13.2% of the total number of surgeries in 2014, decreased to 7.0% in 2023.

Conclusion
Obstetric and pediatric surgeries are decreasing, while surgeries on elderly patients, especially very elderly patients, are increasing. This decrease in surgeries indicates a decrease in experience in pediatric and obstetric anesthesia, so training or educational alternatives are needed to compensate for this, and various education provision and changes in training curriculums are required for the increasing number of geriatric anesthesia. There should be a change in the training guidelines for next generations.

2024-0156

Figure & Table

Figure 1. Changes of patient's mean age during last 10 years.

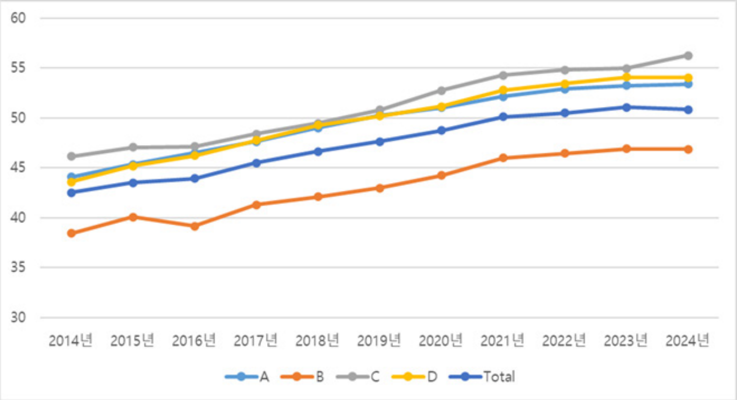
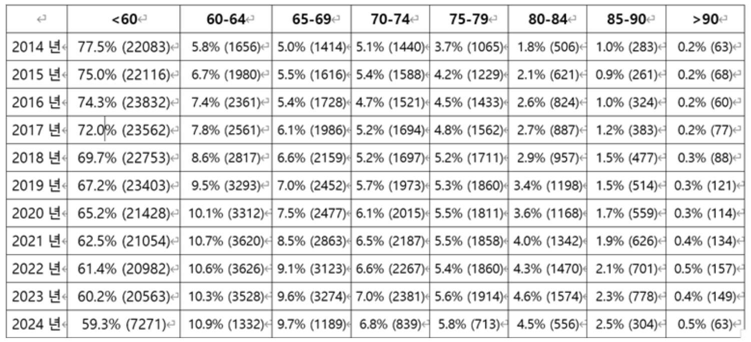


Table 1. Changes of old aged patient distribution during last 10 years.



	<60	60-64	65-69	70-74	75-79	80-84	85-90	>90
2014 년	77.5% (22083)	5.8% (1656)	5.0% (1414)	5.1% (1440)	3.7% (1065)	1.8% (506)	1.0% (283)	0.2% (63)
2015 년	75.0% (22116)	6.7% (1980)	5.5% (1616)	5.4% (1588)	4.2% (1229)	2.1% (621)	0.9% (261)	0.2% (68)
2016 년	74.3% (23832)	7.4% (2361)	5.4% (1728)	4.7% (1521)	4.5% (1433)	2.6% (824)	1.0% (324)	0.2% (60)
2017 년	72.0% (23562)	7.8% (2561)	6.1% (1986)	5.2% (1694)	4.8% (1562)	2.7% (887)	1.2% (383)	0.2% (77)
2018 년	69.7% (22753)	8.6% (2817)	6.6% (2159)	5.2% (1697)	5.2% (1711)	2.9% (957)	1.5% (477)	0.3% (88)
2019 년	67.2% (23403)	9.5% (3293)	7.0% (2452)	5.7% (1973)	5.3% (1860)	3.4% (1198)	1.5% (514)	0.3% (121)
2020 년	65.2% (21428)	10.1% (3312)	7.5% (2477)	6.1% (2015)	5.5% (1811)	3.6% (1168)	1.7% (559)	0.3% (114)
2021 년	62.5% (21054)	10.7% (3620)	8.5% (2863)	6.5% (2187)	5.5% (1858)	4.0% (1342)	1.9% (626)	0.4% (134)
2022 년	61.4% (20982)	10.6% (3626)	9.1% (3123)	6.6% (2267)	5.4% (1860)	4.3% (1470)	2.1% (701)	0.5% (157)
2023 년	60.2% (20563)	10.3% (3528)	9.6% (3274)	7.0% (2381)	5.6% (1914)	4.6% (1574)	2.3% (778)	0.4% (149)
2024 년	59.3% (7271)	10.9% (1332)	9.7% (1189)	6.8% (839)	5.8% (713)	4.5% (556)	2.5% (304)	0.5% (63)

2024-0157

ROBOTIC left cardiac sympathetic denervation in patients with inherited arrhythmia syndromes; surgical risk and perioperative considerations

Fadzwani Basri[1], Maggie Zou[2], Emilie Martinoni hoogenboom[2], Kunal Bhakri[3*]

1. Anaesthesiology and Intensive Care, Hospital Kuala Lumpur, Malaysia
2. Anaesthesia and Perioperative Medicine, University College London Hospital NHS Foundation Trust, United Kingdom
3. General Thoracic Surgery, University College London Hospital NHS Foundation Trust, United Kingdom

Background

Left cardiac sympathetic denervation (LCSD) is a recommended surgical procedure for patients with Long QT Syndrome (LQTS) who have declined Implantable Cardioverter Defibrillator (ICD) and also for Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT) patients who poorly tolerated to medical therapy.[1] We supported the role of robotic in improving surgical field but it could pose extra challenges to the perioperative management. The concerns include the patient risk of lethal cardiac electrical storm and sudden arrest that may be precipitated by tension capnothorax and surgical stimulus or intractable post-surgical pain.[2] We sought to share our early experience to balance the perioperative patient risk and the benefit of robotic assisted thoracoscopic LCSD involving two young adults aged 21 and 33 with LQTS and CPVT respectively after failing the medical therapy.

Methods

Pre-operative assessment includes a detail cardiac history to gain understanding on the threshold of the disease affecting each patient. A baseline QTc interval was also checked from a routine 12-leads electrocardiogram. We found that these patients had similar history of low tolerance to develop side effects resulted to poor compliance especially with anti-arrhythmic medications. However, we continued to emphasise the importance of medical optimisation prior to the surgery and encouraged the patients to continue taking their beta-adrenoreceptor blockers and anti-arrhythmic medications as prescribed by their cardiologist.

On the operative day, a resuscitation strategy was added into the discussion during the routine team brief and roles were allocated accordingly in preparation of the potential cardiac event. Prior to induction, arterial access was established, and defibrillation pads were attached away from the surgical field. At induction, target control infusion of propofol and remifentanil were used against depth of anaesthesia monitoring and a muscle relaxant of rocuronium was given for adequate muscle relaxation. Vocal cords were topicalised with 4% lidocaine to minimise sympathetic stimulation at the time of intubation. Left sided double lumen tube was chosen to attain left lung isolation for surgical access and the patients were placed in right lateral position. Other measures that were taken in order to minimise the stress response from surgical stimulus included the use of multimodal intravenous analgesia with thoracic paravetebral block, avoidance of arrhythmogenic medications that could prolong QTc as well as meticulous surgical techniques by gradually insufflated the carbon dioxide into the thoracic space.[3] After the surgery, both were monitored in postanaesthesia care unit overnight. Overall, the patients had uneventful surgery with enhanced recovery. They were discharged home at day 2 post-operatively and continued with serial cardiology follow-ups.

Results

Robotic assisted thoracoscopic LCSD in patients with inherited arrhythmia syndromes may presents unique perioperative challenges. However, with clear communication and multidisciplinary teamwork between cardiology, surgical and anaesthetic teams the surgery can be performed safely. We also suggested a crisis resource management plan during the team brief, a meticulous surgical technique, careful selection of anaesthetic agents and consideration of multimodal analgesia including regional nerve blocks may help to minimise the risk of lethal arrhythmia event and cardiac arrest in the perioperative period.

2024-0158

Beyond the Heart: A Case Report on the Anesthetic Challenges in a Pediatric Patient with Edwards Syndrome and Double Outlet Right Ventricle Undergoing Non-Cardiac Surgery

Karenina Saenz[1], Anne michelle Salomon[1*]

1. Department of Anesthesiology, The Medical City, Pasig, Philippines

Background

Edwards syndrome (Trisomy 18) is a rare chromosome disorder resulting from an extra 18th chromosome. Only 5-10% of affected patients survive beyond the first year of life. It is characterized by a cluster of phenotypes involving neurological, craniofacial, skeletal, cardiovascular, pulmonary, and gastrointestinal systems. Double outlet right ventricle (DORV) is a rare congenital anomaly in patients with Edwards syndrome. It occurs in <1% of all congenital heart diseases (CHD). In DORV, the aorta and pulmonary artery arise from the Right Ventricle (RV) resulting in shunting from the Left Ventricle across a Ventricular Septal Defect into the RV. This report will discuss the successful anesthetic management for a gastrostomy tube and femoral catheter insertion in a patient with Edward syndrome and DORV, and address the challenges particular for this syndrome.

Methods

The patient is a 1 year old female diagnosed with Edwards Syndrome at birth. Anatomical abnormalities were low set ears, microtia, and cleft lip. Echocardiogram revealed DORV, subaortic VSD with severe pulmonary stenosis. NICU stay was due to low birth weight and poor feeding. In the interim, she had hospital admissions for poor nutrition due to cleft lip; hence, gastrostomy tube insertion was recommended.

The anesthetic plan was General Endotracheal Anesthesia. Standard non-invasive monitors were used. Difficult airway equipment were prepared, such as oral airway, laryngoscope and blades, supraglottic airway. Induction was achieved with Sevoflurane while on spontaneous ventilation. Femoral vein access was established. Midazolam 1 mg (0.1 mg/kg) IV and Fentanyl 20 mcg (2mcg/kg) IV were given. A cleft lip made it challenging to achieve a tight mask seal for ventilation. To address this, an appropriately sized mask was used and gentle head tilt-chin lift maneuver was done. Muscle relaxation was facilitated by Rocuronium. The airway was secured with ETT 4 and Wisconsin 1 blade. Respiration was assisted throughout. To prevent recirculation of systemic venous blood, Pulmonary Vascular Resistance (PVR) should be lower than the Systemic Vascular Resistance (SVR). A lower SVR will reduce pulmonary blood flow impeding oxygenation, while a lower PVR will ensure adequate blood flow to the lungs. To reduce PVR, increasing inspired oxygen concentration and elective hyperventilation can be done. This will achieve moderate metabolic alkalosis and avoid hypothermia, hypoxemia, and acidosis. Cardiac output was maintained by ensuring adequate preload, contractility and heart rate. Vital signs were stable without need for inotropic support. Paracetamol was given for pain and Sugammadex for neuromuscular blockade reversal. Awake extubation was done. Post-op monitoring was done at the PICU. She was sent home on the 4th post-op day.

Results

Anesthetic management of a pediatric patient with Edward syndrome and DORV presents unique challenges that require a thorough understanding of the underlying pathology and careful planning to ensure safe outcomes. It requires consideration of unique craniofacial anomalies that may predispose airway difficulties. It is prudent that appropriate airway adjuncts be available should the need arise. Pediatric patients with CHD warrant a more cautious approach due to susceptibility to hemodynamic instability and perioperative complications. In cases of a parallel circulation, SVR is maintained higher than PVR to prevent recirculation of systemic venous blood.

2024-0162

Age-Based Cole's Formula Versus Fifth Fingernail Width-Based Method in Determining Pediatric Endotracheal Tube Size in WVMC

Berlin rizza Robles[1], Meda rose Luhan[1,2*]

1. Anesthesiology, Dr. Catalino Gallego Nava Provincial Hospital, Philippines
2. Anesthesiology, Western Visayas Medical Center, Philippines

Background

Pediatric airway management is a crucial aspect of routine anesthesia practice, with the choice of endotracheal tube type, size, and insertion depth based on the funnel-shaped pediatric larynx. Uncuffed endotracheal tubes are recommended for children under 8 years old. Various methods are used to predict endotracheal tube size, including age, length, weight, fifth fingernail width, tracheal diameter, or a combination of these parameters. The standard age-based Cole's formula is the most widely used method, but in emergency settings, a fast, easy, and reliable method is necessary. Intuitive methods, such as using the transverse diameter or width of the child's fifth fingernail, or comparing the actual endotracheal tube size diameter against the child's fifth finger or fingernail, are used. Knowledge of intubation techniques and methods is essential for anesthesiologists to formulate and execute safe and effective management of the pediatric airway. Thus, the present study aimed to compare two widely used methods in the setting, the standard age-based Cole's formula and the fifth fingernail width-based method.

Methods

This prospective, cross sectional study design included thirty (30) purposively selected pediatric patients aged 2 to 8 years old with anatomically present and normal right fifth finger and fingernail patients admitted at Western Visayas Medical Center. Using the age-based Cole's formula and the fifth fingernail width-based method, the endotracheal tube sizes were calculated and analyzed using frequency count, mean, standard deviation and paired t-test and Pearson's r moment correlation.

Results

Findings show that as the pediatric age increases, the mean endotracheal tube size increases when calculated using either the age-based Cole's formula or the fifth fingernail-width technique. It is further revealed that the age-based Cole's formula provides pediatric endotracheal tube sizes that are not comparable with the endotracheal tube sizes obtained using the fifth fingernail-width technique. Evidence also showed that age is statistically related to pediatric endotracheal tube size regardless of the technique it is calculated.

Conclusion

The present investigation determined whether the current fifth fingernail-width technique is an acceptable practice in estimating the endotracheal tube size of pediatric patients at the Western Visayas Medical Center. Based on the findings of the present investigation, the endotracheal tube sizes of pediatric patients calculated using age-based Cole's formula and the fifth fingernail-width technique are not comparable but either method is dependent of the age of the pediatric individual.

2024-0162

Figure & Table

Figure 1. Conceptual Framework

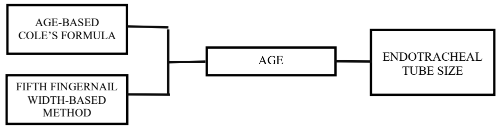


Figure 1. *Conceptual framework showing the relationship between age-based Cole's formula and fifth fingernail width-based method as independent variable and size of endotracheal tube size as dependent variable and age as antecedent variable.*

Table 1.

Paired Sample t-Test Result for the Difference in the Pediatric Endotracheal Tube Sizes Obtained Using the Age-Based Cole's Formula and the Fifth Fingernail-Width Formula

Techniques	N	*t*	df	*p*
Age-Based Cole's Formula Fifth Fingernail-Width	30	3.837	29	.001

Table 3 *shows the difference in the mean scores of two techniques*

According to the table 3 above, the calculated *p* value is less than the level of significance, thus the null hypothesis is rejected, t (29) = 3.837, p= .001. This implies that statistically, the pediatric endotracheal tube sizes significantly differ between the age-based Cole's formula and the fifth fingernail-width formula. It further suggests that the age-based Cole's formula cannot be substituted with the fifth fingernail-width formula in calculating the endotracheal tube sizes among pediatric patients since the two formulas give tube sizes that are incomparable.

Pearson's r Moment Correlation Result for the Relationship Between Age and Pediatric Endotracheal Tube Sizes Using Age-Based Cole's Formula

	N	r	*p*
Age* Age-Based Cole's Formula	30	1.0	.000

Table 4 *shows the relationship between age and age-based Cole's Formula ET sizes*

Table 4 reveals the relationship between age and age-based Cole's formula-calculated endotracheal tube sizes. Statistically, a perfect correlation exists between age and the ET sizes calculated using the age-based Cole's formula. This implies that age is an established factor that determines the endotracheal tube sizes among pediatric patients at Western Visayas Medical Center.

Pearson's r Moment Correlation Result for the Relationship Between Age and Pediatric Endotracheal Tube Sizes Using Fifth Fingernail-Width Technique

	N	r	*p*
Age* Fifth Fingernail-Width	30	1.0	.000

Table 5 *shows the relationship between age and fifth fingernail-width technique ET sizes*

Table 5 reveals the relationship between age and fifth fingernail-width technique calculated endotracheal tube sizes. Statistically, a perfect correlation exists between age and the ET sizes calculated using the width of the fifth fingernail. This implies that age is an established factor that determines the endotracheal tube sizes among pediatric patients at Western Visayas Medical Center.

Pearson's r Moment Correlation Result for the Relationship Pediatric Endotracheal Tube Sizes Using Age-Based Cole's Formula and the Fifth Fingernail-Width Technique

	N	r	*p*
Age-Based Cole's Formula* Fifth Fingernail-Width	30	.949	.000

Table 6 *shows the relationship between ET tube sizes obtained using the two techniques*

Table 6 reveals the relationship in the ET tube sizes obtained using the age-based Cole's formula and the fifth fingernail-width technique. Statistically, a very strong correlation exists between ET sizes calculated using the age-based Cole's formula and the fifth fingernail-width technique. This implies that the pediatric endotracheal tube sizes calculated using the age-based Cole's formula and the fifth fingernail-width technique is related. This can be attributed to the pediatric age factor that suggests when the patient increases in age, his or her endotracheal tube size increases regardless of the way the size is calculated.

2024-0163

Diffuse Alveolar Hemorrhage in Systemic Lupus Erythematosus: A Diagnostic and Therapeutic Challenge

Aditi Prakash[1*]

1. Critical Care Medicine, Medicover Hospitals, India

Background

Diffuse alveolar hemorrhage (DAH) is a life-threatening complication of systemic lupus erythematosus (SLE) characterized by bleeding into the alveoli. It is often challenging to diagnose due to the lack of specific symptoms and can have high mortality rates. This case report illustrates the complexity of diagnosing and managing DAH in a patient with SLE, emphasizing the importance of a multidisciplinary approach.

Methods

47/M, k/c/o hypertension and rheumatoid arthritis, recently diagnosed with SLE, presented with breathlessness on exertion, vague body pains, restlessness, and delusions for three days. Patient was on DMARDs and there was a history of chronic NSAIDs use.

On admission, he appeared emaciated, restless, mildly tachypneic with acidotic breathing, and required single vasopressor support to maintain vitals. Non-blanching erythematous rashes were noted on his upper extremities. Blood tests revealed pancytopenia and impaired renal function. Differential diagnoses included sepsis, SLE flare, methotrexate toxicity, and microangiopathic hemolytic anemia (MAHA)/thrombotic thrombocytopenic purpura (TTP). He was started on broad-spectrum antibiotics, folinic acid, and pulse dose steroids and renal replacement therapy (RRT). Hemolytic anemia workup showed elevated LDH, low haptoglobin, an absolute reticulocyte count of 2.33, and low complement levels (C3 54.13, C4 13). Both direct and indirect Coombs tests were non-reactive, D-dimer was 150, and ADAMTS 13 activity was 20.8. Peripheral smear revealed 5-6 schistocytes per high power field. Cultures grew pan-sensitive Pseudomonas aeruginosa in urine and Aeromonas in blood, with procalcitonin levels at 96.

Initially, the patient showed clinical improvement but later experienced a sudden drop in hemoglobin and worsening ARDS symptoms. Chest imaging revealed bilateral diffuse alveolar infiltrates. Sequential bronchoscopic lavage indicated persistent hemorrhage, leading to a diagnosis of DAH. Cultures for bronchoalveolar fluid were negative, with no hemosiderin macrophages. Patient was treated with plasma exchange, IV immunoglobulins, pulse methylprednisolone and alternate day RRT. He was discharged on prednisolone, mycophenolate, with plans to start cyclophosphamide/rituximab and undergo renal biopsy.

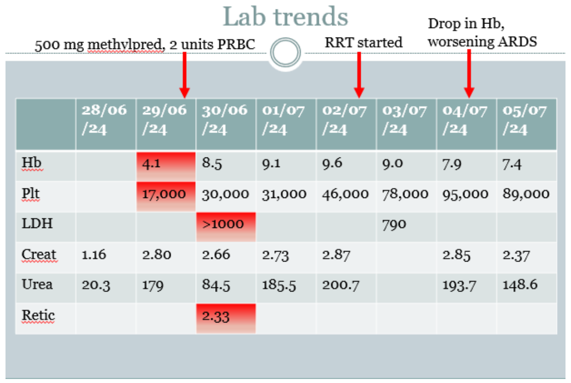
Results

DAH associated with SLE remains a diagnostic and therapeutic challenge with mortality rates as high as 70-92 percent. Identifying factors associated with high mortality and employing a multidisciplinary team approach can significantly improve survival rates.

2024-0163

Figure & Table

Figure 1. Lab trend



Lab trends

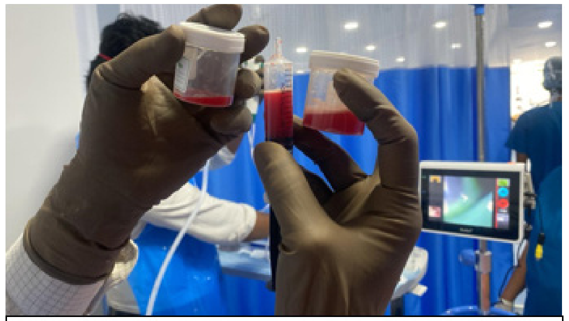
500 mg methylpred, 2 units PRBC

RRT started

Drop in Hb, worsening ARDS

	28/06/24	29/06/24	30/06/24	01/07/24	02/07/24	03/07/24	04/07/24	05/07/24
Hb		4.1	8.5	9.1	9.6	9.0	7.9	7.4
Plt		17,000	30,000	31,000	46,000	78,000	95,000	89,000
LDH			>1000			790		
Creat	1.16	2.80	2.66	2.73	2.87		2.85	2.37
Urea	20.3	179	84.5	185.5	200.7		193.7	148.6
Retic			2.33					

Figure 2. BAL



Sequential bronchioalveolar lavage showing persistent hemorrhage

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2024-0165

Comparison of Postoperative Pain Management Using Intravenous Ibuprofen Combined with Acetaminophen versus Acetaminophen Alone After Thyroidectomy

Jaesik Park[1], Yung eun Moon[1*]

1. Anesthesiology, Seoul St. Mary's Hostpital, Republic of Korea

Background

Using multiple medications is often more effective than a single agent for managing postoperative pain. This study evaluated the analgesic effect of a combination of intravenous acetaminophen and ibuprofen immediately after thyroidectomy.

Methods

62 patients undergoing open thyroidectomy were randomized to a treatment (acetaminophen 1000 mg, ibuprofen 300 mg) or control (acetaminophen 1000 mg) group. Postoperative pain severity was assessed using a visual analog scale (VAS) at 0, 15, and 30 minutes after admission to the recovery room. The dose of opioid rescue medication used was also recorded.

Results

The treatment group had significantly lower VAS scores than the control group at 15 [3 (2-4.3) vs. 5 (3-6); $p = 0.015$] and 30 [3 (2-4.3) vs. 4 (3-5); $p = 0.018$] minutes after admission to the recovery room. The same was observed for rescue analgesic dose requirements ($p = 0.033$).

Conclusion

For immediate acute postoperative pain after open thyroidectomy, the combination of acetaminophen and ibuprofen may be more effective than acetaminophen alone.

2024-0165

Figure & Table

Figure 1.

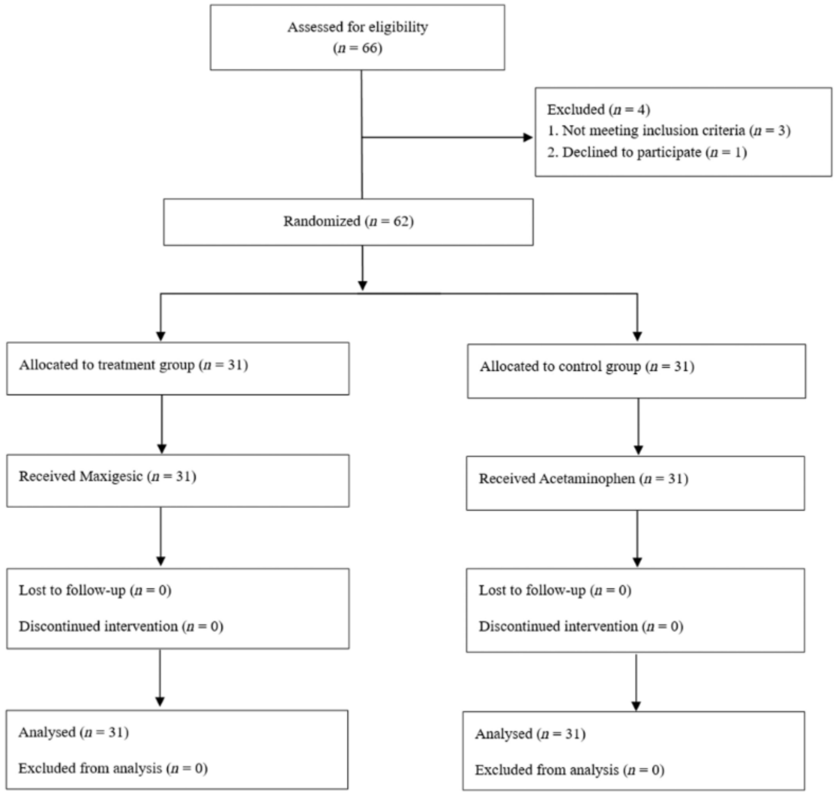
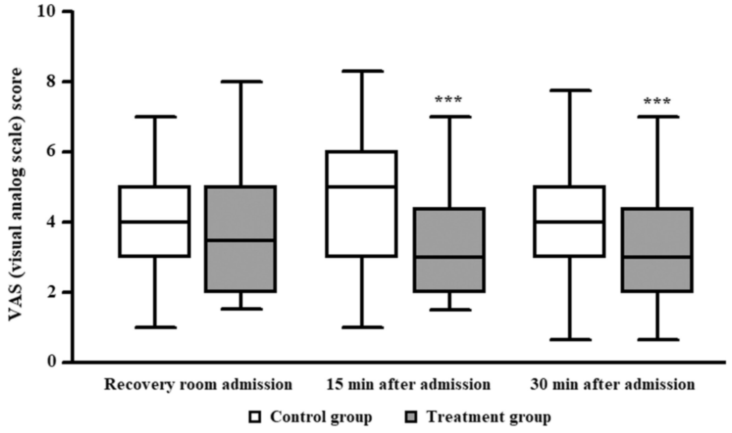

Assessed for eligibility
(n = 66)
Excluded (n = 4)
1. Not meeting inclusion criteria (n = 3)
2. Declined to participate (n = 1)
Randomized (n = 62)
Allocated to treatment group (n = 31)
Allocated to control group (n = 31)
Received Maxigesic (n = 31)
Received Acetaminophen (n = 31)
Lost to follow-up (n = 0)
Discontinued intervention (n = 0)
Lost to follow-up (n = 0)
Discontinued intervention (n = 0)
Analysed (n = 31)
Excluded from analysis (n = 0)
Analysed (n = 31)
Excluded from analysis (n = 0)

Figure 2.



2024-0168

Case report: Labour epidural, a major headache

Nabilah Abdul ghani[1*], Putri jasmine filza Firdaus[1], Jo ve Ng[1], Intan syafiqah Ikram shah[2],
Mayura Damanhuri[1], Nur azreen Hussain[1]

1. Anaesthesiology, Universiti Malaya, Malaysia
2. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia

Background

Lumbar epidural is the gold standard technique for analgesia during labour. Identification of epidural space is achieved via loss of resistance to air (LORA) or loss of resistance to saline (LORS) techniques. A rare, serious complication associated with LORA technique is pneumocephalus, which commonly presents as headache. However, distinguishing pneumocephalus from other complications of accidental dural puncture, such as post-dural puncture headache (PDPH), is challenging. Diagnosis relies on clinical judgment and confirmed via computed tomography (CT) brain. We report a case of sudden-onset headache following dural puncture during labour epidural insertion using LORA technique.

Methods

A healthy 30-year-old woman planned for induction of labour for oligohydramnios with trial of previous scar. After assessment and consented, labour epidural was chosen for analgesia. Procedure was performed under aseptic technique in sitting position. Skin infiltrated with 1% lignocaine, followed by insertion of an 18G Tuohy needle into the L3/4 interspace using LORA technique. Accidental dural puncture occurred at a depth of 4cm during Tuohy insertion when a gush of cerebrospinal fluid was observed. Immediate decision was made to insert an intrathecal (IT) catheter, which was anchored at 8cm.

She complained of a severe headache immediately after insertion of the catheter, which did not improve with lying down. Pain resolved after giving T. paracetamol 1g, IV fentanyl 25mcg and one-pint bolus Hartmann's solution. Subsequently, IT catheter was aspirated by the anaesthetist prior to top up with 3mls of epidural cocktail: 0.1% ropivacaine with 2mcg/ml fentanyl.

Thereafter, she was scheduled for an emergency cesarean section for chorioamnionitis with pathological cardiotocograph. At the operating theater, IT catheter was in situ at 8cm. IT 0.5% heavy bupivacaine given in divided doses up to a total of 2.2mls with IT fentanyl 15mcg. No sensory or motor block was observed. Given the uncertain spread of local anaesthesia, decision made to proceed with general anaesthesia. Sevoflurane-nitrous gases and IV propofol was used on induction. Intraoperative analgesia given were IV morphine 5mg, Supp. paracetamol 1g and voren 50mg. Surgery was uneventful, following which she was extubated. On postoperative day 1, she complained of two episodes of headache, described as generalised dull ache, moderate severity, worsened with sitting up and improved on lying down. Non-contrasted CT brain showed multiple air pockets, suggestive of pneumocephalus, which was managed conservatively by the neurosurgical team. IT catheter was removed 24 hours post-insertion. She was discharged well on postoperative day 3.

Results

Anaesthetists must be aware that using LORA technique carries a risk of pneumocephalus if dural puncture occurs. Application of LORS with continuous pressure, is recommended over LORA technique. However, it is crucial for anaesthetists to be thoroughly familiar with their chosen technique to ensure optimal outcomes in neuraxial anaesthesia. Recognizing and addressing complications early is essential for patient safety and effective management.

2024-0168

Figure & Table

Figure 1. CT Brain showing pneumocephalus

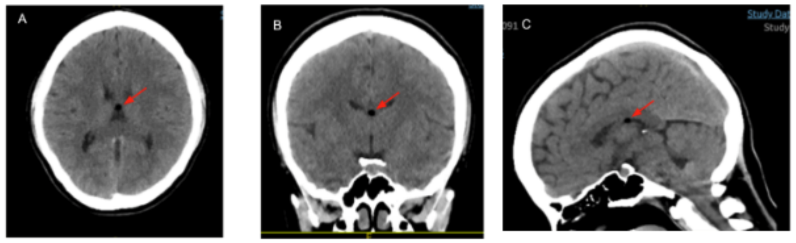


Figure 1: computed tomography (CT) scan of the brain showing multiple air pockets in the third ventricle. (A: Axial view, B: Coronal view, C: Sagittal view)

2024-0175

Bradycardia during MVA (The Brewer-Luckhardt Reflex): A Case Report

Raju Thapa Magar[1*]

1. Anaesthesiology and Critical Care, Nepal Korea Friendship Municipality Hospital, Nepal

Background

Manual vacuum Aspiration (MVA) is a short procedure that is performed as a routine surgery under general anaesthesia, (IVA) or Spinal Anaesthesia depending on gestational age. Cervical surgery requires deep anesthesia because it gets multiple nerve supply and is reflexogenic. Operations under light planes of anesthesia cause intense pain, reflex body movements, tachypnea and laryngeal spasm and bradycardia, the so-called Brewer– Luckhardt reflex. Anti-cholinergic like atropine can attenuate the vagal reflex.

Methods

Case 1

Thirty-two years young female following medical termination of pregnancy at 6 weeks, 4 weeks ago presented in Gynaecology OPD with chief complain of bleeding per vagina for a month. She had no other co-morbidities. all the investigations were within normal limit and hemodynamically she was stable. Ultrasonography of abdomen and pelvis suggestive of retained product of conception (RPOC) and was planned for MVA.

After confirming the informed consent and fasting status 18 Gz cannula was placed on the dorsum of left hand, and infusion of 500 ml Ringer's lactate was commenced. All the ASA standard monitors like ECG, SPO2, Non-invasive BP were attached. All vitals were in normal limits.

Then patient was administered with midazolam 2mg, fentanyl 50 mcg following which patient was kept in lithotomy position and betadine painting and draping of operative site. Then anaesthesia was induced with ketofol (Ketamine+Propofol) (1:1) 5ml. After confirming adequate depth of anaesthesia, surgical procedure was commenced. On examination os was closed hence cervix was grabbed with forceps. Immediately her heart rate dropped to 48 beats/min. surgeon was asked to release the cervix following which the heart rate increased to 110 beats/min. With possibility of inadequate anaestheisa, ketofol 3 ml was further administered. Again, on holding the cervix with forceps heart rate dropped to 35 beats/min which was informed and cervix was released. Inj. Atropine. 6mg was given immediately. SPO2 dropped to 80% for which supplemental O2 was given, SPO2 was improved to 98%. Then surgeon was requested to commence the procedure without holding the cervix, about 50 ml of RPOC was aspirated using Ipas cannula. Inj. Granisetron 1 mg was given. Post procedural heart rate was 140 beats/min in sinus rhythm, SPO2 98% with O2 at 4 ltrs/min on face mask and blood pressure of 108/68 mm of Hg.

After 2 hrs in post anaesthesia care unit her heart rate settled to 100 beats/min, SPO2 maintained above 96% in room air and blood pressure was 100/70 mm of Hg. and discharged from hospital on the next day.

The vagus nerve is the longest cranial nerve containing motor and sensory fibers.. It contains somatic and visceral afferent fibers, as well as general and special visceral efferent fibers. Stimulation of vagus nerve can lead to procedural reflex like Bezoald-Jarisch reflex, oculo-cardiac reflex and the Brewer–Luckhardt reflex. Vagal reflexes can be attenuated by the use of an anticholinergic such as atropine

Results

MVA though is a short procedure performed as elective surgery under IVA, it is not free of complications. The Brewer-Luckhardt Reflex is a Vagus reflex that occurs due to distant stimulus ie cervical stimulation similar to oculo-cardiac reflex. Though, it is a rare complication and can be attenuated by anticholinergics like atropine a vigilant monitoring. MVA should be performed with standard monitoring.

2024-0180

Unmasking the Silent Threat: A Retrospective Analysis of Unplanned Extubation Incidents in the Intensive Care Unit, Sarawak General Hospital

Farah Razali[1*], Jamaidah Jamhuri[2], Alex Kim[3], Tiong Xun ting[2], Hidayatur afifah Shuib[2], Marvina Tekhee[3], Teo Shu ching[2], Alan Fong yean yip[1], Chin Yi zhe[4]

1. Clinical Research Centre, Sarawak General Hospital, Malaysia
2. Anaesthesiology and Intensive Care, Sarawak General Hospital, Malaysia
3. Quality Unit, Sarawak General Hospital, Malaysia
4. Anaesthesiology and Intensive Care, Borneo Medical Miri, Malaysia

Background

Unplanned extubation (UE) in intensive care units (ICU) presents significant patient safety risks, including increased morbidity and healthcare costs. This study evaluates the incidence, contributing factors, and outcomes of UE at Sarawak General Hospital, focusing on the roles of physical restraints, staffing, and sedation practices.

Methods

A retrospective cohort design was utilized in 1336 mechanically ventilated ICU patients who experienced UE throughout year 2023. Data were collected on patient demographics, clinical interventions, including the use of physical restraints, nursing availability, sedation protocols and the timing of spontaneous breathing trials (SBT).

Results

There were14 UE incidents predominantly male (78.6%), yielding an incidence rate of approximately 10.48 per 1000 patients. Physical restraints were used in 57.1% of cases, and half occurred without specialised nursing care. Four cases took place in isolated rooms, potentially affecting monitoring. Sedation involved infusion Fentanyl in all cases, Profol in 9, and multiple sedative in 4 instances, typically under complex clinical conditions like high ventilator settings or polytrauma. SBTs were delayed in seven cases, complicating recovery efforts.

Conclusion

The findings suggest a high prevalence of UE among males and under PSV, with significant implications for ICU protocols on sedation and restraint use. Comparisons with existing literature indicate similar risk profiles but highlight the critical need for targeted interventions in mechanical ventilation management.
Effective strategies to mitigate UE in ICUs include stringent monitoring of sedation levels and restraint use, tailored to individual patient needs to enhance safety and reduce ICU stay durations.

2024-0181

Anesthetic Management of a Rare Case of Tracheal Transection

Suganya Dhanabalan[1], Lavanya Ponnusamy[1*], Prashanth Reddy[1], Pramod Reddy[1]

1. Anesthesiology, Yashoda Hospital, India

Background

Tracheal transection is an extremely rare and life-threatening injury typically resulting from severe trauma, such as high-speed motor vehicle accidents. The anesthetic management of such cases presents significant challenges due to the compromised airway and the need for immediate intervention. This case report details the anesthetic and surgical management of a 28-year-old male with complete tracheal transection and cricotracheal separation following a high-velocity crash.

Methods

We present the case of a 28-year-old male involved in a high-velocity crash who sustained a complete tracheal transection with cricotracheal separation. The initial assessment failed to identify the injury, leading to severe respiratory distress upon arrival.

Management Strategy:
1. Emergency Airway Control:
- Endotracheal intubation was urgently performed to secure the airway.
- An intercostal drain (ICD) was placed for managing pneumothorax and pneumomediastinum.
- A cervical collar was applied to manage an odontoid fracture.

2. Diagnosis and Repair:
- A trial extubation was attempted after 3 days as the patient was comfortable, awake, and maintaining adequate tidal volume.
- Shortly after extubation, the patient developed respiratory distress and desaturation. Immediate reintubation was performed, and fiber optic bronchoscopy revealed complete tracheal transection.
- Under fiber optic guidance,the endotracheal tube was positioned just above the carina and the patient was promptly taken up for tracheal repair.

3. Postoperative Care:
- The patient was extubated on postoperative day 1 after confirming adequate respiratory effort.
- One week postoperatively, the patient experienced multiple episodes of vomiting and subsequent respiratory distress. Aspiration pneumonia was suspected, leading to reintubation and elective tracheostomy.
- Indirect laryngoscopy revealed bilateral vocal cord palsy, which was managed with fat injection for vocal cord medialization.
- The patient was discharged with no significant complaints and a reasonably normal voice.

Anesthetic Challenges:
The primary anesthetic challenges included securing airway,ensuring adequate oxygenation, maintaining hemodynamic stability, and coordinating closely with the surgical team for both intraoperative and postoperative care.

2024-0181

Results

This case underscores the importance of thorough clinical assessment, as the diagnosis was initially missed on imaging studies. It highlights the need for rapid sequence induction, meticulous airway management, and effective interdisciplinary communication. Prompt and coordinated efforts among medical teams are essential for achieving favorable outcomes in complex and rare tracheal injuries.

Figure & Table

Figure 1.

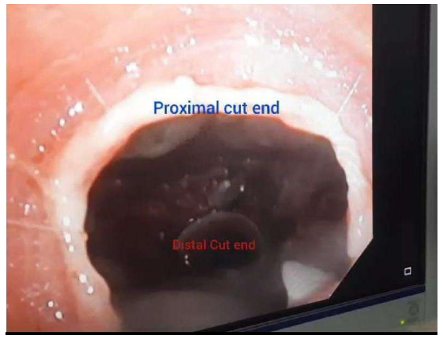
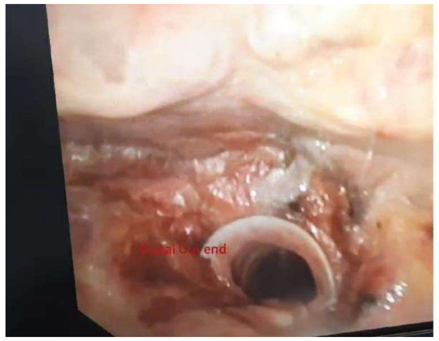


Figure 2.



2024-0183

Anaesthetic Management in Parturient with Newly Diagnosed Severe Mitral Stenosis and Pulmonary Hypertension for Emergency Caesarean

Noorul Asyikeen Kasim[1], Grace Soon[1*], Raja muhidayah Raja baniamin[1], Tan Li kuan[1], Satvinderjit Singh[1]

1. Anaesthesiology, Hospital Wanita Dan Kanak Kanak Sabah, Malaysia

Background

Our patient presented with acute RHF at 31 weeks of POA due to severe mitral stenosis and pulmonary hypertension. She also bleeding placenta previa, requiring emergency caesarean section. Anaesthetic management of emergency caesarean in this patient was challenging as neuraxial block is not well tolerated, and general anaesthesia is associated with significant morbidity and high mortality risk.

Methods

A 31-year-old lady at 31 weeks of POA (BMI 23) was initially referred from a district health clinic for symptomatic anaemia (Hb 7.9 g/dl). She also had underlying placenta previa posterior and a history of admission due to per vaginal bleeding at 27 weeks of gestation that resolved after 3 days.

She appeared lethargic with failure symptoms for past two weeks. Her BP was 110/71 mmHg with ECG showing right axis deviation with 98 beats per minute. Her respiratory rate was about 30 breaths per minute, and oxygen saturation was maintained at 98% on room air. A pansystolic murmur was heard at the left sternal edge, and pedal edema extended to the knee. CXR shown cardiomegaly with marked pulmonary markings. Urgent echocardiography revealed severe mitral stenosis (valve area 0.57 cm^2) with pulmonary hypertension (PASP 78 mmHg, mean pulmonary artery pressure 31 mmHg), with normal EF.

Therefore, continuation of the current pregnancy was contraindicated, and delivery of the fetus was planned immediately. Her hemoglobin level increase to 9.5 g/dl after 1 pint red cell transfusion. However, on next day, she experienced sudden minimal per vaginal bleeding, necessitating urgent caesarean section on same day.

Prior to induction in the operating theatre (OT), the patient was immediately brought to the intensive care unit. Arterial line and central venous line insertion was performed under aseptic technique. Prophylaxis for subacute bacterial endocarditis, gastric antacid prophylaxis, and electrolytes correction were administered. Milrinone infusion was also initiated preoperatively.

General anaesthesia induction with small IV boluses dose of midazolam and TCI remifentanil. Hemodynamic changes stabilized rapidly with ongoing infusions of noradrenaline and phenylephrine. Intubation via modified RSI was uneventful. General anaesthesia was maintained with sevoflurane at a target (MAC) of 0.8. Immediately after foetal delivery, 5 units of Pitocin (diluted in 10 ml saline) were administered via infusion pump for 10 minutes. Total analgesia consisted of only 6 mg of intravenous morphine and continue with morphine infusion in ICU. Only 100 mls of crystalloid was administered throughout surgery, with an estimated blood loss of 300 mls. The baby weighed 1.6 kg and required intubation with Apgar scores of 2 at one minute and 8 at five minutes.

The patient was returned to the ICU for weaning. She was extubated to HFNC postoperatively. Milrinone infusion was continued for 43 hours, and low-dose noradrenaline infusion for 50 hours postoperatively. She was transferred to the maternal high-dependency unit on the 5th post-op day and discharged home after a 2-week hospital stay.

Results

The process of preparing for an emergency caesarean section can be overwhelming, particularly for women with cardiac issues. Anaesthesiologist must be vigilant in planning perioperative care and closely monitoring the patient's and foetus's well-being. A multidisciplinary team is crucial for managing these complex cases, and early referral to a specialized center, including the anaesthesia team, can definitely improve outcomes.

2024-0192

Efficacy of multimodal analgesia in comparison with intrathecal morphine and intravenous patient-controlled analgesia in patients who underwent robot-assisted laparoscopic partial nephrectomy

Jung-Woo Shim[1], Sanghyun Hong[1*]

1. Department of Anesthesiology and Pain Medicine, St. Mary's Hospital, Catholic University of Korea, Republic of Korea

Background

Surgical approaches to renal tumor resection have evolved from open to laparoscopic. Moreover, many studies have demonstrated that robot-assisted laparoscopic partial nephrectomy (RAPN) improves perioperative outcomes compared to laparoscopic partial nephrectomy. However, moderate-to-severe acute pain is unavoidable even after minimally invasive surgery. For an enhanced control of acute postoperative pain, multimodal analgesia has been studied. To date, few reports have explored the efficacy of multimodal analgesia, including TAPB and non-opioids, compared to intrathecal morphine in RAPN. We retrospectively investigated clinical data from our institute to compare their impact on pain control and recovery after surgery.

Methods

The patients who had undergone RAPN for renal tumor from 2020 to 2022 were divided into three groups according to the analgesic measures they received during each period: IV-PCA alone (IV-PCA group) from January to December 2020, intrathecal morphine and IV-PCA (intrathecal analgesia group) from January 2021 to February 2022, and multimodal analgesia with TAPB and IV-PCA (multimodal analgesia group) from March to December 2022.

In the intrathecal analgesia group, an intrathecal block using morphine 200 µg mixed with normal saline (1 mL) was preoperatively performed. In the multimodal analgesia group, a unilateral TAPB was performed after anesthesia induction, and paracetamol 1 g and nefopam 20 mg, were respectively infused.

The primary outcome of this study was the area under the curve (AUC) of the numeric rating scale (NRS) over 24 h postoperatively. The secondary outcomes were NRS pain scores, cumulative opioid requirements, and postoperative complications, including postoperative nausea and vomiting (PONV), pruritus, and hypoxia.

Results

Among the 334 patients underwent RAPN at the Department of Urology at our institute, 131 and 105 received intrathecal and multimodal analgesia, respectively. As shown in Table 1, the preoperative characteristics did not differ among the three groups. The AUC of NRS pain scores over 24 h after surgery were significantly lower in intrathecal analgesia and multimodal analgesia groups than in the IV-PCA group (85.7±31.0 vs. 89.8±39.0 vs. 104.8±34.6, $p < 0.001$; Table 2). Similar to this result, there were between-group differences in NRS pain scores until 12 h after surgery. Cumulative opioid requirements were also significantly lower in intrathecal analgesia and multimodal analgesia groups during 24 h after surgery. PONV occurred significantly more frequently in the intrathecal analgesia group than in the multimodal analgesia and IV-PCA groups (27.5% vs. 13.3% vs. 13.3%, $p = 0.005$; Table 3).

Conclusion

Multimodal analgesia, including TAPB, paracetamol, and nefopam infusions, provided acute pain control comparable to that of intrathecal analgesia with fewer PONV occurrences in patients who underwent RAPN. Our findings suggest a multimodal approach for opioid-sparing analgesia in the current opioid epidemic. The ideal regimen for prolonging analgesic duration should be explored in future studies.

2024-0192

Figure & Table

Table 1. Comparison of demographic and surgical characteristics among the three groups

Group	Intrathecal analgesia group	Multimodal analgesia group	IV-PCA group	p value	Post hoc comparisons	Mean difference	p value
	n = 131	n = 105	n = 98				
Demographic characteristics							
Age (years)	53±12	54±11	55±12	0.388			
Male sex	78 (59.5%)	58 (55.2%)	67 (68.4%)	0.149			
Body mass index (kg/m^2)	24.5±3.5	25.1±3.0	25.5±4.4	0.139			
ASA–PS				0.378			
I	43 (32.8%)	26 (24.8%)	27 (27.6%)				
II	88 (67.2%)	79 (75.2%)	71 (72.4%)				
Surgical characteristics							
Operation time (min)	157±40	151±32	153±42	0.394			
Remifentanil dose (µg/kg/h)	3.2±1.2	3.1±1.8	4.1±2.0	< 0.001	Intrathecal analgesia-Multimodal analgesia	0.0	> 0.999
					Intrathecal analgesia-IV-PCA	-0.9	< 0.001
					Multimodal analgesia-IV-PCA	-1.0	< 0.001
Fluid infusion rate (mL/kg/h)	4.2±2.3	3.9±1.6	4.5±2.8	0.149			
Urine output rate (mL/kg/h)	1.1±1.0	0.9±0.9	1.2±1.3	0.119			
Estimated blood loss rate (mL/kg/h)	0.8±0.7	0.8±0.7	0.8±0.7	0.911			

Abbreviations: ASA-PS, American Society of Anesthesiologists Physical Status; IV-PCA, intravenous patient-controlled analgesia
Note: A post-hoc test using the Bonferroni correction was used to determine the differences between groups.

2024-0192

Table 2. Comparison of postoperative pain scores and opioid requirements among the three groups

Group	Intrathecal analgesia group	Multimodal analgesia group	IV-PCA group	*p* value	Post hoc comparisons	Mean difference	*p* value
	n = 131	*n* = 105	*n* = 98				
NRS pain score							
AUC of NRS over 24 h (h)	85.7±31.0	89.8±39.0	104.8±34.6	< 0.001	Intrathecal analgesia-Multimodal analgesia	-4.1	> 0.999
					Intrathecal analgesia-IV-PCA	-19.1	< 0.001
					Multimodal analgesia-IV-PCA	-15.0	0.007
†At 0 h after surgery	3.4±1.9	3.1±1.8	4.4±2.0	< 0.001	Intrathecal analgesia-Multimodal analgesia	0.3	0.783
					Intrathecal analgesia-IV-PCA	-1.0	< 0.001
					Multimodal analgesia-IV-PCA	-1.3	< 0.001
At 3 h after surgery	4.5±1.8	4.1±2.0	5.3±2.3	< 0.001	Intrathecal analgesia-Multimodal analgesia	0.4	0.353
					Intrathecal analgesia-IV-PCA	-0.8	0.013
					Multimodal analgesia-IV-PCA	-1.2	< 0.001
At 6 h after surgery	3.8±1.7	3.8±1.9	4.7±2.0	< 0.001	Intrathecal analgesia-Multimodal analgesia	0.1	> 0.999
					Intrathecal analgesia-IV-PCA	-0.9	0.001
					Multimodal analgesia-IV-PCA	-1.0	0.001
At 12 h after surgery	3.3±1.5	3.5±1.8	4.0±1.6	0.003	Intrathecal analgesia-Multimodal analgesia	-0.2	0.973
					Intrathecal analgesia-IV-PCA	-0.7	0.002
					Multimodal analgesia-IV-PCA	-0.5	0.068
At 18 h after surgery	3.3±1.8	4.0±2.0	4.2±1.8	0.001	Intrathecal analgesia-Multimodal analgesia	-0.6	0.029
					Intrathecal analgesia-IV-PCA	-0.9	0.002
					Multimodal analgesia-IV-PCA	-0.2	> 0.999
At 24 h after surgery	3.4±1.9	3.7±1.9	4.0±1.7	0.088			
Cumulative opioid requirement (mg, intravenous morphine equivalents)							
At 3h after surgery	9.4±5.0	10.2±4.9	12.8±6.0	< 0.001	Intrathecal analgesia-Multimodal analgesia	-0.8	0.685
					Intrathecal analgesia-IV-PCA	-3.5	< 0.001
					Multimodal analgesia-IV-PCA	-2.6	0.001
At 6h after surgery	13.5±7.2	15.4±7.0	20.1±8.7	< 0.001	Intrathecal analgesia-Multimodal analgesia	-1.9	0.186
					Intrathecal analgesia-IV-PCA	-6.6	< 0.001
					Multimodal analgesia-IV-PCA	-4.7	< 0.001
At 12h after surgery	21.8±11.2	24.5±11.0	37.2±16.5	< 0.001	Intrathecal analgesia-Multimodal analgesia	-2.6	0.358
					Intrathecal analgesia-IV-PCA	-15.4	< 0.001
					Multimodal analgesia-IV-PCA	-12.8	< 0.001
At 18h after surgery	26.7±14.4	33.9±16.2	44.8±20.8	< 0.001	Intrathecal analgesia-Multimodal analgesia	-7.3	0.004
					Intrathecal analgesia-IV-PCA	-18.1	< 0.001
					Multimodal analgesia-IV-PCA	-10.8	< 0.001
At 24h after surgery	32.5±18.9	41.4±20.5	51.4±24.3	< 0.001	Intrathecal analgesia-Multimodal analgesia	-8.9	0.004
					Intrathecal analgesia-IV-PCA	-18.9	< 0.001
					Multimodal analgesia-IV-PCA	-10.0	0.003

Abbreviations: IV-PCA, intravenous patient-controlled analgesia; NRS, numerical rating scale; AUC, area under the curve.
Note: A post-hoc test using the Bonferroni correction was used to determine the differences between groups.
†Pain score measured at arrival in the post-anesthetic care unit.

Table 3. Comparison of postoperative complications among the three groups

Group	Intrathecal analgesia group	Multimodal analgesia group	IV-PCA group	p value	Post hoc comparisons	p value
	n = 131	*n* = 105	*n* = 98			
PONV	36 (27.5%)	14 (13.3%)	13 (13.3%)	0.005	Intrathecal analgesia-Multimodal analgesia	0.008
					Intrathecal analgesia-IV-PCA	0.009
					Multimodal analgesia-IV-PCA	0.989
Pruritus	16 (12.2%)	5 (4.8%)	6 (6.1%)	0.079		
Hypoxia	2 (1.5%)	4 (3.8%)	1 (1.0%)	0.323		
Major complications	2 (1.5%)	3 (2.9%)	0 (0%)	0.246		
Hospital stay	6±2	5±2	6±2	0.512		

Abbreviations: IV-PCA, intravenous patient-controlled analgesia; PONV, postoperative nausea and vomiting
Note: A post-hoc test using the Bonferroni correction was used to determine the differences between groups.

2024-0203

Analgesic efficacy of classical thoraco-lumbar interfascial plane block (TLIP) Vs lateral thoraco-lumbar interfascial plane block in patients undergoing lumbar discsSurgery: A comparative, randomized controlled trial

Ravinder kumar Pandey[1*], Sourav Mondal[1], Mritunjay Kumar[1], Jyotsna Punj[1], Vanlal Darlong[1]

1. Anaesthesiology,Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Background

We compared classical (medial) and modified (lateral) thoracolumbar interfascial plane block (TLIP) with only general anaesthesia using multimodal analgesia in patients undergoing lumbar disc surgeries.

Methods

This prospective, comparative, randomized, controlled trial was conducted in a tertiary health care hospital. It included 100 adult patients between 18 and 70 years of age with ASA status of I to II. All patients were randomized into 3 groups (cTlip, mTlip, and C). In Group cTlip, all patients received classical TLIP block (medial approach) with 20 ml of 0.25% ropivacaine along with general anesthesia (GA); In Group mTlip, all patients received modified TLIP block (lateral approach) with 20 ml of 0.25% ropivacaine along with GA. Group C: patients received only GA using multimodal analgesia technique for treating pain without any block. In this study, we evaluated perioperative opioid intake, hemodynamic response to surgical stimulation, Numerical Rating Scale (NRS) upon admission into the PACU, time to first analgesic requirement after surgery, PONV, and any drug-related side effects in different groups.

Results

The total intraoperative opioid consumption was substantially higher in group C (268.0μg) compared to the other two groups mTlip (99.5μg) and cTlip (103.0μg) (p=0.001)). However, it was comparable between the two groups mTlip and cTlip. The total postoperative opioid consumption till the first 24 hours was significantly higher in group C (957.3μg) compared to the two groups mTlip (387.5μg) and cTlip (404.2μg) (p=0.001)) which was comparable between the two groups mTlip and cTlip. The total perioperative opioid consumption in group cTlip (507.58 ±258.55 μg) and in group mTlip (491.67± 165.39 μg) was significantly higher than control group C (1225.4 ±237.03 μg) (p=0.001). The total perioperative opioid consumption between groups cTlip and mTlip was comparable(p=0.767).
In the postoperative care unit (PACU), NRS on arrival was comparable in both study groups c Tlip (3.6) & mTlip (3.7). It was significantly lower as compared to group C (8.0) (P= 0.001).
Out of the 33 patients in both study groups cTlip & mTlip, only 15.2% of patients required rescue analgesic boluses, whereas all (100%) patients in group C required rescue analgesia.
No patient in group cTlip & group mTlip complained of PONV in the first 24 hours, whereas it was significantly higher (61.8%) in group C (p=0.001).

Conclusion

Modified TLIP block did not prove to be a better analgesic technique than classical medial TLIP block. Both techniques provided a similar magnitude of intraoperative and postoperative analgesia for lumber disc surgeries.

Competition
Presentation
E-Poster

2024-0203

Figure & Table

Figure 1.

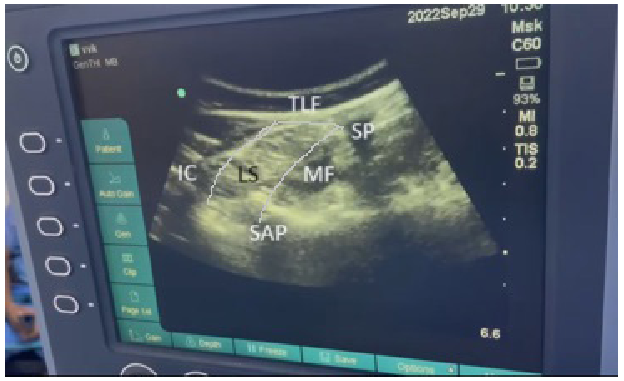
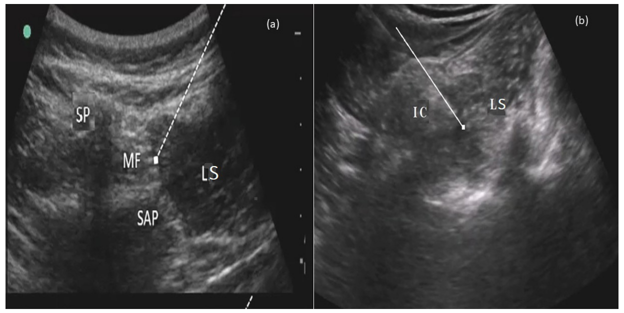


Figure 2.



Competition
Presentation
E-Poster

2024-0206

A case of a refractory cancer pain which switch to epidural infusion from iv of a large amount of morphine was effective for proceeding to home-based care

Hana Oue[1], Daisuke Inoue[1*], Yuka Suzuki[1], Anna Koyama[1], Satoshi Hayashi[1], Tokuhito Hayashi[1], Nobuko Fujita[1]

1. Department of Anesthesia, St.Luke's International Hospital, Japan

Background

[Background]In recent years, the number of cancer patients and their families desiring palliative home-based care has been increasing in Japan. We report a patient with a refractory cancer pain after we switched from the systemic administration to epidural administration of opioid with subcutaneous reservoir, she relieved pain and could discharge.

Methods

[Case] A 44-year-old woman. Chief complaint: right chest pain (neuropathic pain in rtTh1-7 region).

[Clinical course] She was admitted to our palliative care department for pain control after an MRI at her previous physician diagnosed meningeal carcinomatosis due to lung cancer. Pain in the right chest area and axilla due to pleural dissemination from lung cancer was allodynia-positive neuropathic pain, with poor pain control and somnolence despite high doses of opioids such as oxycodone, methadone, and hydromorphone and switching. Therefore, on day 14 of admission we were consulted by the palliative care department and on day 36 of admission an epidural port was added. The catheter tip of the port was made to be Th1. Before the port was added, some days she was on a continuous morphine dose of about 1200 mg per day. After the port was extended and after discharge from hospital, analgesia could be achieved with epidural morphine and ropivacaine, and morphine doses could be reduced to approximately 200 mg per day. With the addition of the epidural port, pain control improved and opioid use was reduced. No catheter-related infections occurred and she could be discharged on day 51 of admission. The PCA could be used in the home care setting and continued to be used after discharge from the hospital to control cancer pain at home, and she died peacefully at home one month later.

[Discussion]In this case, we were able to transfer a patient with cancer-bearing disease, who had symptoms of somnolence due to high doses of morphine, to home by creating an epidural subcutaneous port system and injecting a mixture of narcotic analgesics and local anaesthetics into the epidural space. However, the transition to home care was also delayed. A reason for the delay in transitioning to home care in this case may be a lack of communication among medical team members, including general practitioners, nurses, social workers, and anesthesiologists. It is necessary to prevent catheter-related infections with the placement of a subcutaneous reservoir and to share the thoughts among medical team members for home-based care in a long period. We should establish the common guidelines for the management of the epidural catheter with subcutaneous reservoir.

Results

[Conclusion] Epidural block therapy is effective in reducing the side effects of systemic administration of opioids, and epidural catheters with subcutaneous reservoirs could contribute to further development of home care.

2024-0207

Clinical Validation of the Eleveld Target-Controlled Infusion (TCI) Model for Propofol in the Malaysian Obese Population

Izzuddin Azaharuddin[1*], Azarinah Izaham[1], Muhammad Maaya[1], Farah hanim Abdullah[1],
Syarifah noor nazihah Sayed masri[1], Liu Chian yong[1], Cheah Saw kian[1], Nizam Mokhtar[1], Qurratu 'aini Musthafa[1]

1. Departement Of Anaesthesiology and Intensive Care, National University Of Malaysia, Malaysia

Background

Total intravenous anesthesia (TIVA) with propofol and remifentanil is favored for its advantages over volatile agents, including improved recovery profiles and reduced adverse effects. Target-controlled infusion (TCI) systems offer precise drug delivery, crucial for maintaining optimal sedation depth, the Eleveld TCI model, integrating data from diverse populations, shows promise in addressing these challenges. This prospective study aimed to clinically validate the Eleveld TCI model's performance in obese patients and evaluating hemodynamic stability.

Methods

Fifteen obese patients were enrolled to this study. Patients scheduled for both elective and emergency surgeries were enrolled, and anesthesia was induced and maintained using the Eleveld TCI model for propofol and TCI Remifentanil maintained troughout. BIS monitoring ensured anesthesia depth around 50 and the stability of BIS values during propofol infusion was assessed using median performance error (MDPE), median absolute performance error (MDAPE), and wobble metrics as per Varvel criteria at six time points T10-T60 along with spectral edge frequency(SEF) readings were recorded. Hemodynamic parameters was assessed at all six timepoints and recorded.

Results

Participants had a mean age of 40.64 ± 12.41 years with body mass index (BMI) of 39.7 ± 6.3 kg/m². The Eleveld model maintained a mean BIS index of 40.6 ± 1.4. BIS values within the target range of 40-60 were achieved 66.7%-80% of the time across all intervals (T10-T60). The MDPE was -18.8% ± 2.7, indicating slight underestimation, while MDAPE was 19.5% ± 2.4, showing overall accuracy. Median wobble was 2% (range 2-4), reflecting stable BIS readings. SEF values within the target range of 8-13 Hz were 66.7%-80%. Hemodynamically, MAP deviation ranged from 4.24% to 10.06% from baseline, and PR deviation ranged from -2.07% to -5.27%, with no clinical significance.

Conclusion

The Eleveld TCI model demonstrates low performance error in maintaining BIS values while ensuring hemodynamic stability in obese patients.

2024-0207

Figure & Table

Figure 1a. Relationship between BIS values with propofol levels (T10-T60)

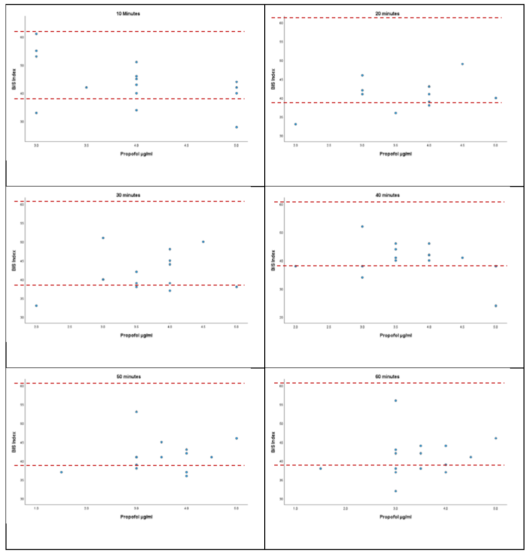


Figure 1b. Relationship between SEF and propofol levels (T10-T60)

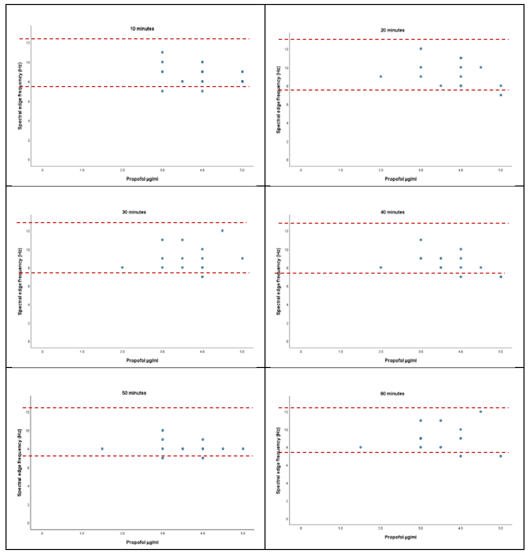
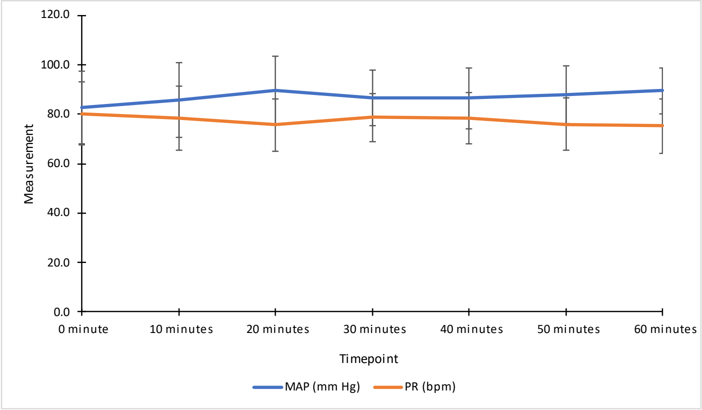


Figure 2. Hemodynamic stability of Eleveld TCI model for propofol during the 60-minute time frame



2024-0217

Spinal Anaesthesia for Cervical Cerclage in the First Trimester

Kaiquan Tan[1], Yoong chuan Tay[1*]

1. Anaesthesiology, Singapore General Hospital, Singapore

Background

Cervical cerclage is one of the treatment strategies shown to be effective in reducing the incidence of preterm birth and its associated infant morbidities which have high societal and economic costs 1. History indicated stitches are typically inserted at approximately 11–14 weeks of gestation in patients with history of second -trimester losses and preterm births 2. However, there is a lack of data comparing anaesthesia and obstetric outcomes between regional and general anaesthesia for cervical cerclage in the second trimester 3,4, and to our best knowledge no studies of the above for the first trimester.

Methods

28-year-old female, ASA 2 for pregnancy. G3P2 1x miscarriage at 19 weeks for cervical incompetence, 1x previous eLSCS for preterm labour 32 weeks gestation age and breech position. On day of cervical cerclage operation, patient was at gestation age of 12 weeks + 6 days, with a singleton pregnancy.

Patient was counselled extensively preoperatively for the unknown effects of general anesthesia on fetal outcomes and maternal risks of both general and regional anesthesia. Decision was made by patient to undergo cervical cerclage procedure under subarachnoid block and sedation.

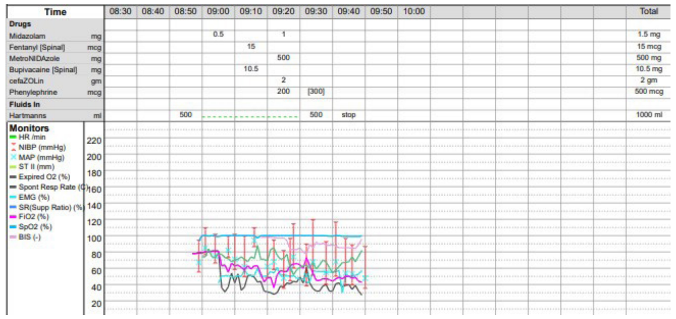
Single shot subarachnoid block was performed in sitting position at L3/4 using 10.5mg heavy bupivacaine and 15mcg fentanyl. Patient was sedated with a total of 1.5mg midazolam. Block height was tested to be at T9 dermatome prior to commencement of surgery. Mcdonald's cervical cerclage performed successfully and uneventfully. At latest obstetrics review, the patient's pregnancy was progressing well at 18+6 weeks.

Results

We present a successful case of cervical cerclage under subarachnoid block in the first trimester. More studies are required to investigate the long term fetal, maternal, and obstetric outcomes of anaesthesia for cervical cerclage in the first trimester.

Figure & Table

Figure 1.



Time		08:30	08:40	08:50	09:00	09:10	09:20	09:30	09:40	09:50	10:00							Total
Drugs																		
Midazolam	mg				0.5		1											1.5 mg
Fentanyl [Spinal]	mcg					15												15 mcg
MetroNIDAzole	mg						500											500 mg
Bupivacaine [Spinal]	mg					10.5												10.5 mg
cefaZOLin	gm						2											2 gm
Phenylephrine	mcg						200	[300]										500 mcg
Fluids In																		
Hartmanns	ml			500				500	stop									1000 ml

2024-0218

Impending Doom in a Tiny Airway: Sublingual Dermoid Cyst in a Neonate

Blair ann Dela rosa[1], Anne michelle Salomon-avelino[2*]

1. Department of Anesthesiology, Quezon City General Hospital, Philippines
2. Department of Anesthesiology, Quezon City General Hospital, Philippines

Background

Pediatric airway conditions like intraoral tongue masses, ranging from benign cysts to malignant tumors, present with feeding and ventilation difficulties and should be treated urgently. Challenging airway scenarios can present from difficult mask ventilation, laryngoscopy, and intubation, and compound the problem of an impending airway collapse of a rapidly growing intraoral mass in a neonate.

Methods

The patient is a 3-day-old male who was admitted with a protruding mass beneath his tongue which is suspected to be a duplication or dermoid cyst. He was born at 39 weeks via spontaneous vaginal delivery to a 31 year old G2P2 (2002) mother with a birth weight of 3.19 kg and APGAR scores of 9,9. The rest of the history was unremarkable.

Upon examination, the patient was awake, comfortable, and not in distress. Vital signs were: heart rate 140 bpm, respiratory rate 40 cpm, temperature 36.5°C, and SpO2 94% - 97% on room air. A 3x3 lobulated, sublingual mass occupying ~60-70% of the oral cavity was noted. Due to feeding difficulties, a nasogastric tube was placed. Laboratory results were within normal range, except for a low platelet count of 83g/dl. The anesthetic plan was general endotracheal anesthesia.

The patient was placed on fasting and an aliquot of PRBC was secured. He was premedicated with Midazolam 0.1 mg/kg and Atropine 0.15 mg/kg IV. The patient was preoxygenated with FiO2 100% oxygen for 5 minutes. Anesthetic induction used were Midazolam 0.15 mg/kg and Ketamine 2 mg/kg IV. Spontaneous respiration was preserved while intubation was being performed using a Miller 1 blade and a 3.0 mm uncuffed endotracheal tube, secured at 9 cm. The patient was maintained on 3-4% Sevoflurane using a Jackson Rees circuit on controlled ventilation. Before the surgical incision, Fentanyl 3 mcg/kg IV was given. Paracetamol 15mg/kg IV was given for post op analgesia. Upon placement of the tracheostomy, the endotracheal tube was removed, and the patient was ventilated through the tracheostomy. The patient tolerated the procedure well without any intraoperative events.

Postoperative care included pain management, intermittent suctioning, close monitoring in the PACU, and oxygen supplementation.

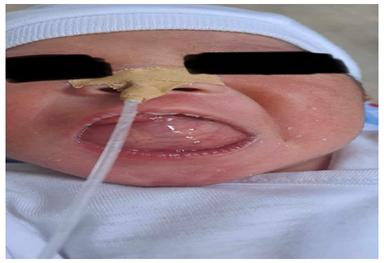
Results

Neonates with large, rapidly growing sublingual masses risk life-threatening airway obstruction and feeding difficulties. Anesthetic goals for urgent pediatric airway surgery should prioritize providing adequate anesthetic depth using IV anesthetics and securing the airway under spontaneous ventilation for an uneventful intubation. Spontaneous respiration is preserved during intubation to avoid "Cannot intubate, Cannot ventilate" scenario. Provision of balanced anesthesia and careful planning will increase the chances of a successful outcome.

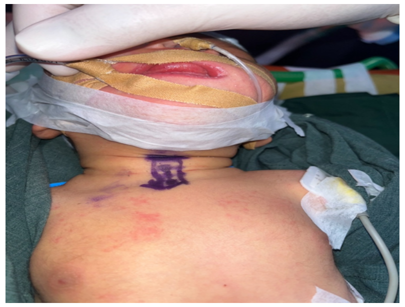
2024-0218

Figure & Table

Figure 1. A. Pre-operative assessment

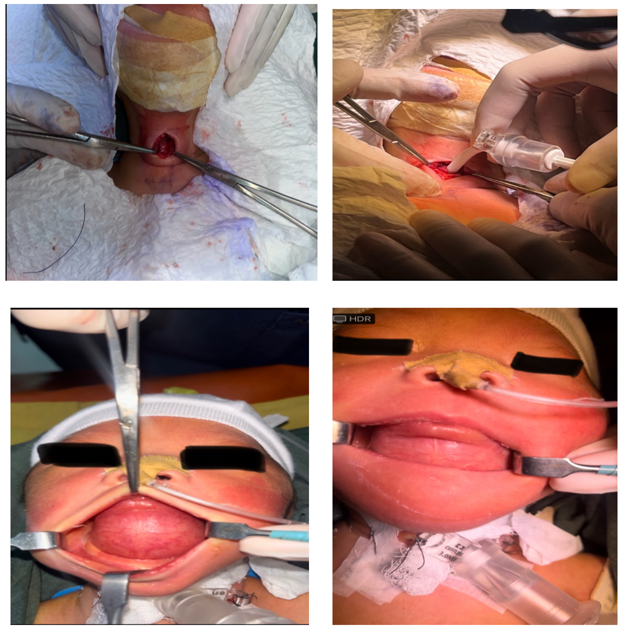


B. Intraoperative



Successful endotracheal intubation

Successful Tracheostomy



2024-0219

Aspiration pneumonia as possible complication of lumbar procedures in older patients.

Hyeryung Kang[1*]

1. Anesthesiology and Pain medicine, VHS Medical Center, Republic of Korea

Background

Many procedures performed in pain clinics can cause various complications. In particular, lumbar procedures sometimes cause significant complications, e.g. hematoma, infectious spondylitis, or paraplegia. These rare and serious complications can also occur, but the most common complication we could encounter in clinical practice is pain that intensifies immediately after the procedure. Here is a case of aspiration pneumonia after pain procedure which required differential diagnosis infectious spondylitis.

Methods

An 80-year-old male patient visited the pain clinic and complained of chronic low back pain and claudication of the lower extremities. He had underlying hypertension, a history of surgery due to lung and stomach cancers, and was on medication for prostate hypertrophy and depression. On the lumbar spine MRI, severe central stenosis was found at L3/4 and L4/5 levels. To relieve symptoms, he took medication (gabapentin, limaprost and tramadol) and received several lumbar epidural injections and a percutaneous epidural neuroplasty procedure, to no avail.

In the end, the patient underwent a intradiscal electrothermal therapy(IDET) to relieve his back pain. The next day after the procedure, he revisited the pain clinic complaining of severe back pain that prevented him from standing, which forced him to lie down all day. After a week of bed rest, a blood test showed an increase in inflammation levels (ESR 42mm/hr and CRP 23.81mg/L), and, 5 days later, he underwent a follow up blood test and an enhanced lumbar MRI to rule out infectious spondylitis. The follow up blood test results showed higher inflammation levels(ESR 94mm/hr and CRP 140.71 mg/L). The enhanced MRI showed subtle contrast enhancement at the endplate of L4/5 and mild thickening of enhancing soft tissue at anterior epidural space of L4-L5, and the radiologist had commented to rule out a case of early infecious spondylitis from reactive change (fig 1). He was hospitalized and underwent chest x-ray and cultures of blood, sputum, and feces. The chest x-ray revealed opacity of right lower lung field, and he was diagnosed with aspiration pneumonia on the chest CT (fig 2). During antibiotic treatment for aspiration pneumonia, his low back pain and inflammation levels improved and he was subsequently discharged.

Results

Pain clinicians should be careful when performing lumbar procedures, especially in elderly patients, because bed rest caused by procedure-related pain can cause aspiration pneumonia. Also, a rare complication of infectious spondylitis should always be kept in mind.

2024-0219

Figure & Table

Figure 1.

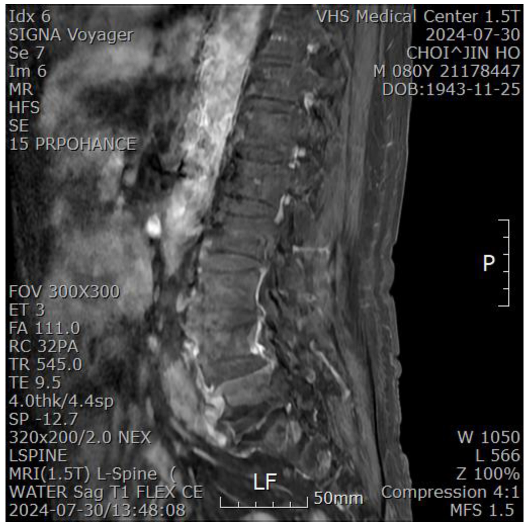
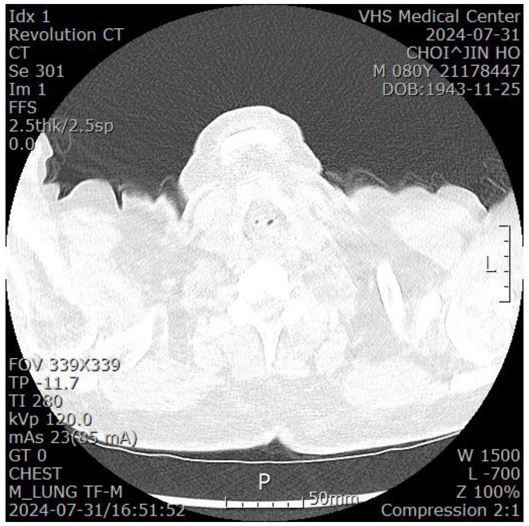


Figure 2.



2024-0224

Postoperative Outcomes Among COVID-19 Infected Pediatric Patients in a Philippine Tertiary Pediatric Specialty Hospital

Yuri Mikael De mesa[1*], Allan benson Gamo[1]

1. Anesthesia, National Children's Hospital, Philippines

Background

Surgery and anesthesia are stressors that physiologically burden patients. During the pandemic, the COVID-19 infection was an additional factor that complicated the perioperative management of surgical patients. Adult postoperative pulmonary complications (PPCs) and mortality rates during the pandemic was higher compared to pre-pandemic figures. This study aims to describe demographics and clinical presentation of COVID-19 specific to infected pediatric patients who underwent surgery and their correlation with postoperative pulmonary complications (PPCs) and mortality rates.

Methods

This is an analytic cross-sectional study that included COVID-19 pediatric patients who underwent surgery from year 2020 to 2022 in a Philippine tertiaty pediatric specialty hospital. Mortality rate and PPCs (postoperative pulmonary complications) were the primary and secondary outcomes in the study, respectively. PPCs included respiratory infection, respiratory failure, pleural effusion, atelectasis, pneumothorax, bronchospasm and aspiration pneumonia. Multiple logistic regression analysis was used to determine the factors associated with mortality and postoperative pulmonary complications.

Results

55 COVID-19 patients were included in the study. PPCs were noted in 22% (n=12) of patients. 1 patient (2%) died during the study. 55% (n=30) of patients presented with preoperative pulmonary symptoms and were associated with risk of developing PPCs (Adjusted OR 3.7 [95% CI 1.27-10.75], p=0.016). Undergoing a second surgery was also noted to increase risk for PPCs (Adjusted OR 29.43 [2.53-342.37], p=0.007). ASA 3 patients, patients with allergy, patients needing O2 support and those who were diagnosed with COVID-19 postoperatively were noted to have higher proportions of patients who developed PPCs but were not statistically significant. No significant difference in patients with or without PPCs in terms of age, sex, weight, height, BMI, z-score, chest radiograph, specific preoperative respiratory symptoms, other comorbidities, type of anesthesia, surgery specialty.

Conclusion

ASA 3 patients, patients with allergy, patients diagnosed with COVID-19 postoperatively and patients needing O2 support preoperatively were all noted to have proportionally higher incidence of PPCs. Patients with pulmonary symptoms and patients who underwent another procedure were noted to be associated with increased risk of developing PPCs.

2024-0224

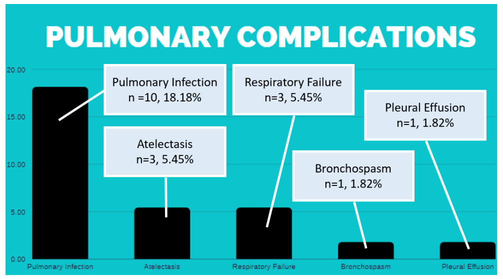
Figure & Table

Table 1. Demographic and clinical characteristics of COVID-19 infected pediatric surgical patients: with vs. without postoperative pulmonary complications (n=55)

Characteristics	Postoperative pulmonary complications		P value
	With (n=12) n(%)	**Without (n=43) n(%)**	
Age (in years), median	1 [IQR: 0.4-6.5]	4 [IQR: 0.6-9]	0.1787^{a}
Newborn: birth to 1 month	0	2 (5)	0.163^{b}
Infant: >1 month to <2years	7 (58)	11 (26)	
Child: 2years to <12years	5 (42)	23 (53)	
Adolescent: 12 years to 18 years	0	7 (16)	
Sex			
Female	2 (17)	12 (28)	0.709^{b}
Male	10 (83)	31 (72)	
Weight (in kg) median	9.3 [IQR: 6.5-18]	20 [IQR: 7-31]	0.1138^{a}
Height (in cm), median	76.5 [IQR: 67.8-120.5]	122 [IQR: 67-137]	0.2509^{a}
BMI (in kg/m^2), mean	14.9 ± 4.0	16.1 ± 3.8	0.3695^{c}
z-score, median	-1 [IQR: -3-0]	0 [IQR: -1-1]	0.1641^{a}
Normal	5 (43)	23 (53)	0.308^{b}
Severely wasted	5 (42)	6 (14)	
Wasted	0	3 (7)	
Possible risk of overweight	0	5 (12)	
Overweight	1 (8)	4 (9)	
Obese	1 (8)	2 (5)	
ASA classification			
ASA I	0	1 (2)	0.002^{*b}
ASA II	3 (25)	33 (77)	
ASA III	8 (67)	8 (19)	
ASA IV	1 (8)	1 (2)	
Timing of COVID-19 diagnosis			
Preoperatively	9 (75)	42 (98)	0.029^{*b}
Postoperatively	3 (25)	1 (2)	
Preoperative respiratory tract infection			
Yes	4 (33)	6 (14)	0.199^{b}
No	8 (67)	37 (86)	
Preoperative respiratory symptoms			
None	3 (25)	22 (51)	0.020^{*b}
One	3 (25)	16 (37)	
Two or more	6 (50)	5 (12)	
Specific preoperative respiratory symptoms, %yes			
Cough	4 (33)	8 (19)	0.429^{b}
Wheezes	0	0	-
Rhonchi	2 (17)	2 (5)	0.204^{b}
Discharge	0	0	-
Sputum	2 (17)	3 (7)	0.298^{b}
Dyspnea	2 (17)	1 (2)	0.117^{b}
Fever	7 (58)	14 (33)	0.177^{b}
Myalgia	0	0	-
Others	0	0	-
Preoperative O2 support			
Room Air	9 (75)	42 (98)	0.029^{*b}
Oxygen only (O2 Nasal Cannula or Face Mask)	2 (17)	0	
Intubated	1 (8)	1 (2)	
Number of comorbidities			
None	7 (58)	32 (74)	0.075^{b}
One	3 (25)	11 (26)	
Two	2 (17)	0	
Comorbidities, %with			
Asthma	0	3 (7)	1.000^{b}
Allergy	2 (17)	0	0.044^{*b}
Hematologic	1 (8)	0	0.218^{b}
Congenital heart disease	2 (17)	3 (7)	0.298^{b}
Oncologic	0	0	-
Neurologic	1 (8)	4 (9)	1.000^{b}
Others	1 (8)	1 (2)	0.392^{b}
Type of anesthesia, %yes			
General anesthesia	12 (100)	42 (98)	1.000^{b}
Regional anesthesia	0	1 (2)	1.000^{b}
MAC	0	1 (2)	1.000^{b}
Specialty			
General surgery	11 (92)	39 (91)	1.000^{b}
Neurosurgery	1 (8)	4 (9)	
Other surgery			
No	8 (67)	42 (98)	0.006^{*b}
Yes	4 (33)	1 (2)	

^{a}Mann Whitney U test; ^{b}Fisher's Exact test; ^{c}Independent t test *Statistically significant (p≤0.05)

Figure 1. Postoperative outcomes of COVID-19 infected pediatric surgical patients (n=55)



2024-0225

Anesthesia for Hepatectomy in Myasthenia Gravis

Danissa fidia Puteri[1*], Meta restu Synthana[1], Ratih kumala fajar Apsari[1], Pinter Hartono[1]

1. Anesthesiology and Intensive Care, Universitas Gadjah Mada, Indonesia

Background

Myasthenia gravis (MG) is the most common autoimmune disorder that affects the neuromuscular junction manifesting with weakness and fatigue of skeletal muscles after physical exercise, with a tendency to subside after periods of rest which may affect ocular, bulbar, respiratory and limb muscles. Surgery and anesthesia in MG patients are associated with an increased risk of death and severe complications even though clinical symptoms have subsided. MG with extrathymic malignancy is uncommon; cases of MG associated with hepatocellular carcinoma (HCC) are even more rare. There have been no reports of anesthesia in HCC patients with MG. Here, we present the first anesthesia case of HCC with MG.

Methods

A 51-year-old woman was scheduled for hepatectomy due to HCC. She had a history of MG, initially complained about the right ptosis, easily choked, and fatigue but complaints disappeared in April 2024. The patient was scheduled for surgery under GA (ASA class II), intubated without muscle relaxant. During anesthesia, the patient's mechanical ventilation mode was pressure controlled and the parameters were adjusted based on standard anesthesiologic evaluation. Anesthesia was maintained with sevoflurane in an air/oxygen mixture (50:50) with flow 3L/minutes and fentanyl continuous infusion. Post anesthesia hematology, serum electrolytes, liver function, kidney function, albumin, blood sugar levels, and arterial blood gases (ABG) showed normal results. ABG measured up to 2 days after surgery showed normal results. The patient was transferred to the Intensive Care Unit. Monitoring of respiratory function is carried out every hour and mode of ventilator was adjusted during post operative periode. The patient was extubated 12 hour postop in ICU and regain full verbal contact and recovery of consciousness. The patient's respiratory function and circulatory status were uncompromised. The next morning, the patient was transfered to inpatient room.

Results

Anesthesia to patients with MG requires careful consideration and meticulous planning due to the neuromuscular characteristics of the condition. The myasthenia gravis patient represents a challenge to the anesthesiologist, and specifically the post-surgical risk of respiratory failure or extended periods of the need for mechanical ventilation in the postoperative period. At the preoperative visit, the anesthesiologist should review their medication and history of other diseases. When a general anesthetic is the required technique, the conduct of the anesthetic is what is of utmost importance. Inhalational agents cause dose-dependent muscle relaxation, to an extent that endotracheal intubation and surgery can often be performed without the requirement for neuromuscular blockade. Neuromuscular blocking agents must be used with caution in MG patients due to potential respiratory compromises. Avoid long-acting neuromuscular blocking agents. Continuous monitoring of neuromuscular function, respiratory status, hemodynamics, and depth of anesthesia intraoperative is essential to avoid prolonged paralysis and ensure patient safety. It is crucial to verify that the patient has adequate spontaneous ventilation before extubating. Closely monitor respiratory status, oxygenation, and hemodynamics in the PACU or ICU. Provide supplemental oxygen and non-invasive ventilation if needed to support breathing. By adhering to these best practices, anesthesiologists can optimize outcomes for MG patients undergoing hepatectomy

2024-0226

Impact of Cognitive Function in School-aged children undergoing General Anaesthesia

Mohamad afiq Ahmad sayuti[1], Azarinah Izaham[1*], Muhammad Maaya[1], Siti nidzwani Mohamad mahdi[1], Syarifah noor nazihah Sayed masri[1], Farah hanim Abdullah[1]

1. Department of Anaesthesiology and Intensive Care, Faculty of Medicine, Hospital Canselor Tuanku Muhriz,Universiti Kebangsaan Malaysia, Malaysia

Background

Concerns persist about potential cognitive dysfunction following general anaesthesia in children, despite its wide safety margin. Therefore, it is imperative to observe the effect of cognitive function in school-aged children that undergo general anaesthesia

Methods

A total of 80 ASA I or II primary school children undergoing general anaesthesia were enrolled in this prospective study. Cognitive functions were assessed preoperatively, within 24 hours postoperatively, and at least 3 weeks postoperatively using Wechsler Intelligence Scale for Children, 5th Edition (WISC V) and Mini-Mental Examination for Children (MMC) tests

Results

A total of 67 children completed the study. Comparison of preoperative and postoperative WISCV scores showed slight, non-significant declines in Fluid Reasoning Index (FSI) and Visual Spatial Index (VSI) (p=0.513 and p=0.719 respectively), and slight improvements in Verbal Comprehension Index (VCI) and Working Memory Index (WMI) (p=0.349 and p=0.989) respectively. Full Scale Intelligence Quotient (FSIQ) analysis across demographic data revealed no statistically significant changes. The MMC assessment at least 3 weeks postoperatively showed no significant cognitive impairment (p=0.625)

Conclusion

Cognitive function remains compounded within 24 hours and up to 3 weeks postoperatively in primary school children undergoing general anaesthesia as assessed with WISCV and MMC tests

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2024-0226

Figure & Table

Figure 1. Comparison of preoperative and postoperative using WISCV scoring. Data were expressed as mean ± standard deviation (sd).

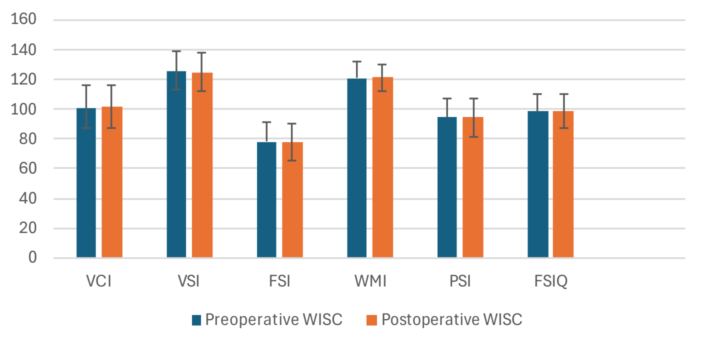


Table 1. Comparison between demographic variables with scoring performances (FSIQ). Data were expressed in frequency (%) and mean ± standard deviation as appropriate.

Demographic variables	**Full Scale Intelligence Quotient (FSIQ) (n=63)**		
	Preoperative WISCV	Postoperative WISCV	p-value
Gender			
Male	95.8 ± 11.6	96.2 ± 11.0	0.633
Female	102.6 ± 10.8	101.8 ± 11.1	0.120
School grades (standard)			
1	101.1 ± 15.0	100.3 ± 13.2	0.309
2	99.7 ± 13.8	101.9 ± 14.0	0.230
3	95.2 ± 9.5	97.2 ± 9.3	0.111
4	99.8 ± 4.0	97.8 ± 3.8	0.189
5	96.2 ± 1.8	94.0 ± 2.2	0.112
6	96.0 ± 4.8	96.8 ± 6.9	0.803
Types of operation			
Elective	99.8 ± 11.8	99.8 ± 11.1	0.873
Emergency	89.6 ± 5.1	88.3 ± 7.0	0.638
Type of general anaesthesia			
TIVA	91.5 ± 13.4	93.0 ± 11.3	0.500
Inhalational without opiod	98.5 ± 10.6	98.1 ± 10.5	0.535
Inhalational,with opiod	102.4 ± 12.2	102.8 ± 11.2	0.831
Inhalational with,opioid,and regional anaesthesia	82.3 ± 10.3	82.7 ± 9.0	0.868
Duration of anaesthesia			
Less <1 hour	104.9 ± 12.2	104.0 ± 11.0	0.454
1-2 hours	99.0 ± 12.2	99.1 ± 11.7	0.911
2-3 hours	92.2 ± 8.4	91.4 ± 8.3	0.521
3-4 hours	99.4 ± 11.4	101.1 ± 11.7	0.259
>than 4 hours	104.0 ± 8.5	104.5 ± 0.7	0.942
Intraoperative medications			
fentanyl+propofol+remifentanil	91.5 ± 13.4	93.0 ± 11.3	0.500
fentanyl+sevoflurane	104.3 ± 9.3	106.1 ± 6.9	0.299
fentanyl+sevoflurane+propofol	98.8 ± 10.6	98.2 ± 11.4	0.621
fentanyl+sevoflurane+propofol+ropivacaine	91.0 ± 11.3	91.9 ± 10.9	0.304
fentanyl+sevoflurane+morphine	97.4 ± 14.7	96.0 ± 13.3	0.910
fentanyl+sevoflurane+propofol+morphine	99.7 ± 10.9	98.6 ± 11.5	0.547
fentanyl+sevoflurane+morphine+patient controlled-analgesia morphine	96.3 ± 9.8	95.8 ± 10.7	0.894

2024-0227

Handling Catastrophic Internal Carotid Artery Injury in Endoscopic Transsphenoidal Surgery: From Intraoperative Management to Postoperative Care

Poonyanuch Charoenkoop[1*]

1. Department of Anesthesiology, Ramathibodi Hospital, Thailand

Background

Internal carotid artery (ICA) injury during endoscopic transsphenoidal surgery (ETSS) for pituitary tumors is a rare but potentially catastrophic complication.

Methods

A 69-year-old Thai man with a nonfunctioning pituitary macroadenoma underwent elective ETSS. He has the underlying disease of hypertension and a history of amaurosis fugax.

During the removal of the sphenoid septum, brisk arterial bleeding occurred, leading to a sudden blood loss of 3500 milliliters and episodes of hypotension. The bleeding was suspected to result from a rupture of the right paraclinoid ICA. Hemorrhage control was achieved using crushed muscle from the right upper thigh. Blood components, fluids, and vasopressors were rapidly administered.

The interventionist was alerted, and meanwhile, the anesthesiology team prepared for patient transfer. Once stabilized, the patient was moved to the angiographic suite.

A cerebral angiogram was performed under general anesthesia, with blood pressure controlled to ensure adequate cerebral perfusion pressure. After a discussion between the interventionist and neurosurgeon, ICA balloon sacrifice was deemed necessary to secure the bleeding at the right proximal ICA. Complete occlusion of the proximal right ICA and the meningo-ophthalmic anastomosis was achieved.

The patient remained intubated and sedated in the intensive care unit plan for three days, with immobilization to ensure the secured ICA injury. Neurological assessments were limited to minimizing movement, with pupil reactions being the only available evaluation method. The surgeon was concerned that the anesthetic drug might affect pupil reactivity, so they consulted the anesthesiology team for sedation. Propofol infusion and Bispectral Index (BIS) monitoring were chosen for sedation management. We discussed the risk of propofol infusion syndrome with the surgeon due to the potential for over-infusion, and muscle relaxants were considered only if necessary since neuromuscular blocking drugs do not impact the pupillary light reflex.

On the first night, more than 100 micrograms per kilogram per minute (mcg/kg/min) of propofol was administered, keeping the BIS within the range of 30 to 50. The following day, the propofol requirement was reduced to approximately 80 mcg/kg/min, making it unnecessary to add muscle relaxants. The pupils, measuring 2 millimeters, showed slight reactions to light in both eyes. Vital signs and laboratory results were within normal ranges. Extubation was performed on the third day, and the patient exhibited no neurological deficits except for a loss of vision in the right visual field.

Results

During this critical event, the prompt actions of an experienced multidisciplinary team were crucial in reducing morbidity and mortality, leading to a successful outcome that should inspire optimism and hope for similar situations in the future.

2024-0230

Spontaneous Intracranial Hemorrhage in a Pregnant Woman with Severe Preeclampsia: Anesthetic Challenges and Management

Renol hamonangan Simatupang[1*], Ratih kumala fajar Apsari[2]

1. Department of Anesthesiology and Intensive Therapy, Gadjah Mada University, Dr. Sardjito General Hospital, Yogyakarta, Indonesia
2. Department of Anesthesiology and Intensive Therapy, Gadjah Mada University, Obstetric Anesthesiologist Dr. Sardjito General Hospital, Yogyakarta, Indonesia

Background

Spontaneous intracranial hemorrhage (SICH) during pregnancy is rare but contributes significantly to maternal morbidity and mortality. Approximately 40%–70% of maternal deaths in pregnancies complicated by preeclampsia are due to stroke, with the hemorrhagic type being the most common.

Methods

A 27-year-old woman, G1P0A0, at 35 weeks of gestation, presented to the emergency unit with complaints of dizziness and weakness on the right side of her body. She remained conscious. The patient was referred from a primary hospital, where she had been hospitalized for four days. Her medical history reveals no record of seizures, hypertension, heart disease, diabetes, stroke, or other systemic diseases. Her blood pressure is 168/100 mmHg and heart rate is 64 beats per minute. Her respiratory rate is 22 breaths per minute, and oxygen saturation is 98%. No meningeal signs and neck rigidity were observed. There was a decrease in physiological reflexes in the right extremity and a positive value for pathological reflexes. The fetal examination indicates that the fetus is not in distress. The laboratory results show proteinuria +4, and preeclampsia with severe features has been diagnosed. The head CT scan revealed intracranial hemorrhage in the left parietal lobe, with a volume 36.7 cc, accompanied by perifocal edema in the surrounding area, and midline shift to the right by 0.34 cm. Multidisciplinary coordination involving anesthesiologists, neurologists, neurosurgeons, obstetricians, neonatologists, radiologists, and rehabilitation specialists was organized. Emergency cesarean section and decompressive craniectomy were decided. The chosen anesthesia technique is general anesthesia with rapid sequence induction. Anesthesia management considerations include the physiological changes during pregnancy, preeclampsia condition, the selection of anesthetic agents, adequate monitoring during the operation, prevention of hemodynamic fluctuations—especially during induction and intubation—and control of intracranial pressure in accordance with the principles of neuroanesthesia to prevent secondary brain injury without compromising the well-being of the fetus. The surgery went smoothly, and the baby was born with an APGAR score of 7/9/10 at minutes 1, 5, and 10. From the results of the craniectomy, approximately 40 cc of hematoma was successfully evacuated. After surgery, the patient was admitted to the intensive care unit for monitoring potential complications.

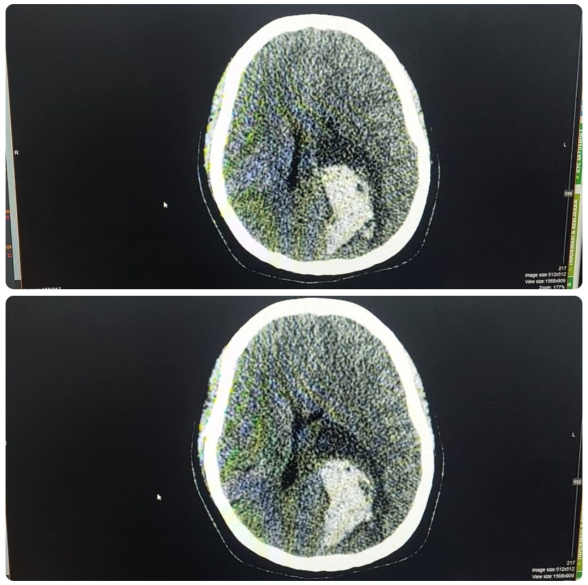
Results

Postoperative care continued in the hospital until the tenth day, the neurological deficit improved, and a continued physiotherapy program was recommended. Overall, the management of SICH in pregnancy with preeclampsia is based on the mother's clinical condition, gestational age, and fetal status. Multidisciplinary collaboration is crucial to prevent the increased risk of morbidity and mortality for both mother and baby.

2024-0230

Figure & Table

Figure 1. CT Scan



2024-0231

To Assess Technical Feasibility of Ultrasound Lumbar Sympathetic Block with Electrical Stimulation Needle in Out of Plane Needle Orientation: A Prospective Interventional Study

Jyotsna Punj[1*]

1. Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India

Background

We describe technical feasibility of a new technique of ultrasound lumbar sympathectomy (ULS) validated by fluoroscopy. Objjectives were to study the feasibility of ULS with an electrical stimulation needle, needle attempts, vertebral level, Pain Numeric rating scale (NRS), temperature rise and any other complications.

Methods

Patient was positioned laterally with affected limb non-dependent. Low frequency curved probe was placed transversely at the highest part of the iliac crest. Needle tip was inserted in out of plane needle trajectory at the highest point of the iliac crest, between the lower pole of kidneys and the adjacent transverse process, directed towards the anterior part of the vertebral body. 10 ml injection tubing with 10 ml saline syringe was attached to 15cm 22 G current stimulating needle (Stimuplex, B. Braun) and de-aired. If needle tip was not visible, current of 2.0 Hz at 2A was applied to the needle. Needle path was guided as below :

a) Quadriceps contractions in patient and psoas muscle contractions on ultrasound; stimulation of lumbar plexus; needle tip at posterior part of psoas muscle; incorrect location (Location A, Figure 1).

b) No quadriceps contraction in patient and psoas muscle contractions on ultrasound; needle tip lateral to vertebral body anterior to location A; incorrect location (Location B, Figure 1).

c) No quadriceps contractions in patient, no psoas muscle contractions on ultrasound and needle contact with bone; needle tip anterolateral to vertebral body anterior to location A and B; incorrect location (Location C, Figure 1).

d) No quadriceps contractions in patient, no psoas muscle contractions on ultrasound and no needle tip contact with bone; needle tip anterior to location A, B and C; correct location (Location D, Figure 1). Final needle position was confirmed with dye and 20 ml of 0.25 % ropivacaine with clonidine 15 ug was injected.

With more than three needle attempts, patient was excluded from the study.

Results

Of the 30 recruited patients, needle tip placement at location D was possible in all patients though needle tip was not visible in any. In 12 patients (40%), location D was reached in single needle attempt.

In 22 patients (73.3 %), fluoroscopic confirmation revealed needle tip at L3.

NRS significantly decreased from pre-procedure baseline values at one week post-procedure till two weeks.

All patients demonstrated an increase in temperature of 20 C or more in the affected limb, at 30 minutes post procedure.

Conclusion

ULS can be performed in less than two attempts in out of plane needle trajectory between kidneys and the adjacent vertebral body; with muscle contractions and bone contact in the needle path acting as surrogate marker of simulator needle tip. In most patients needle tip is placed at L3.

2024-0231

Figure & Table

Figure 1.

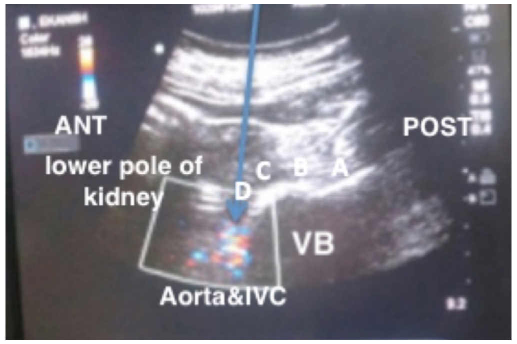


Table 1. Needle tip at Location A, Location B, Location C before reaching Location D

(+* : needle reached Location D at first attempt)

Patient number	Location A	Location B	Location C	Location D
1	+	+	+	+
2	-	+	-	+
3	+	+	-	+
4	-	+	-	+
5	-	-	+	+
6	-	+	+	+
7	-	-	+	+
8	-	-	+	+
9	-	+	-	+
10	-	-	+	+*
11	-	-	-	+*
12	+	-	+	+
13	-	-	+	+
14	-	-	+	+*
15	-	-	-	+*
16	-	+	-	+
17	-	-	-	+*
18	-	-	-	+*
19	+	+	+	+
20	-	-	-	+*
21	-	-	-	+*
22	+	-	-	+
23	-	-	-	+*
24	+	-	+	+
25	-	-	+	+
26	-	-	+	+
27	-	-	+	+
28	-	-	+	+*
29	-	-	-	+*
30	+	-	+	+*

2024-0232

A Case of Unexpected Recurrent Postoperative Bleeding in Paediatric Dental Surgery

Priscilla Manymuthu[1*]

1. Anaesthesiology & Critical Care, Tawau Hospital, Sabah, Malaysia

Background

Most paediatric dental cases are scheduled as elective minor cases with low risk of morbidity. We present a case of unexpected recurrent bleeding post operatively and the challenges encountered during this crisis management.

Methods

A healthy 4-year-old male, weighing 14 kg, was planned for dental clearance. He was induced with general anaesthesia and intubated with a cuffed endotracheal tube sized 4.5 mm. The surgeon utilized haemostatic glue following removal of 20 teeth. He was safely extubated in the left lateral position and monitored in the recovery bay with with good oxygen saturation. However, we observed that he had persistent obstructive cough with no other signs of respiratory distress. A check of surgical swabs and removed teeth were fully accounted for. Thus, he was reintubated in the operation room (OR) using rapid sequence intubation (RSI) for further assessment. A videolaryngoscopy showed no active bleeding from the supraglottic region. The surgeon identified raw areas of bleeding from the sockets and reapplied haemostatic glue. Radiographic assessment excluded any foreign body.

He was safely transported to ICU ventilated when he had another episode of bleeding from the oral cavity. He required additional sedation and the dental surgeon was notified to assess the patient. The endotracheal tube appeared to have migrated during the initial period of restlessness and required reintubation. Following that, the surgeon further reinforced areas of bleeding with sutures. The flexible scope by the otorhinolaryngology team excluded other sources of supraglottic bleeding while endotracheal suctioning did not contain blood. The use of tranexamic acid appeared useful. He was resuscitated well and the stomach decompressed with a Ryle's tube. Fortunately, he was safely extubated the following day.

Results

Bleeding in shared airway procedures requires a prompt decision when there is early evidence of airway obstruction. Apart from foreign body, ongoing concealed bleeding must always remain a possibility as children may be swallowing blood as with our patient. On retrospect, securing intravenous lines and sending group cross matches is best done in OR even if haemostasis appears to have been secured. The patient could have been extubated in the lateral position, but we anticipated the need for longer observation. Unfortunately, the titration of sedation in ICU following the initial haemostasis was challenging. It was further difficult when the endotracheal tube position was likely dislodged in ICU during airway suctioning in an agitated child. We opted to use shorter acting agents like Propofol and Ketamine to avoid aspiration while needing to facilitate laryngoscopy to assess the endotracheal tube and possibility of readjustment without needing to remove the tube and mask ventilate. We were reluctant to RSI the patient due to risks of bradycardia and potential loss of airway with difficult intubation. In cases of unexpected bleeding, it is best that the child is monitored in theatre in the left lateral position prior to extubation or transfer to observe for continuous bleeding. The dental surgeon must accompany the transfer for prompt assessment. Surgical haemostasis with sutures and the use of antifibrinolytics proved to be of value. Despite normal coagulation profile, further assessment on haematological disorders is paramount to avoid future catastrophic events.

2024-0233

Retained fragment of epidural catheter: An anaesthetist's dilemma

Nur Haryanti Izumi Suhaimi[1*], Mohd hafiz Abdullah[2], Rosman Noor ali[2], Khadijah Zulkifli[2]

1. Anaesthesiology and Critical Care, Hospital Kepala Batas, Malaysia
2. Anaesthesiology and Critical Care, Hospital Sultan Abdul Halim, Malaysia

Background

The introduction of epidural catheter allows prolongation of central neuraxial blockade, is more hemodynamically stable and provides superior post operative analgesia. It is considered quite safe and complications to it are quite rare.

Methods

A 34 years old ASA 2 man with BMI 29kg/m^2 was scheduled for fixation of complex left trimalleolar fracture and was planned for combined spinal epidural anaesthesia (CSE). He was anxious preoperatively, became calmer after reassurance given. CSE attempted under aseptic technique. Epidural space was identified in single attempt with 18G Tuohy needle and proceeded with subarachnoid block (SAB) using 27G Pencan spinal needle through Tuohy needle. Spinal needle was then removed. While advancing the epidural catheter, the patient suddenly became extremely anxious, tense and kept turning his torso and head to the back. Catheter advancement was difficult, thus decided to remove epidural catheter as a unit and readjust the Tuohy needle. Resistance was felt during the catheter removal and slight increase in force was applied.

Inspection of the removed catheter noted it was sheared at about 4cm. Superiors were notified immediately and patient was informed regarding it. After discussion, it is decided to proceed with the fixation operation as SAB has already given. The operation was uneventful.

Post operatively, C-arm image intensifier done unable to locate the remnant of the catheter. Bedside ultrasonography noted possible remnant of catheter at near L4-L5 transverse process area. Attempt for removal done by spine surgeon, however unable to retrieve it and abandoned. Computed tomography scan done the next day noted the catheter within the right L4/L5 neural foramina, extending into the extradural space of the spinal canal.

Multidisciplinary team discussion and family counselling were done and decided not for surgical removal as the patient was asymptomatic and invasive intervention might worsen neurological condition. Explanation given to the patient and serial follow up given. He remained asymptomatic for 2 years after the event.

Results

The incidence of retained epidural catheters is rare, varying from 0.002% to 0.04%. An Australian data quoting about it around 1 in 60,000 cases. Radiological investigation is tricky as the radioopaque catheter is surrounded by radiodense structure, making conventional X-ray less useful. It is difficult to locate a thin tubular structure by ultrasonography. CT scan has a better success rate in locating the catheter compared to MRI.

Currently, there are no widely accepted guidelines on management of these complications. Most of reported cases opted for surgical removal, while some were managed conservatively. If the catheter was inserted under aseptic technique, it is less likely to cause infection. The catheter itself will start to fibrosed in 3 weeks. Formation of granuloma causing nerve root impingement and spinal canal stenosis requiring surgical removal was reported before. A rare case of subdural hematoma occurred 18 years after the retained catheter was also reported. The catheter also might migrate along spinal canal.

As for conservative management, a thorough multidisciplinary team discussion, family counseling and education need to be done. "Red flag' signs of worsening neurological condition need to be explained, and they should seek medical attention urgently. Serial follow up is also given to conservative group. Nevertheless, the decision to remove the retained fragment or not should be individualised.

2024-0236

Complexities of Acute Ischemic Strokes in Pregnant Women

Denise Quah[1*]

1. Anaesthesiology, Singapore General Hospital, Singapore

Background

Stroke during pregnancy is a rare but potentially devastating event. It accounts for about 5% of maternal death. Because of the significant disability it can cause, it is essential for us to see how we can improve its management. The management of stroke in pregnant patients is complicated by the need to balance both maternal and foetal risks. This case report discusses the presentation, management, and complications in a pregnant patient with a complex cardiovascular history who presented with acute ischemic stroke (AIS). It also highlights the complexity in the management and the resulting clinical outcomes.

Methods

A 32-year-old woman with background of moderate aortic regurgitation and unrepaired ventricular septal defect presented to the emergency department at 36 weeks of gestation with a mild headache and sudden onset right sided upper and lower limb weakness. Otherwise the rest of her neurological exam was unremarkable.

Initial investigations revealed normal full blood count, renal panel, liver function tests and coagulation profile. CT brain did not show any bleed or acute infarct. MRI however shoed a left external capsule infarct with good collaterals. MRA done showed an acute left M1 middle cerebral artery occlusion. Blood cultures subsequently grew streptococcus mitis and transthoracic echo showed multiple small vegetations and possible aortic root abscesses, consistent with infective endocarditis.

Endovascular thrombectomy was held off as the patient only had mild neurological symptoms and decision was made not for intravenous thrombolysis as risks outweighed the benefits. Oral aspirin was started. However, she subsequently developed haemorrhagic conversion and repeated imaging showed extensive intraventricular haemorrhage. After extensive discussion between anaesthesia, neurosurgery and obstetrics, decision was made to proceed with caesarean section and then EVD insertion after the baby was delivered.

She remained in hospital for a protracted period of a few months, on intravenous antibiotics for streptococcus mitis infective endocarditis. She however developed recurrent multi-territorial infarcts likely due septic emboli and seizures which were controlled with anti-epileptics. Unfortunately, depite rehabilitation, she did not recover her neurological function, remained minimally communicative, bed-bound and reliant on a caregiver.

Results

This case shows the detrimental consequences acute ischemic strokes in pregnant women. It is impossible to predict if the patient would have differed underwent endovascular thrombectomy of intravenous thrombolysis. Regardless, anaesthetic management was complex in view of the patient's stroke, congenital heart disease, infective endocarditis and pregnancy state. We have to be prepared to rapidly alter our anaesthetic techniques based on the patient's evolving clinical condition. There is no one formula that can be applied in pregnant women who present with an AIS. Timing of delivery of the foetus is dependent on the patient's condition, gestational age and with close discussion with obstetricians and neurosurgeons. Anaesthetists need to be part of the patient's management as their clinical condition can rapidly deteriorate. The potential for several different surgical interventions may arise (e.g. caesarean section, decompressive craniectomy, EVD insertion, endovascular thrombectomy), hence, we need to be in-the-loop with the patient's condition and ongoing managmenet plans.

2024-0237

The effect of perioperative antiplatelet and anticoagulant therapy on time to surgery and related clinical outcomes in elderly patients with hip fracture

Jutatip Laitip[1], Thita Pokawattana[1], Suppachai Poolsuppasit[1*]

1. Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

Background

Hip fractures in the elderly are a major public health concern. Guidelines from the British Orthopedic and Geriatric Associations, and the Association of Anesthetists and Royal College of Anesthetists, recommend surgery within 48 hours, but 30–40% of patients on antiplatelet or anticoagulant medications may contribute to surgical delays and prolonged hospital stays. At Siriraj Hospital, the hip fast track protocol has been implemented for over 5 years. Our study investigated the impact of anticoagulant and antiplatelet medications influence the time to surgery following hip fracture and clinical outcomes.

Methods

A retrospective cohort study was conducted at Siriraj Hospital, Mahidol University from June 2017 to July 2021. The study included all patients aged 65 years or older presenting with a hip fracture within seven days of injury. Patients were identified using the hip fast track service database. The exposure group who was receiving various types of oral anticoagulant and antiplatelet medications, excluding aspirin 81 mg. The time to surgery and other clinical outcomes were recorded.

Results

Among the 695 patients enrolled, 635 remained in the study after excluding those with surgery delays due to insufficient resources and personnel. We observed a significantly higher rate of delayed surgery in the drug group (31.4%, n=32) compared to the control group (9.9%, n=53) (p<0.01). Both groups had surgery mostly within 48 hours: 40.1 hours (25.7,60.8) for the drug group and 36.3 hours (20.0,43.1) for the control group, with a statistically significant difference. Subgroup analysis showed a reduction in surgery wait times for the medication group, decreasing from 48.2 hours in 2017-2019 to 37 hours in 2020-2021. During the second period, there was no significant difference in the time to surgery between the two groups (p=0.073).

Additionally, several clinical outcomes showed statistically significant differences including LOS (p<0.01), the number of patients who received blood transfusions (p<0.007), mortality (p=0.03), stroke (p=0.03), heart failure (p=0.001), and surgical wound infection (p<0.01). Subgroup analysis revealed a significant difference in mortality rates during the first period (p=0.018), but not in the second. However, there were no significant differences in total calculated blood loss, VTE, myocardial infarction etc.

Conclusion

Patients taking antiplatelet or anticoagulant drug tend to delay hip surgery compared to the control group, however the majority of patients in both groups still undergo surgery within 48 hours, which adheres to the recommended guideline. Additionally, the drug group may lead to extended hospital stays, increase the chance of blood transfusions, mortality, and other adverse clinical outcomes.

2024-0237

Figure & Table

Table 1. Demographic and Clinical Characteristics of the Control and Anti-Platelet/Anti-Coagulant Groups

Variables	**Control (n=533)**	**Drug(n=102)**	**p value**
Age, mean (SD), year	81.2 (7.7)	81.9 (6.4)	0.35
Female, n (%)	419 (78.6)	72 (70.6)	0.07
Type of fracture, n (%)			0.68
Intertrochanter	252 (47.3)	53 (52.0)	
Neck of femur	256 (48)	45 (44.1)	
Subtrochanteric	25 (4.7)	4 (3.9)	
ASA score, n (%)			**<0.001**
1&2	288 (54.0)	12 (11.8)	
3&4	245 (46.0)	90 (88.2)	
Operation type, n (%)			0.68
CRIF with cephalomedullary nail	254 (47.7)	52 (51.0)	
Bipolar hemiarthroplasty	219 (41.1)	40 (39.2)	
Total hip arthroplasty	5 (0.9)	1 (1.0)	
Dynamic hip screw fixation	38 (7.1)	4 (3.9)	
Multiple screw fixation	17 (3.2)	5 (4.9)	
Anesthetic technique, n (%)			**<0.001**
General anesthesia	98 (18.4)	56 (54.9)	
Regional anesthesia	432 (81.2)	45 (44.1)	
Both	2 (0.4)	1 (1.0)	
Underlying disease, n (%)			
Chronic kidney disease	220 (41.3)	52 (51.0)	0.07
Cancer	86 (16.1)	11 (10.8)	0.18
Dementia	78 (14.6)	15 (14.7)	0.98
Ischemic heart disease	56 (10.5)	32 (31.4)	**<0.001**
Stroke	60 (11.3)	30 (29.4)	**<0.001**
Diabetic mellitus	195 (36.6)	36 (35.3)	0.8
Hypertension	406 (76.2)	84 (82.4)	0.17
Arrythmia	21 (3.9)	43 (42.2)	**<0.001**
Laboratory parameter, mean (SD)			
Preoperative Hb	11.2 (1.9)	11.0 (1.8)	0.29
Preoperative Hct	33.7 (5.3)	33.3 (5.4)	0.47
Postoperative day1 Hct	29.4 (4.4)	29.2 (4.2)	0.71
eGFR	63.7 (24.8)	58.7 (25.3)	0.06

ASA score American Society of Anesthesiologists Score, eGFR Estimated Glomerular Filtration Rate

Table 2. Patient Outcomes in the Control and Anti-Platelet/Anti-Coagulant Groups.

	Control (553)	**Drug (102)**	**p value**
Time to surgery, median (IQR), hr.			
Overall	36.3 (20.0, 43.1)	40.1 (25.7, 60.8)	**<0.001**
2017-2019	36.5 (20.3, 44.5)	48.2 (36.4, 91.2)	**<0.001**
2020-2021	36.0 (19.2, 41.9)	37.1 (21.4, 46.2)	0.073
Delay >48 hr., n (%)			
Overall	53 (9.9)	32 (31.4)	**<0.001**
2017-2019	36 (15.3)	20 (50)	**<0.001**
2020-2021	17 (5.7)	12 (19.4)	**<0.001**
Length of hospital stay (median IQR), day	9 (7, 13)	13 (9, 19)	**<0.001**
Blood loss and transfusion			
TCBL, median (IQR), ml	536 (220, 821)	518 (240, 1019)	0.58
PRC transfusion, n (%)	300 (56.3)	72 (70.6)	**0.007**
PRC volume, median (IQR), ml	528 (300, 737)	553 (297, 837)	0.72
Complications, n (%)			
In-hos mortality	10 (1.9)	6 (5.9)	**0.03**
In-hos venous thromboembolism	10 (1.9)	5 (4.9)	0.07
In-hos myocardial infarction	13 (2.4)	3 (2.9)	0.73
In-hos stroke	4 (0.8)	4 (3.9)	**0.03**
Hematoma	4 (0.8)	2 (2.0)	0.25
Heart failure	35 (6.6)	17 (16.7)	**0.001**
Acute renal failure	8 (1.5)	7 (6.9)	0.05
Respiratory infection	74 (13.9)	21 (20.6)	0.08
Urinary tract infection	148 (27.8)	37 (36.3)	0.08
Pressure sore	12 (2.3)	0 (0.0)	0.23
Infected wound	1(0.2)	3 (2.9)	**0.01**

IQR interquartile range, TCBL total calculated blood loss

2024-0239

Peripartum cardiomyopathy (PPCM) under spinal anesthesia for twin cesarean section

Seung Hee Yoo[1], Heeseung Lee[1*], Dong yeon Kim[1], Jong in Han[1], Jong hwa Lee[1],
Won-joong Kim[1], Sooyoung Cho[1], Youn jin Kim[2], Jae hee Woo[2], Hye-won Oh[2]

1. Department of Anesthesiology and Pain medicine, College of Medicine, Ewha Womans University Mokdong Hospital, Republic of Korea
2. Department of Anesthesiology and Pain medicine, College of Medicine, Ewha Womans University Seoul Hospital, Republic of Korea

Background

Peripartum cardiomyopathy (PPCM) is a rare cardiomyopathy occurring between the end of pregnancy and the early post-partum period. It can be a fatal and life-threatening if occurred, and is characterized by left ventricular dysfunction even accompanied by a left ventricular ejection fraction under 45%.

Methods

We present and review the case of a 35-year-old woman who developed severe heart failure after spinal anesthesia for cesarean section for twin pregnancy.

A 35 years old woman with her gestational week of 35 weeks 1 day was supposed to get elective cesarean section for twin pregnancy. Spinal anesthesia was performed during cesarean delivery and the patient were without any cardiovascular risk factors for CMP during her peripartum period. During the surgery, she became hypotensive, which was requiring administration of phenylephrine infusion and bolus for maintaining her blood pressure. Total estimated blood loss was approximately 1000ml. When transferring to the postanesthesia care unit room, her blood pressure was dropped to 69/48 mmHg and 3L of crystalloid fluids was administered. Nevertheless, her blood pressure did not recovery and administration of norepinephrine infusion was started. Due to low blood pressure and massive crystalloid intake, her chest X-ray showed pulmonary congestion and pleural effusion. Post-operative echocardiography showed left ventricular dysfunction with 17% of left ventricular ejection function and severe global hypokinesia with relatively preserved contractility of apex. Troponin T level was increased to 0.604 ng/ml. Suspected diagnosis of PPCM, the patient received intensive care unit treatment. Her echocardiography showed recovery of myocardial function with 59% of left ventricular ejection function and the patient was discharged without any complication on postoperative day 10. At 2 week of postoperative follow-up, she has no cardiologic symptom and her echocardiography presented with 61% of normal ejection fraction.

Results

Close and strict monitoring by multidisciplinary teams such as department of anesthesiology, obstetrics, cardiology in hospital and communications is required for patients risk of develop PPCM during spinal anesthesia for twin cesarean section.

2024-0239

Figure & Table

Figure 1.

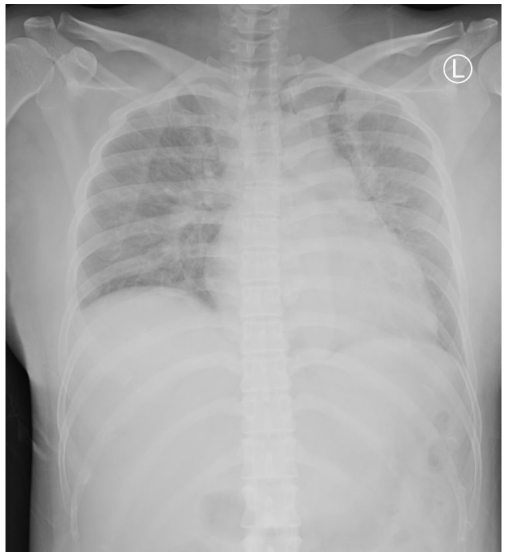
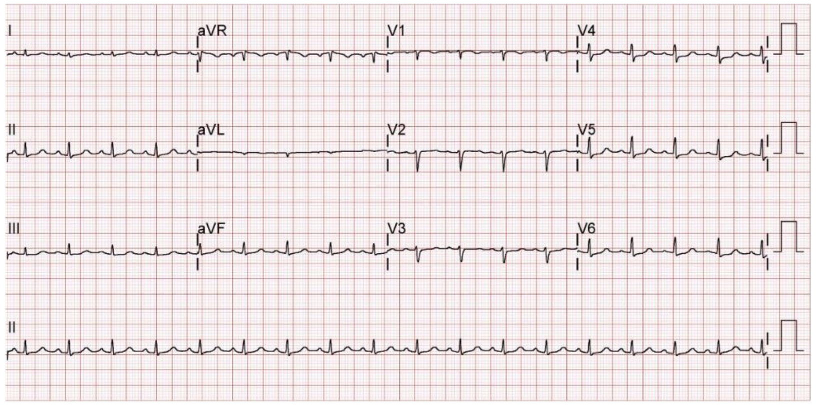


Figure 2.



2024-0242

Accuracy of ultrasonography to confirm the appropriate depth of endotracheal tube in children with heart disease

**Ornin Chintabanyat[1*], Pornnapat Konateerakul[1], Pichaya Waitayawinyu[1],
Chodchanok Vijarnsorn[2], Kasana Raksamani[1]**

1. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital,Mahidol University, Thailand
2. Department of Pediatrics, Faculty of Medicine Siriraj Hospital,Mahidol University, Thailand

Background

Endotracheal intubation in children carries a high risk of misplacement, with clinically undetected misplacement occurring frequently. This is particularly concerning in small vulnerable parients like those with heart disease, as misplacement can lead to higher complication rates. Various methods, such as age-based formulas for endotracheal tube (ETT) depth, fiberoptic bronchoscopy, and chest radiography, have been used to determine the correct position of the ETT, each with different accuracies. Some of these methods required more resources and time. With the increasing availability and applicability of ultrasonography for airway management, the study aimed to investigate whether ultrasonography could accurately determine the appropriate endotracheal tube depth in preschool-age children with heart disease.

Methods

This prospective observational study, approved by the institutional IRB (Si106/2023), and registered at the Thai Clinical Trials Registry (TCTR20230218001), was conducted from March 2023 to August 2024. Preschool-age patients (0-6 years old) with heart disease undergoing anesthesia for elective cardiac catheterization were enrolled, with patients exhibiting airway or tracheobronchial anatomy abnormalities being excluded. Intubation with microcuff ETTs ranging from sizes 3.0 to 5.0 was performed according to age-based size, with depth guided by vocal cord markers. Ultrasonography was then performed to locate the cuff of the endotracheal tube, and fluoroscopy was employed to confirm its position. The visualization of the saline-filled cuff tube at the suprasternal notch (SSN) and its related position were recorded and compared to the ETT tip position and distance from the carina based on fluoroscopic images.

Results

A total of 99 patients were enrolled, with 96 patients following through the protocol and included for analysis. The mean age was 2.98 (± 2.18) years old. The median ETT size was 4.0 (IQR 4.0-4.5). The mean depth of ETT and distance from the carina were 12.10 (±1.76) cm and 22.90 (±11.05) mm. Among the 96 patients, only 39 (40..63%) had the ETT cuff visualized at the SSN using ultrasonography. The correct ETT position from fluoroscopy was defined as the tip lying between the upper border of T1 vertebra and intervertebral space of T3-4. Comparing the results from ultrasonography and fluoroscopy, the accuracy was 39.58% (95% CI; 29.75 - 50.08) with a sensitivity of 39.08% (95% CI; 28.79 - 50.13) and specificity of 44.44% (95% CI; 13.70 – 78.80). However, the distances of ultrasonography up to 1.1 and 1.3 cm above SSN increased the accuracy (75.27% and 77.42%, respectively) and sensitivity (83.75% and 86.25%) of ultrasonography while decreasing specificity (23.08% for both). When guided by the vocal cord mark, 75 of 96 patients (78.1%) had the correct ETT tip position from fluoroscopy.

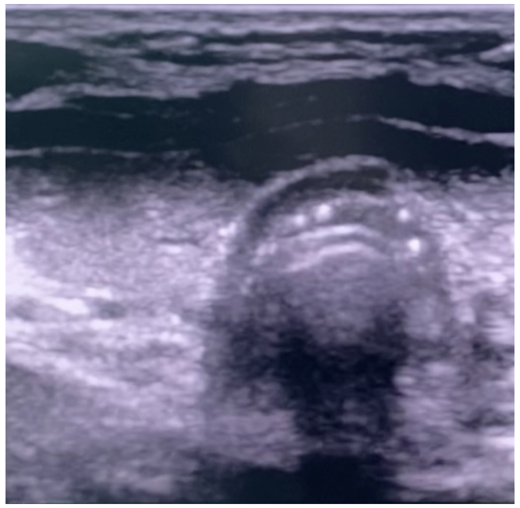
Conclusion

Ultrasonography can serve as a valuable method for determining the correct ETT tip position in children, particularly when the cuff is visualized at the SSN or up to 1.3 cm above it. Guided insertion using the depth mark resulted in a correct position of the ETT tip.

2024-0242

Figure & Table

Figure 1. Ultrasonographic image of ETT cuff



2024-0249

Laryngospasm after superior laryngeal nerve block: A case report

Punchika Luetrakool[1*], Tossapol Homthain[1]

1. Anesthesiology, Ramathibodi hospital, Thailand

Background

Medialization thyroplasty is a definitive surgical treatment for vocal cord paralysis. The first step of this procedure involves performing a superior laryngeal nerve block with a local anesthetic agent. Otolaryngologists typically conduct this procedure under local anesthesia, requiring the patient to produce sounds to facilitate movement of the vocal cords during the operation. However, in this case, the patient expressed psychological concerns about undergoing surgery. As a result, the otolaryngologist decided to carry out the procedure under monitored anesthesia care, with the assistance of an anesthesiologist.

Methods

A 63-year-old man with esophageal cancer, status post-esophagectomy with gastric pull-up and lymph node dissection and radiotherapy, has also been diagnosed with hypopharyngeal cancer and post-cricoid cancer. He is experiencing true vocal cord paralysis and some degree of aspiration. To address his aspiration issues, the otolaryngologist recommended medialization thyroplasty. However, the patient expressed psychological concerns about undergoing the procedure under local anesthesia without sedation. Consequently, the otolaryngologist scheduled the elective procedure be performed under monitored anesthesia care.

Before the procedure, the anesthesiologist monitored the patient's electrocardiogram, non-invasive blood pressure, and pulse oximetry. The patient received supplemental oxygen via a cannula at 3 liters per minute. To calm the patient, the anesthesiologist administered 25 mcg of fentanyl and 30 mg of propofol. The surgeon then injected 1% lidocaine with adrenaline (1:200,000) for a total of 13 ml above both sides of the superior cornu of the thyroid cartilage, as well as four puffs of 10% lidocaine near the base of the tongue.

Following this, a transverse incision was made along the skin crease just above the level of the cricoid cartilage, and the subplatysmal plane was accessed. Suddenly, the patient developed dyspnea and oxygen desaturation. The anesthesiologist attempted facemask ventilation but was unable to achieve adequate ventilation, resulting in rapid desaturation. A physical examination revealed biphasic stridor during both the inspiratory and expiratory phases. Anticipating laryngospasm, the anesthesiologist administered an intravenous bolus of 100 mg of propofol and 100 mg of succinylcholine. While waiting for the medications to take effect, the surgeon performed a fiberoptic laryngoscopy, confirming the presence of laryngospasm. The patient's desaturation progressed until the pulse oximetry reading fell to 1%. In response, the anesthesiologist performed a puncture of the cricothyroid membrane using a 14-gauge intravenous catheter and initiated jet ventilation, which improved the patient's oxygen saturation to 95%. After this, the anesthesiologist attempted to intubate the patient with a direct laryngoscope, successfully achieving intubation on the second attempt using an ETT size 7.0. The patient's oxygen saturation rose to 100% with an FiO2 of 0.6. The medialization thyroplasty was terminated, and the surgeon sutured the surgical wound. The patient was kept intubated in the ICU to monitor airway and respiratory symptoms and was extubated uneventfully on post-procedure day 2.

Results

In patients with anatomical abnormalities resulting from previous surgery or radiotherapy, a superior laryngeal nerve block may cause the local anesthetic to leak deeper than usual, potentially triggering laryngospasm.

2024-0250

Anesthesia Management for Excision of a Huge Intra-abdominal mass in an Infant: A Case Discussion

Utsav Acharya[1*]

1. Department of Anaesthesiology, Tribhuvan University Teaching Hospital, Nepal

Background

Intra-abdominal tumors in infancy pose a significant anesthetic challenge. The size of the tumor relative to infant is crucial because factors like intra-abdominal pressure, functional residual capacity of lungs, chest wall compliance, and impedance to venous return and vascularity of tumor determine anesthesia management to a greater extent. Large tumors significantly impair the lungs' functional residual capacity, and basal atelectasis is frequently observed. This, in combination with decreased lung compliance and increased peak airway pressure, makes managing airways and establishing the best ventilation strategy difficult. Hemodynamic instability resulting from compression, blood loss and vasoplegia following tumor removal is common, which should be anticipated beforehand and planned accordingly for prompt management. Other considerations such as temperature management, fluid management, patient blood management, postoperative analgesia,and postoperative care strategies should be well planned and executed.

Methods

An 11 month-old infant presented to our center with huge abdominal distention. She had problems lying supine and difficulty in swallowing. After complete evaluation, she was diagnosed to have a huge intra-abdominal mass, the origin of which was not clear on the imaging studies. She was scheduled for a laparotomy for the removal of mass.
Our main anesthetic concerns were:

Pre-existing anemia, blood loss and need for transfusion
Cardiovascular instability during mobilization (compression of great vessels)
Possible vasoplegia and need for vasopressors following removal of the mass
Possible need for postoperative mechanical ventilation
Postoperative pain management

Anesthesia and surgery were conducted addressing all these concerns. After the end of surgery, the child was transferred to PICU with endotracheal tube in situ and planned for elective extubation. Trachea was extubated after few hours and the child was transferred to general ward the next day. Her postoperative period was uneventful and she was discharged home on 6th postoperative day.

Results

Adequate planning and preparation is essential for safe conduct of anesthesia in infants with large intra-abdominal mass. A large intra-abdominal mass impairs the respiratory function. The need for CPAP during preoxygenation, need for higher inspiratory pressures to achieve adequate tidal volume and the possible need for postoperative mechanical ventilation are anticipated as a result. Intraoperative hemodynamic fluctuation is anticipated and preparation should be made accordingly. Vasoplegia following tumor removal is a major concern and preparation for the same is vital. Adequate postoperative analgesia is important for early recovery and to avoid postoperative pulmonary dysfunction.

2024-0250

Figure & Table

Figure 1.

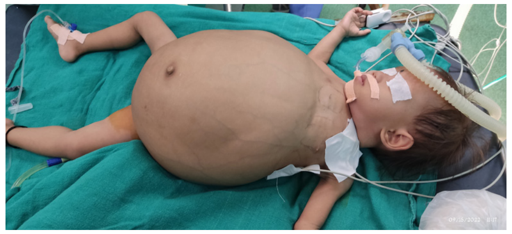
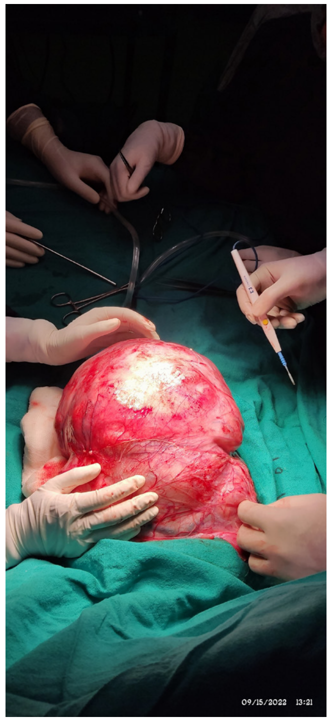


Figure 2.



2024-0256

Exploring the Physiological Determinants of Cerebral Oxygenation Using Structural Equation Modeling: a retrospective study

Chahyun Oh[1,2], Soomin Lee[1,2*], Sujin Baek[1,2], Byong-sop Song[3], Boohwi Hong[1,2], Yoon-hee Kim[1,2], Yunseo Ku[4]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Daejeon, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Chungnam National University College of Medicine, Daejeon, Republic of Korea
3. School of Life Sciences, Gwangju Institute of Science and Technology, Gwangju, Republic of Korea
4. Department of Biomedical Engineering, Chungnam National University College of Medicine, Daejeon, Republic of Korea

Background

Despite the development of numerous models to explain the relationship between various physiological factors and cerebral blood flow or oxygenation, an integrative model has yet to be established. This study seeks to explore this complex relationship between physiological variables and cerebral oxygenation in a real-world setting.

Methods

This retrospective study analyzed data obtained from adult patients undergoing off-pump coronary artery bypass grafting (OPCAB) surgery. The dataset included intraoperative physiological signals such as regional cerebral oxygen saturation (rScO2), mean arterial pressure (MAP), cardiac output (CO) continuously monitored via a pulmonary artery catheter, systemic vascular resistance (SVR), minute ventilation (MV), end-tidal carbon dioxide (CO2) levels, and the end-tidal concentration of inhalation anesthetics (measured as age-adjusted minimum alveolar concentration, MAC). The rScO2 was considered a surrogate marker for cerebral perfusion. To explore the complex interactions between rScO2 and other physiological variables, structural equation modeling was employed. Two parsimonious and physiologically plausible models were derived, each incorporating linear mixed-effects models.

Results

The final analysis included 144 hours of data (8642 data points) collected from 39 patients. The two models are depicted in Figure 1. Both models demonstrated an acceptable fit to the data, as indicated by the global goodness-of-fit metrics (Chi-squared test, $p > 0.05$). The marginal R^2 for rScO2 were 0.33 in both models, while the conditional R^2 values were 0.62 and 0.63. The entire bootstrapped effects (1000 iterations) estimated from the models are summarized in Table 1. The largest positive total effect on rScO2, combining both direct and indirect effects, was observed for CO, followed by CO2. In contrast, MAP and MAC had a relatively minor impact, while MV exhibited a negative total effect.

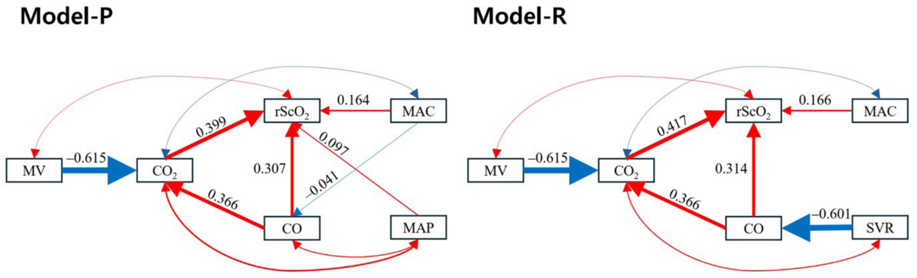
Conclusion

Across both direct and indirect pathways, CO emerged as the most positively influential factor affecting rScO2, followed by CO2. SVR demonstrated a negative impact on rScO2 indirectly through its effect on CO. Together, these models suggest that effective management of cerebral oxygenation should consider both direct and indirect effects, with particular emphasis on maintaining optimal levels of CO and CO2.

2024-0256

Figure & Table

Figure 1. Structural equation models depicting the relationships between regional cerebral oxygen saturation (rScO2) and various physiological variables.



Single arrowheads indicate the direction of the relationship between two variables, while double arrowheads with curved lines represent non-directional relationships (covariance). The numeric values and the thickness of the straight lines correspond to the magnitude of the effect (standardized estimate), with the color indicating the nature of the relationship: red for positive and blue for negative. All depicted effects were statistically significant ($p<0.05$). The primary difference between the models lies in the substitution of mean arterial pressure (MAP) in model-P (pressure) with systemic vascular resistance (SVR) in model-R (resistance).

Abbreviations: $rScO_2$, regional cerebral oxygen saturation; CO, cardiac output; CO_2, end-tidal carbon dioxide; MAP, mean arterial pressure; MV, minute ventilation; MAC, minimum alveolar concentration (age-adjusted); SVR, systemic vascular resistance.

Table 1. Entire effects of the physiological variables on regional cerebral oxygen saturation ($rScO_2$) estimated from structural equation models.

		Model P		Model R	
Effect	**Variables****	**Estimate**	**95% CI**	**Estimate**	**95% CI**
Direct	MAC	0.161*	0.032 to 0.308	0.163*	0.007 to 0.304
	MAP	0.095*	0.008 to 0.202	NA	NA
	CO_2	0.364*	0.283 to 0.483	0.388*	0.303 to 0.496
	CO	0.289*	0.219 to 0.374	0.296*	0.228 to 0.379
Indirect	MV	−0.224*	−0.295 to −0.158	−0.238*	−0.312 to −0.174
	MAC	−0.017	−0.066 to 0.060	NA	NA
	CO	0.133*	0.102 to 0.174	0.142*	0.109 to 0.181
	SVR	NA	NA	−0.263*	−0.304 to −0.224
Total	MV	−0.224*	−0.295 to −0.158	−0.238*	−0.312 to −0.174
	MAC	0.144	−0.001 to 0.276	0.163*	0.007 to 0.304
	MAP	0.095*	0.008 to 0.202	NA	NA
	SVR	NA	NA	−0.263*	−0.304 to −0.224
	CO_2	0.364*	0.283 to 0.483	0.388*	0.303 to 0.496
	CO	0.422*	0.343 to 0.502	0.438*	0.369 to 0.516

*$P<0.05$. **Values represent percentages relative to baseline. Estimates and their 95% CI were derived from 1000 bootstrap iterations. Abbreviations: $rScO_2$, regional cerebral oxygen saturation; CO, cardiac output; CO_2, end-tidal carbon dioxide; MAP, mean arterial pressure; MV, minute ventilation; MAC, minimum alveolar concentration (age-adjusted); SVR, systemic vascular resistance; NA, not available.

2024-0265

Challenges in managing airway of an infant with a huge oral mass with an unplanned intra-operative extubation: A case report

Jyoti k.c. khatri[1*], Utsav Acharya[1], Robins Tiwari[1]

1. Department of Anaesthesiology, Tribhuvan University Teaching Hospital, Nepal

Background

Oral teratoma in infants is rare. The rarity of disease in addition to potential difficult airway with high risk of rapid hypoxia poses a great challenge even to an experienced anaesthesiologist. Multidisciplinary approach with meticulous airway plan is needed. Despite effective team efforts for successful airway management, unplanned extubation is always a possibility with added risk when airway is shared.

Methods

We present a case of 32 days old infant with a large intraoral teratoma, presented with poor feeding and signs of airway obstruction, scheduled for surgical excision. On pre-operative assessment, her echocardiography showed a patent foramen ovale with normal valvular functions and MRI showed exophytic mass attached to hard palate with normal parapharyngeal space. The infant had macrostomia, cleft palate with bifid uvula and hypoplastic mandible. After consent taken from parents regarding anesthetic plan and expected complications including need for surgical airway, difficult airway management cart and emergency tracheostomy team were kept ready. The patient was pre-oxygenated with mask size 2 confirming proper seal and adequacy of ventilation. Anesthesia was induced with Sevoflurane 2-4 % gradually while preserving her spontaneous ventilation and maintained on fentanyl, ketamine and propofol during endoscopy. To prevent desaturation during procedure, one suction catheter was introduced through nostril to provide oxygenation. With meticulous plan and teamwork, successful endoscopy guided orotracheal intubation was done. Despite of successful execution of preoperative airway plan, we faced an inadvertent extubation during throat pack removal after surgery. The challenges faced with an unanticipated difficult airway led to a major respiratory catastrophe. The facial asymmetry resulted in difficult mask ventilation leading to hypoxic bradycardia which was successfully managed with bigger size LMA. With the plan of definitive airway management with endotracheal tube under videolaryngoscope guidance, remnant of excised teratoma was incidentally identified in oral cavity and removed with Magil's forcep. These events of unplanned extubation with incidental excised bone remnant makes the case unique and alarms us to be more vigilant and atmost prepared for such events.

Results

The incidence of unplanned extubations in intraoperative environment are unrecognized and often under-reported but consequences associated are serious and life threatening. Early recognition of the event and timely management with adequate oxygenation and ventilation can prevent further respiratory complications. However increased awareness and adoption of patient safety solutions would have reduced such incidence and help us attain a safety culture environment in near future.

2024-0265

Figure & Table

Figure 1.

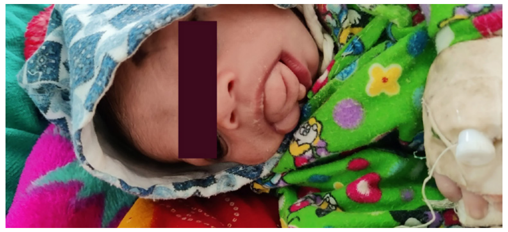
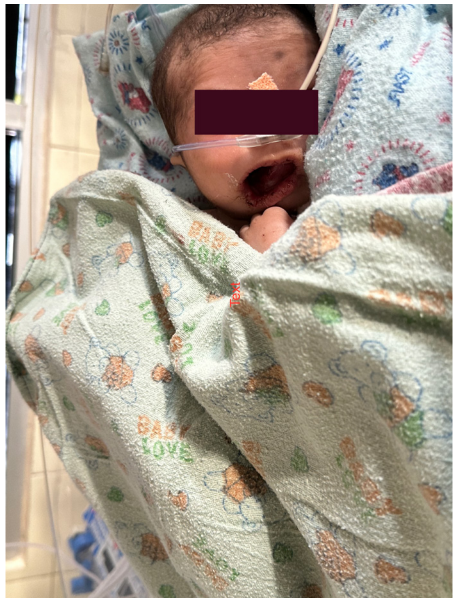


Figure 2.



2024-0268

Anaesthetic Management of a Rare Case of Adult Rhabdomyosarcoma of the Head & Neck

Priscilla Manymuthu[1*]

1. Anaesthesiology & Intensive Care, Tawau Hospital, Sabah, Malaysia

Background

Rhabdomyosarcoma (RMS) is an exceedingly rare soft tissue tumour in the adult population. Primary sites for RMS are classified based on outcome, favourable and not-favourable. Its rarity presents a challenge in terms of management as patients may require radiotherapy prior to extensive surgery. For the anaesthesiologist, the aggressive progression of tumour presents a unique challenge on timing of surgery and anticipation of potential perioperative complications related to the airway as well as bleeding.

Methods

A 28-year-old female presented with a 4-month history of painless and progressively enlarging neck swelling with a recent 2-week history of orthopnoea. An initial biopsy done under LA confirmed rhabdomyosarcoma. The CT neck and thorax bilateral cervical, supraclavicular, parotid, paratracheal, axillary, abdominal and right iliac lymphadenopathy. Soft tissue lesions were also seen in the right nasolacrimal duct, ethmoid air cells, right osteomeatal complex and right maxillary sinus. There was a baseline mild pericardial effusion and bilateral pleural effusion. She was scheduled for surgical tracheostomy and biopsy from the nasolacrimal gland to identify a possible primary origin before definitive treatment. On assessment she had limited flexion of the neck. A flexible nasoendoscopy revealed crowding around the nasopharynx precluding the use of nasal intubation. Her vocal cord was well visualized and mobile. Preoperatively, she had thrombocytopenia likely due to marrow infiltration.

Her airway was adequately topicalized with local anaesthetic (LA) using nebulization, atomizer and mouth gargle. She was also given antisialogue and Dexamethasone at the waiting bay. A target-controlled infusion of Remifentanil infusion was commenced just before the intubation. A D-blade videolaryngoscopy was used to visualize the vocal cords and a fibreoptic scope loaded with an armoured tube was on standby. Once the vocal cord was visualized, the surrounding structures were topicalized with local anaesthesia. The endotracheal tube was advanced and the patient given IV Propofol 2 mg/kg and muscle relaxant given once endotracheal placement was confirmed. The fibreoptic scope was utilized to confirm placement above carina and exclude any external compression or bleeding. The surgical tracheostomy was uneventful under platelet cover. During the biopsy, hypotensive anaesthesia was maintained and blood transfusion given. Normothermia was maintained. Post procedure, the patient required intensive care admission due to bilateral pleural effusion and pericardial effusion. She was given pressure support ventilation and diuresis.

Results

In our patient, tracheostomy was necessary due to the rapid progression of the illness. As per all anticipated difficult airway surgeries, careful airway planning is paramount. We were concerned on unknown anatomical challenges due to progression of the disease that were not apparent on clinical assessment. A preoperative ultrasound was assuring as trachea appeared central and the cricothyroid membrane identified in the event emergency front of neck access was required. While video-assisted fibreoptic intubation was our initial plan, we were able to advance the endotracheal tube under awake technique once vocal cords were well visualized with sedation and adequate airway topicalization with LA. Platelet transfusion was timed with induction and hypotensive anaesthesia and normothermia were useful techniques.

2024-0273

Navigating infective endocarditis and end-stage liver disease with combined aortic valve replacement and liver transplantation: a pinnacle of complexity.

Manisha Chintakunta[1], Vijay kant Pandey[2*], Subhash Gupta[3]

1. Fellow in liver transplant anesthesia and critical care, CLBS., Max super speciality hospital, New Delhi, India
2. Associate director, CLBS-Anesthesia., Max super speciality hospital, New Delhi, India
3. Chairman, CLBS, Max super speciality hospital, New Delhi, India

Background

Infective endocarditis (IE) in patients with end stage liver disease (ESLD) carries high risk of mortality and surgical interventions are often not performed in this subset of patients. Combined aortic valve replacement (AVR) and Living donor liver Transplant (LDLT) in Infective endocarditis is an intricate procedure involving multiple specialities. Perioperative challenges include control of IE, balancing infection risk and coagulopathy, immunosuppression and anticoagulation during and after combined procedure. Currently even expert recommendations are lacking for such high-risk patients. So, we are presenting perioperative management of a case of End stage liver disease with aortic valve Infective endocarditis for combined aortic valve replacement and liver transplant.

Methods

A 47-year-old male patient with hepatitis B related End stage liver disease (MELD Na-20, CTP -B) presented for liver transplant. He had history of ascites, spontaneous bacterial peritonitis, hepatic encephalopathy, hepatorenal syndrome, splenic abscess with frequent hospitalisation and hypothyroidism. He had poor effort tolerance (6-minute walk distance 180 m). Routine echocardiography revealed bicuspid aortic valve with thickening, dehiscence, multiple vegetations and abscess burrowing into retro aortic tissue with severe aortic regurgitation, moderately severe aortic stenosis and normal systolic function. Coronary angiography was normal. He was diagnosed with blood culture negative infective endocarditis. For optimization of infective endocarditis and perioperative infection control we planned to give antibiotics in 3 phases (1-preoperative prophylaxis, 2- during postoperative hospital stay, 3- discharge prophylaxis). After 2 weeks of IV ceftriaxone, augmentin, clindamycin and teicoplanin preoperatively and 2 negative paired blood cultures done 8 hrs apart we proceeded with combined aortic valve replacement and liver transplant. During aortic valve replacement, dilated non coronary cusp was repaired and 19mm bioprosthetic valve was implanted. This was followed by modified right lobe liver transplant. Intraoperative blood loss and coagulopathy was managed as per protocol. Patient tolerated procedure well, shifted to ICU intubated and got extubated on day 2. Postoperative immunosuppressants were started as per institutional protocol. At INR <2 Tab Nicoumalone was started for prevention of prosthetic valve thrombosis but discontinued due to drastic increase in INR to 7.78 (corrected with FFP + Vitamin k).On day 4 patient developed altered sensorium with weakness in left lower limb (CT head- Right parieto-occipital sub-centimeter acute SDH) which was managed conservatively. So, after 5 days of this, Inj Enoxaparin was started due to its safety profile observed in liver transplant. Rest of postoperative course was uneventful and patient was discharged on day 23 with antibiotic prophylaxis of oral feropenum, linezolid and fluconazole for 4 weeks.

Results

With comprehensive balance between perioperative antibiotic prophylaxis, postoperative immunosuppression and anticoagulation-combined aortic valve replacement and liver transplant in patient with infective endocarditis seems feasible and manageable with great caution and complex care counteracting the interplay between liver and heart.

2024-0276

Back-2-Back: A Case Report on Anesthetic Management of a Pregnant Patient with Kyphoscoliosis and Dwarfism for Emergency Cesarean Section

Jennifer Bunagan[1*]

1. Anesthesiology, Bataan General Hospital and Medical Center, Philippines

Background

Patients with spine abnormalities present unique challenges to the anesthesiologist during surgical and technical procedures. Kyphoscoliosis is an abnormal curve of the spine in coronal and sagittal planes. This condition is very rare in our institution, especially among pregnant patients.

Methods

This case report aims to describe the preparation and careful perioperative management of the parturient with kyphoscoliosis who underwent emergency cesarean section, and the factors that were considered in choosing the anesthetic technique. Here, we report a case of a 23-year old primigravid with thoracolumbar kyphoscoliosis who came in due to labor pain at the outpatient department, and was subsequently admitted for emergency cesarean section secondary to malpresentation (transverse lie) under general anesthesia – total intravenous anesthesia. She delivered to a live term baby boy with a birth weight of 2800 g and an APGAR score of 4, 5, 7. The perioperative and postoperative course were uneventful.

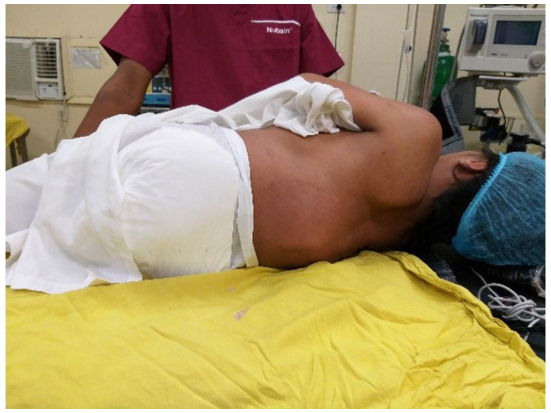
Results

In conclusion, anesthesia for emergency caesarean section for the parturient with kyphoscoliosis is associated with potential risks for both mother and fetus. Based on the clinical assessment in our patient, the possibility of high spinal anesthesia and unequal distribution of intrathecal agents, and failure rates of regional techniques, general anesthesia is the best option for this case.

2024-0276

Figure & Table

Figure 1.



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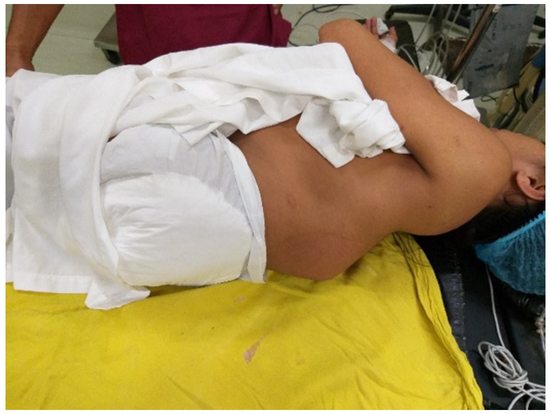


2024-0278

The Unfolding: A case report of Severe Kyphoscoliosis with Bilateral ankylosing spondylodiscitis undergoing pedicle subtraction osteotomy

Phei Woon Ng[1*]

1. Anaesthesiology And Intensive Care Unit, Hospital Canselor Tuanku Muhriz UKM, Malaysia

Background

Kyphoscoliosis is a forward and lateral spine bending affecting the thoracolumbar level. Ankylosing spondylodiscitis is a rare complication of ankylosing spondylitis, leading to destructive lesions.

Methods

The case involves a patient with severe kyphoscoliosis and bilateral hip and back pain. The patient's condition led to unemployment due to pain and decreasing mobility. The patient had progressively worsening kyphosis since the age of 20. Clinically, the patient retained the ability to walk without neurological deficits but had a restrictive pulmonary function pattern.

Preoperative assessment:

Imaging revealed severe spinal deformity and destruction of the lower thoracic spine. An awake fibre optic intubation technique was considered due to severe kyphosis. Special considerations were made for the patient's positioning challenges due to severe kyphoscoliosis and ankylosing spondylodiscitis.

Positioning Strategy:

Preoperative preparation involved thorough imaging and planning. Custom padding was used to accommodate spinal deformity and protect bony joints. Awake fibre optic intubation and strategic prone positioning were employed to manage the challenges of the patient's condition. Continuous intraoperative monitoring and comprehensive postoperative care in the ICU were implemented to ensure safety and optimize outcomes.

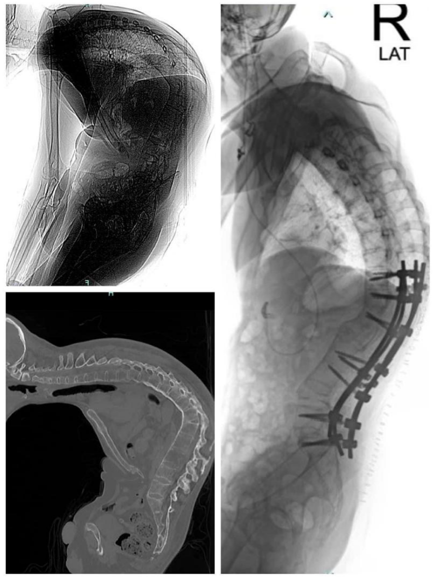
Results

The case required meticulous planning, innovative positioning techniques, and intensive monitoring to ensure safety and optimize outcomes. A structured approach significantly improved patient safety and surgical efficacy in complex spinal deformity cases.

2024-0278

Figure & Table

Figure 1.



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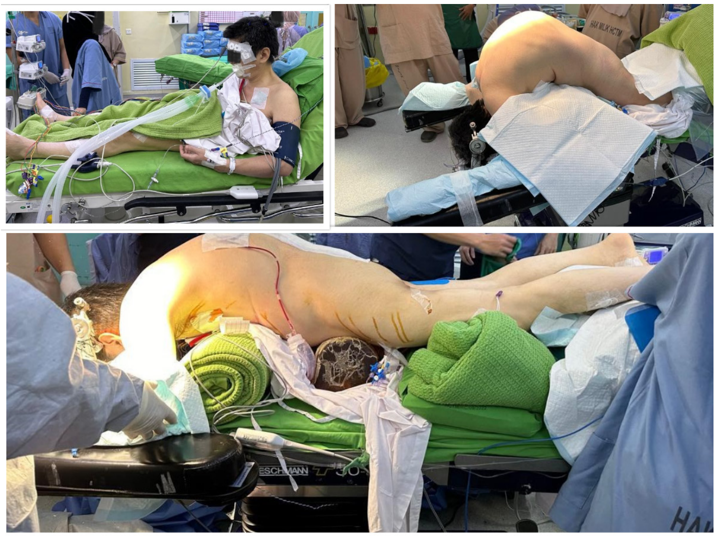


2024-0280

Efficacy of Remimazolam Administration for Shivering during Cesarean Delivery in a Parturient with Moyamoya Disease

Sooyeon Han[1], Satoshi Toyama[1*], Alisa Tamura[2]

1. Department of Anesthesiology, Tokyo Medical and Dental University, Graduate School of Medical and Dental Sciences, Japan
2. Department of Anesthesiology, Tokyo Medical and Dental University, Japan

Background

In parturients with moyamoya disease, shivering should be avoided due to the increased oxygen consumption and potential risk of hypoxic cerebral injury. A recent study reported the usefulness of remimazolam administration during epidural catheter placement in an anxious parturient, suggesting its potential to suppress shivering. Here, we report our findings on the efficacy of remimazolam administration to alleviate shivering during cesarean delivery in a parturient with moyamoya disease.

Methods

A 33-year-old G2P0 woman with a history of moyamoya disease was admitted to our hospital for a planned labor induction at 38 weeks and 4 days gestation under epidural analgesia. She had a transient ischemic attack at age 16 and underwent indirect revascularization on the right side at age 19. After that, she experienced no further ischemic attacks and achieved pregnancy through artificial insemination at age 32. Her pregnancy was uneventful.

Labor was induced with prostaglandin and oxytocin. When her cervical dilatation reached 3 cm, she requested epidural analgesia, which was administered as usual. A loading dose of 10 mL of 0.1% ropivacaine was given, and epidural analgesia was maintained with programmed intermittent bolus and patient-controlled analgesia using a mixture of 0.065% ropivacaine plus fentanyl 2 μg mL^{-1}. The epidural infusion pump was set to deliver a 10-mL programmed intermittent bolus every 50 minutes, starting 15 minutes after the initial epidural bolus, with a 5 mL patient-controlled bolus and a 15-minute lockout interval. Her pain score was maintained at <2/10. However, after 5 hours of labor, she was switched to an urgent, non-emergent cesarean delivery for arrest of dilatation at 39 weeks gestation. In the labor and delivery room, a mixture of 9 mL of 2% lidocaine and 1 mL of 8.4% bicarbonate was administered for continued epidural analgesia. Upon admission to the operating room, an additional 10 mL of 0.75% ropivacaine with 100 μg of fentanyl was administered epidurally. Although a sufficient anesthetic level was quickly achieved without hemodynamic changes, she developed severe shivering, likely induced by anxiety and high fever. An oxygen mask was applied, and remimazolam was administered in 1 mg boluses every 5-10 min up to 3 mg until the baby's delivery. The shivering gradually subsided, and a healthy male baby was delivered with Apgar scores of 8 and 9 at one and five minutes, respectively. After the baby was delivered, she was sedated with a continuous infusion of remimazolam at 0.2 mg $kg^{-1}hr^{-1}$ until the end of surgery. Regional cerebral oxygen saturation remained stable during the procedure. Her postoperative course was unremarkable, and no neurological symptoms were observed up to one month after delivery.

Results

We report a case of the effective remimazolam administration for shivering during cesarean delivery in a patient with moyamoya disease, with no adverse effects on the patient's neurological status and no residual impact on the newborn baby's condition.

2024-0282

Subcostal Transversus Abdominis Plane Block as the Sole Anesthesia for an Open Gastrostomy in Patient with Tracheoesophageal Fistula: A Case Report

Sandy Theresia[1*], Asis deelip Mirchandani[1], Pryambodho Pryambodho[1]

1. Department of Anesthesiology and Intensive Care, Universitas Indonesia, Indonesia

Background

Subcostal Transversus Abdominis Plane (TAP) block has emerged as a promising technique for providing effective anesthesia in various surgical procedures. Given the complex nature of tracheoesophageal fistula, which poses significant challenges for conventional anesthesia due to potential airway complications, the subcostal TAP block offers a viable alternative by targeting the abdominal wall nerves, thereby providing adequate analgesia while minimizing systemic effects. This approach not only enhances perioperative pain management but also reduces the risks associated with general anesthesia, highlighting its potential for improving surgical outcomes and patient safety.

Methods

A 35-year-old man was scheduled for a gastrostomy. He had a history of esophageal stricture following a laryngectomy a year ago due to laryngeal cancer. Currently, the patient complaint limited neck movement, and has a history of chemotherapy and radiation. An esophagogram revealed a hypopharyngeal stricture extending to the pharyngoesophageal sphincter and cervical esophagus over 2.2 cm from C4 to C6. An MRI with contrast of the nasopharynx showed thickening in the glottic area of the left posterior commissure, irregularly shaped with some unclear boundaries, and heterogeneous enhancement with diffusion restriction.

A regional technique in the form of ultrasound-guided bilateral subcostal transverse abdominis plane block was planned, though all preparations for general anesthesia, resuscitation drugs, and equipment were kept ready. Standard monitoring (noninvasive blood pressure, electrocardiography, SpO2) was applied, and the area of block site was prepared aseptically.

High-frequency linear array probe is positioned until rectus abdominis muscle and its posterior rectus sheath were visualized, along with the transversus abdominis muscle deep to the posterior rectus sheath. The target was the fascial plane between the posterior rectus sheath and the transversus abdominis muscle. The needle was inserted above the rectus abdominis close to the midline and advanced from medial to lateral. Bupivacaine 0.5% (15 ml) was injected incrementally while observing for expanding anechoic fluid collection. The procedure was then repeated on the contralateral side. Sensory blockade was assessed 20 minutes post-procedure using a pin-prick test, which showed loss of sharp sensation in gastrostomy area.

In the operating room, the patient received 3 L/min of oxygen via nasal cannula and was monitored for vital signs. A 10-cm midline incision and a small transverse incision in the left upper abdomen were made. The patient remained comfortable throughout the operation, with no additional local anesthetic required by the surgeon. Only 50 mcg of intravenous fentanyl was administered to manage visceral pain. The operation lasted 120 minutes, after which the patient was transferred to the recovery room with a pain score of zero. The patient was then moved to the ward without incident an hour later.

Results

This case highlights the utility of ultrasound-guided subcostal transversus abdominis plane block as a very useful regional technique alternative to general anesthesia for short abdominal procedures, especially where airway is in jeopardy.

2024-0286

From Nitrate to Cyanosis: A Case Report on Accidental Sodium Nitrite Ingestion Leading to Methemoglobinemia

Emylia nur afiqah Mohd sharir[1], Ili syazana Saufian[1*]

1. Anaesthesiology, Hospital Sungai Buloh, Malaysia

Background

Sodium nitrites is commonly used preservatives, food colouring agent, antimicrobial in fish, meats and cheese. It is an odourless, white crystalline powder. It caused oxydation of heme iron from the Ferrous (Fe2+) state to the ferric (Fe3+) state. This changes trigerring the conversion of normal haemoglobin (Hb) to Methaemoglobin (MetHb). Clinical manifestation of of sodium nitrites poisoning include peripheral cyanosis, headaches, skin flushing, nausea, vomiting, diarrhea, orthostatic hypotension, reflex tachycardia, altered mental status, loss of counciousness, hypoxia, dysarrythmias and death.

Methylene blue is the first choice treatment for acute methaemoglobinemia. Here, we report a case of succesful treatment of severe methaemoglobinemia due to sodium nitrite poisoning.

Methods

A 37 year-old-lady with background history of major depressive disorder diagnosed on 2021 and had significant previous suicidal attempts was brought to our emergency department via ambulance call with altered concious level with lip, tongue and peripheral cyanosis.

Upon arrival, she appeared confused with Glascow Coma Scale (GCS) of E2V3M5. On examination, noted bluish discolouration of the skin particularly at lips, tongue and nail beds. Her peripheries were cold with moderate pulse volume. Heart rate was 103 beats per minute and blood pressure was 107/65mmHg. Oxygenation saturation was only 85% under high flow mask 15 litres. She was then immediately intubated and ventilated under 100% oxygen. Post intubation, hemodynamically was supported with IVI noradrenaline highest was 0.2mcg/kg/min.

Arterial blood gas (ABG) analysis revealed methaemoglobin (MetHb) level of more than 30%. Routine blood investigations were all normal. Urine pregnancy test and urine drug test also normal.

Toxicologist was consulted and decided for IV methelyne blue 0.5% 1mg/kg (current weight of 60kg) to be administered over 5 minutes. ABG was repeated after half and hour of administration and showed reduce in MetHb level to 22%.

The patient was transferred to the intensive care unit (ICU) for further treatment. In ICU, her cyanosed was completely relieved. Inotropic support was able to wean off. Her oxygenation saturation picked up to 95-96% on pulse oxymetry. The MetHb value also decreased to 10%, 8.1% and 3.2%.Glucose-6-phosphate-dehydrogenase level (G6PD) was normal.

Patient was then extubated on the next day. She was discharge from ICU and was monitored in general ward for another 2 days and discharged home well.

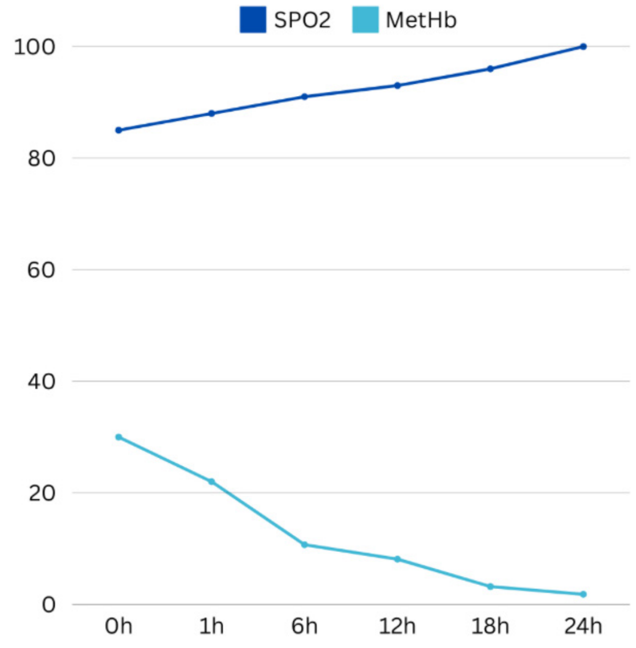
Results

In normal physiological state, the concentration of MetHb does not exceed 1%-2%. Levels of 10%-20% can cause cyanosis and levels of 20%-50% may cause symptoms such as dizziness, headache, fatigue and respiratory distress. On the other hand, loss of conciousness and death can occured if Methb level reach 50%-70%. Methylene blue is the first choice treatment for acute methaemoglobinemia as it convert MetHb to normal haemoglobin and symptoms improvement expected immediately after administration.

2024-0286

Figure & Table

Figure 1.



2024-0288

001 Emergency Code

Ujjwal Basnet[1*]

1. Obstetric Anesthesia, Paropakar Maternity and Women's Hospital, Kathmandu, Nepal, Nepal

Background

In the case of life-threatening conditions such as respiratory or cardiac arrest, or the clinical deterioration of the patient, 001 emergency code may be activated or instigated. This study aims to analyze the different reasons for this code activation and also the false alarms for this code.

Methods

This retrospective study analyzed the 001 code activation reports between January 2015 to December 2019, a total period of 5 years. This study evaluated the age of patient, reason for activation of 001 call, wards from which call is activated and outcome after active interventions.

Results

A total of 191 cases were recorded as 001 call activation in 5 years. Age group of the majority of patients for whom 001 call activated, were between 21-30 years (N=106) with 55%. The most common cause for activation of 001 call recorded was pre partum eclampsia, with 41.36% (N=79). The emergency ward was the most common site to have a 001 call activation occur, with 40.83% (N=78). Out of 191 cases for which 001 call was activated, 60.73% (N=116) cases were referred to the Maternal Intensive Care Unit (MICU) after primary management at the site of call.

Conclusion

The finding of this study shows that a different emergency coding system like "Code Blue" should be implicated for acute active life saving interventions during cardiac/respiratory failure, as there are many false calls/alarms for which 001 call was activated.

2024-0293

Anesthetic Management in Pregnant Woman With Fetal Congenital Diaphragmatic Hernia: a Case Report

Alvian Reza Muhammad[1], Fildza sasri Peddyandhari[2*]

1. Anesthesiology And Intensive Care, Rumah Sakit Universitas Indonesia, Indonesia
2. Anesthesiology And Intensive Care, Cipto Mangunkusumo National Hospital, Indonesia

Background

Congenital diaphragmatic hernia is a rare case. A data from CDC of United States, the incidence of this case is 0.8-5 case per 10000 birth. Despite of the fast development of medical equipments and techiques, mortality rate in this case still high. Several delivery method has been identified by Feckner et al. C-section shows better outcome for both the neonates and the mother. C-section increase 30 days survival rate. In this report, Special anesthetic consideration were prepared for both monther an the neonates. The goal is to maintain the respiratory function. General anesthesia performed to prevent the baby from taking a spontaneous breathing after the delivery and prepared to be intubated as early as baby born.

Methods

Pregnant woman with G5P3A1 38 week pregnancy whom baby diagnoses with left diapgragmatic hernia and lung hypoplasia will undergo caesarean section. The diagnosis obtained from fetomaternal ultrasound which showed congenital diaphragmatic hernia. Patient were assessed as ASA 2 with hypokalemia 3.19 mmol/L, Obestity with BMI 36kg/m^2, and pregnancy. We administer Fentanyl 2 μg/kgBW, Rapid sequence intubation were prepared, we emerge the induction with 2mg/kgBW Propofol, and Rocuronium 1mg/kgBW. The anesthesia maintained using 2 vol% of Sevoflurane. Tidal volume is set into 6-8mL/kgBW with. Before incision, we administer 1mcg/kgBW Fentanyl. The incision was made 18 minutes after induction. 8 minutes after incision, baby was born. After the surgeon pull out the baby's head, early intubation were done in sterile fashion. Baby was not given positive ventilation. Umbilical cord clamping were done after the baby was intubated. Initial heart rate was 172, oxygen saturation 56%, After that the baby was given ventilatory support using HFOV ventilator with 80% oxygen fraction, I:E ratio 1:2, frequency 8 Hz, MAP 12, and amplitude was 30. After the HFOV attachment, vital sign showing improvement, Heart rate was slightly better to 162, oxygen saturation 93%. After the baby was stabilized, the neonatologist transport the baby to the NICU
Anesthesia of the mother was also adjusted, Sevoflurane decreased to 1 vol%. Duration of the operation was 1 hour 10 minutes with no problem.

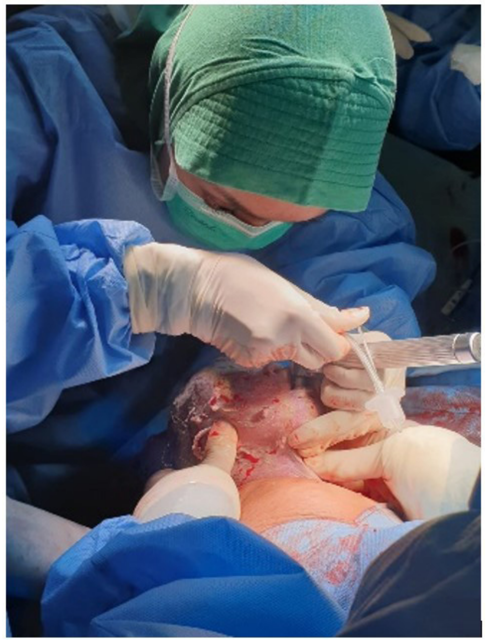
Results

Expert opinions provide options for the anaesthesia. This caesarean section can be done under general anaesthesia of regional anaesthesia. The goal is to prevent the baby from taking initial breath to prevent hypoxia and hypercarbia. Because the lung is hypoplastic, neonates cannot compensate drastic changes from their respiratory defect. Fentanyl, drugs that reliable to cross plasental barrier as it molecule size less than 500 Dalton. Fentanyl effect is expected to be crossing the plascental barrier after 5-15 minutes, and will gradually excreted the metabolite after 60 minutes. The baby was intubated before all the body pulled out. The cord clamping was delayed to give time for intubation. The neonatologist benefit the cord clamping delay to conserve the neonatal circulation while intubating so the hypoxia and hypercarbia was not present. After the intubation done, the cord was clamped and cut eventually.

2024-0293

Figure & Table

Figure 1.



2024-0298

Post-Operative Nausea and Vomiting - Improving Outcomes Over 10 Years at The Queen Elizabeth Hospital, South Australia

Rajesh Sethi[1*]

1. Department of Anaesthesia, The Queen Elizabeth Hospital, Central Adelaide Local Health Network, Australia

Background

Post-operative nausea and vomiting (PONV) is one of the most common and challenging complications in the peri-operative setting, affecting 30% of the surgical cohort and up to 80% in high-risk populations. A debilitating and often feared outcome for patients, it can have significant implications like electrolyte imbalance, delayed oral intake, mobilisation and discharge, hospital readmission and increased financial burden. As such, standardised risk stratification and preventative measures have been developed to reduce PONV. By identifying those at risk of PONV and instituting relevant measures, we can reduce the peri-operative burden and greatly improve individual patient experience. Our aim was to stratify PONV risk in surgical patients and compare current practice and PONV incidence with prior audits from 2013 and 2015 respectively.

Methods

Our audit was conducted in 2023 over a six-week period in elective surgical overnight stay patients at The Queen Elizabeth Hospital (TQEH) in South Australia. Ethics approval was sought as per local guidelines. Data collection was performed close to 24 hours post-operatively to capture a realistic picture. Risk stratification was performed based on APFEL score. Post-operative outcomes were assessed using the PONV impact scale, with emphasis on impact of PONV on activities of daily living. This was in addition to the subjectivity based TQEH scoring system. Outcomes were compared with previous audits conducted at the same centre in 2013 and 2015 respectively. We then went on to compare peri-operative practices, PONV incidence and patient satisfaction scores in previous audits.

Results

Data collection was performed in 306 patients in the current audit (n=305 in 2015). Demographics demonstrated an older and more co-morbid population, with a mean age (years) of 60.8 compared to 55.7 (2015). The expected incidence of PONV increased to 47.1% from 30.8% in 2015. This was possibly reflective of a combined effect of a 35% reduction in the incidence of smoking, and an expected increase in post-operative opioid use, based on the proposed surgery. As per the TQEH model, the overall incidence of PONV reduced to 29.4% from 37.2% (2015), with an additional reduction in the incidence of moderate to severe PONV from 22.5% to 17.9%. The objectivity based PONV Impact scale demonstrated a reduction in the incidence of PONV from 26% (2015) to 19.7%. Additionally, the moderate to severe PONV dropped from 3.6 % (2015) to 0.6%. These results were attributed to enhanced risk stratification, judicious use of anti-emetics and an increase in the incidence of total intravenous anaesthesia.

Conclusion

This audit reflects a consistent improvement in patient outcomes with enhanced awareness and adherence to evidence-based guidelines. Whilst conducted at a single centre, this is representative of the degree of impact that clinicians can have on improving patient experience and improving clinical outcomes.

2024-0300

The Effect of Intravenous Fluid Loading on the Incidence of Hypotension in Children Undergoing General Anesthesia for Magnetic Resonance Imaging: A Randomized Controlled Trial

Ploychompoo Worratarakul[1*], Darunee Sripadungkul[1], Cattleya Kasemsiri[1],
Prathana Wittayapairoch[1], Narin Plailaharn[1], Fangam Charoenpol[1]

1. Department of anesthesiology, Srinagarind Hospital, Khon Kaen University, Thailand

Background

Hypotension is one of the most common complications observed in children undergoing inhalation anesthesia with sevoflurane and laryngeal mask airway (LMA) for magnetic resonance imaging (MRI) in our center. All patients must adhere to the American Society of Anesthesiologists (ASA) fasting guidelines before undergoing anesthesia. Prolonged fasting and dehydration are risk factors for perioperative hypotension. We hypothesize that intravenous (IV) fluid loading can reduce the incidence of hypotension in pediatric patients undergoing inhaled general anesthesia for MRI.

Methods

This randomized controlled trial was conducted at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand, between October 2021 and December 2022. The trial involved 102 pediatric outpatients aged 1 to 7 years who were scheduled for inhalation anesthesia with sevoflurane and LMA for MRI. They were randomly assigned to two groups, with 51 participants in each group. The loading group (L-group) received 10 ml of normal saline (NSS) per kilogram IV loading after induction of anesthesia, while the control group (C-group) did not receive NSS IV loading. The primary outcome was the incidence of hypotensive events. The secondary outcomes included the number of hypotensive events without bradycardia, the number of hypotensive events with bradycardia, the number of bradycardia events without hypotension, the usage of ephedrine and the total amount of ephedrine used, the usage of atropine and the total amount of atropine used, the usage of NSS for rescue therapy and the risk factors of hypotension.

Results

A total of 102 patients were recruited and analyzed at the end of the study. The demographic data collected for each group were found to be comparable. Also, there were no significant differences in baseline blood pressure across the groups. The overall incidence of hypotensive events was 14%. The incidence of hypotension was 4 out of 51 (7.8%) in the C-group and 10 out of 51 (19.6%) in the L-group, with a p-value of 0.084. This p-value indicates that the difference in hypotensive incidence between the two groups is not statistically significant. Additionally, the secondary outcome analysis revealed no statistically significant differences between the two groups with regard to episodes of hypotension. For the risk factors of periprocedural hypotension, the logistic regression analysis revealed that no parameter significantly influenced the incidence of hypotension, including age, sex, body weight, height, type of diagnosis, NPO time, and procedure time.

Conclusion

Administering a loading dose of 10 ml/kg of NSS intravenously does not reduce the incidence of intraprocedural hypotension in pediatric patients undergoing MRI under inhalation general anesthesia.

2024-0300

Figure & Table

Table 1. Incidence of hypotension

	Total (n=102)	Group C (n=51)	Group L (n=51)	p-value
Incidence of hypotension (n (%))	14 (13.73)	4 (7.84)	10 (19.61)	0.084

Table 2. Episodes of hypotension

Episode (n (%))	Group C (n=51)	Group L (n=51)	p-value
Episodes of hypotension events without bradycardia			
0	47 (92.16)	41 (80.39)	0.402
1	2 (3.92)	4 (7.84)	
2	1 (1.96)	4 (7.84)	
3	1 (1.96)	1 (1.96)	
>5	0 (0)	1 (1.96)	
Episodes of hypotension events with bradycardia			
1	0 (0)	5 (4.9)	0.056

2024-0303

Submandibular Abscess: Strategy to a Successful Difficult Airway Management: a Case Series

Alvian Reza Muhammad[1], Noor Hafidz[1*]

1. Anesthesiology And Intensive Care, Rumah Sakit Universitas Indonesia, Indonesia

Background

Submandibular abscess, known as Ludwig's Angina, often causes airway problems in patients. This is a very common problem in developing countries due to poor oral hygiene. Even though the number of cases is relatively high, the placement of endotracheal tube is often challenging as the patient's mouth opening is very limited due to trismus. Choice of technique, devices, and drugs become integral part of successful intubation. Currently, no universal guidelines on the ideal choices of airway management for these patients. There are many factors regarding the choices such as equipment, drug availability and local expertise. Planning the procedure is very important because the safety margin is quite thin, and any unplanned situation may lead to death.

This case series presents 3 patients of submandibular abscess, with difficult intubation underwent incision and drainage. Three different techniques were used to manage each patient.

Methods

This Case series compares 3 different combinations of drugs used to facilitate intubation. First patient was using awake fiberoptic bronchoscopy, Premedication with intravenous Lidocaine 1.5mg/kgBW were given and we administered TCI Remifentanil with Minto model, the dose was 4 ng/ml Plasma 3 minutes before intubation. Patients were preoxygenated with 4 liters per minute using nasal cannula for 10 minutes. Intubation was conducted right after, and it required 4 minutes to place the endotracheal tube. The second patient was using awake fiberoptic bronchoscopy with 20mcg bolus of intravenous dexmedetomidine followed by continuous 0.4 mcg/kgBW/hour and intravenous bolus Lidocaine 1.5mg/kgBW to facilitate the process. Intubation required 7 minutes, slightly longer than the first patient, due to the cough reflex appeared to be more prominent, adding difficulties to the process. These two patients were administered to ICU for 1 day and given dexamethasone 3x5mg IV for 2 days. Later, patients were extubated without any complication. The third patient were using video laryngoscope. The technique was chosen due to mouth opening still quite wide although the neck already swollen. Patient were sedated with Propofol 2mg/kgBW, Fentanyl 2 mcg/kgBW, and safely ventilated. But during the process. Complication occurs, the abscess ruptured, and aspiration during the intubation process, later followed up by bronchial toilet using bronchoscopy. Patient were admitted to ICU for 3 days to be given Antibiotics, and dexamethasone 3x5mg IV.

Results

Based on the cases, we conclude that using awake fiberoptic intubation is the safest option to reduce any complication during intubation. Also, the drug choices, Remifentanil shows better outcome in reducing airway reflexes and reducing patient anxiety due to light sedation. Time to intubate also faster as the airway reflexes already suppressed better than using dexmedetomidine, despite of time requirement may vary within any operator due to familiarity to the bronchoscope device. Video laryngoscope maybe less favorable, although the device helps to give a sufficient view of the upper airway, but the movement of the laryngoscope may damage the tissue and rupture the abscess.

2024-0303

Figure & Table

Table 1. Comparison of technique and drugs usage during intubation

Patients	Drugs	Intubation Time	Consciousness and Airway Reflexes	Complication
Patient 1	Lidocaine 1.5mg/kgBW Remifentanil with Minto model 4 ng/ml Plasma	4 minutes	Awake Reflex well suppressed	None
Patient 2	Lidocaine 1.5mg/kgBW Dexmedetomidine bolus 20mcg followed by 0.4 mcg/kgBW/hour	7 minutes	Awake Cough: slightly profound	None
Patient 3	Fentanyl 2 mcg/kgBW Lidocaine 1.5mg/kgBW Propofol 2mg/kgBW	6 minutes	Deeply sedated	Ruptured Abscess Aspiration requiring bronchial toilet

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2024-0307

Crab Feast to Catastrophe: The Deadly Turn of a Vibrio vulnificus Infection

Muaz Jamil[1*], Nurbayani Inche mat[1], Zayuah Mat sulaiman[1]

1. Department of Anaesthesiology and Critical Care, Hoshas, Ministry of Heatlh, Malaysia

Background

Vibrio vulnificus, a gram-negative bacterium, poses a significant threat to immunocompromised individuals, leading to rapid and severe infections. The epidemiology of Vibrio vulnificus in Malaysia is influenced by the country's coastal geography, seafood consumption patterns, and public health practices.

Methods

This case highlights the tragic and rapid decline of a 71-year-old Chinese woman with a complex medical history, including hyperthyroidism, chronic idiopathic thrombocytopenic purpura (ITP), liver cirrhosis, and prolonged steroid use. Following a seemingly minor crab bite, she developed a devastating Vibrio vulnificus infection that quickly spiraled into systemic collapse, manifesting as fever, shock, and severe metabolic acidosis. Despite the immediate administration of broad-spectrum antibiotics and aggressive supportive care, her condition deteriorated rapidly, leading to her untimely death within just 24 hours.

Results

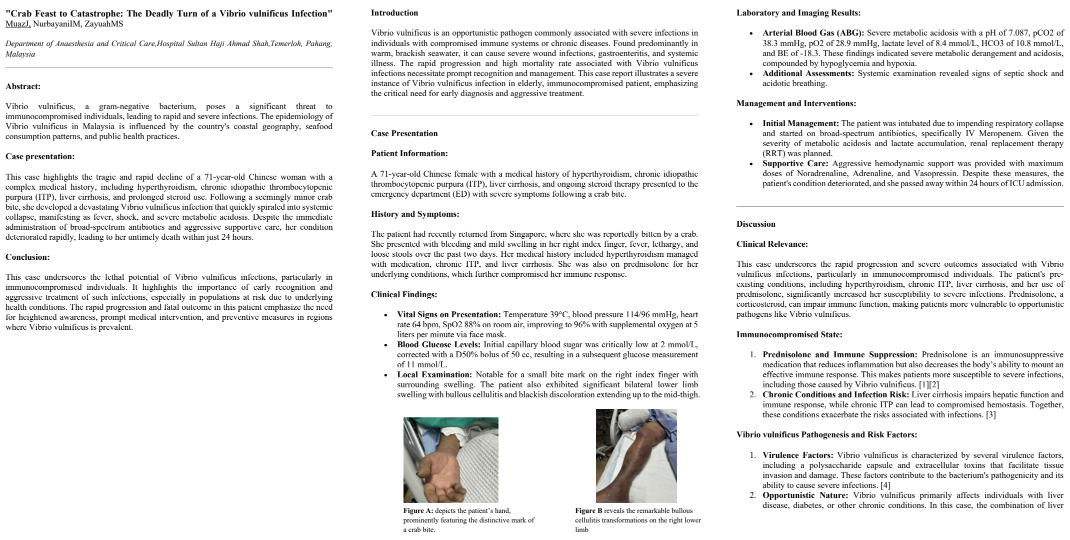
This case underscores the lethal potential of Vibrio vulnificus infections, particularly in immunocompromised individuals. It highlights the

importance of early recognition and aggressive treatment of such infections, especially in populations at risk due to underlying health conditions. The rapid progression and fatal outcome in this patient emphasize the need for heightened awareness, prompt medical intervention, and preventive measures in regions where Vibrio vulnificus is prevalent.

2024-0307

Figure & Table

Firgure 1. Crab Feast to Catastrophe: The Deadly Turn of a Vibrio vulnificus Infection



"Crab Feast to Catastrophe: The Deadly Turn of a Vibrio vulnificus Infection"
MuazJ, NurbayaniIM, ZayuahMS

Department of Anaesthesia and Critical Care,Hospital Sultan Haji Ahmad Shah,Temerloh, Pahang, Malaysia

Abstract:

Vibrio vulnificus, a gram-negative bacterium, poses a significant threat to immunocompromised individuals, leading to rapid and severe infections. The epidemiology of Vibrio vulnificus in Malaysia is influenced by the country's coastal geography, seafood consumption patterns, and public health practices.

Case presentation:

This case highlights the tragic and rapid decline of a 71-year-old Chinese woman with a complex medical history, including hyperthyroidism, chronic idiopathic thrombocytopenic purpura (ITP), liver cirrhosis, and prolonged steroid use. Following a seemingly minor crab bite, she developed a devastating Vibrio vulnificus infection that quickly spiraled into systemic collapse, manifesting as fever, shock, and severe metabolic acidosis. Despite the immediate administration of broad-spectrum antibiotics and aggressive supportive care, her condition deteriorated rapidly, leading to her untimely death within just 24 hours.

Conclusion:

This case underscores the lethal potential of Vibrio vulnificus infections, particularly in immunocompromised individuals. It highlights the importance of early recognition and aggressive treatment of such infections, especially in populations at risk due to underlying health conditions. The rapid progression and fatal outcome in this patient emphasize the need for heightened awareness, prompt medical intervention, and preventive measures in regions where Vibrio vulnificus is prevalent.

Introduction

Vibrio vulnificus is an opportunistic pathogen commonly associated with severe infections in individuals with compromised immune systems or chronic diseases. Found predominantly in warm, brackish seawater, it can cause severe wound infections, gastroenteritis, and systemic illness. The rapid progression and high mortality rate associated with Vibrio vulnificus infections necessitate prompt recognition and management. This case report illustrates a severe instance of Vibrio vulnificus infection in elderly, immunocompromised patient, emphasizing the critical need for early diagnosis and aggressive treatment.

Case Presentation

Patient Information:

A 71-year-old Chinese female with a medical history of hyperthyroidism, chronic idiopathic thrombocytopenic purpura (ITP), liver cirrhosis, and ongoing steroid therapy presented to the emergency department (ED) with severe symptoms following a crab bite.

History and Symptoms:

The patient had recently returned from Singapore, where she was reportedly bitten by a crab. She presented with bleeding and mild swelling in her right index finger, fever, lethargy, and loose stools over the past two days. Her medical history included hyperthyroidism managed with medication, chronic ITP, and liver cirrhosis. She was also on prednisolone for her underlying conditions, which further compromised her immune response.

Clinical Findings:

- **Vital Signs on Presentation:** Temperature 39°C, blood pressure 114/96 mmHg, heart rate 64 bpm, SpO2 88% on room air, improving to 96% with supplemental oxygen at 5 liters per minute via face mask.
- **Blood Glucose Levels:** Initial capillary blood sugar was critically low at 2 mmol/L, corrected with a D50% bolus of 50 cc, resulting in a subsequent glucose measurement of 11 mmol/L.
- **Local Examination:** Notable for a small bite mark on the right index finger with surrounding swelling. The patient also exhibited significant bilateral lower limb swelling with bullous cellulitis and blackish discoloration extending up to the mid-thigh.

Figure A: depicts the patient's hand, prominently featuring the distinctive mark of a crab bite.

Figure B reveals the remarkable bullous cellulitis transformations on the right lower limb

Laboratory and Imaging Results:

- **Arterial Blood Gas (ABG):** Severe metabolic acidosis with a pH of 7.087, pCO2 of 38.3 mmHg, pO2 of 28.9 mmHg, lactate level of 8.4 mmol/L, HCO3 of 10.8 mmol/L, and BE of -18.3. These findings indicated severe metabolic derangement and acidosis, compounded by hypoglycemia and hypoxia.
- **Additional Assessments:** Systemic examination revealed signs of septic shock and acidotic breathing.

Management and Interventions:

- **Initial Management:** The patient was intubated due to impending respiratory collapse and started on broad-spectrum antibiotics, specifically IV Meropenem. Given the severity of metabolic acidosis and lactate accumulation, renal replacement therapy (RRT) was planned.
- **Supportive Care:** Aggressive hemodynamic support was provided with maximum doses of Noradrenaline, Adrenaline, and Vasopressin. Despite these measures, the patient's condition deteriorated, and she passed away within 24 hours of ICU admission.

Discussion

Clinical Relevance:

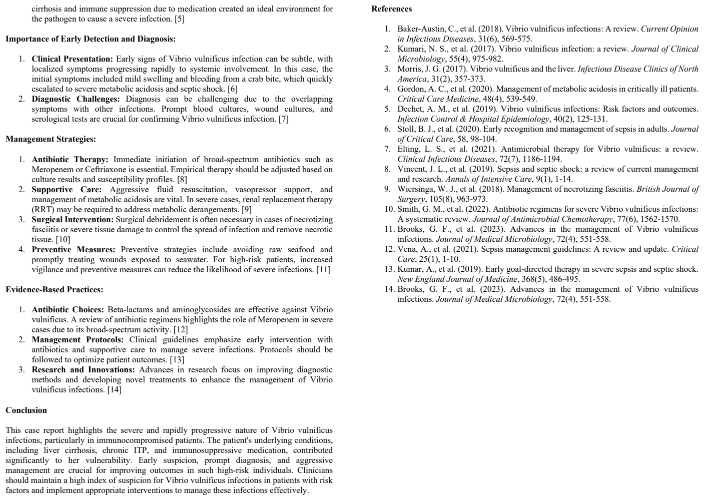
This case underscores the rapid progression and severe outcomes associated with Vibrio vulnificus infections, particularly in immunocompromised individuals. The patient's pre-existing conditions, including hyperthyroidism, chronic ITP, liver cirrhosis, and her use of prednisolone, significantly increased her susceptibility to severe infections. Prednisolone, a corticosteroid, can impair immune function, making patients more vulnerable to opportunistic pathogens like Vibrio vulnificus.

Immunocompromised State:

1. **Prednisolone and Immune Suppression:** Prednisolone is an immunosuppressive medication that reduces inflammation but also decreases the body's ability to mount an effective immune response. This makes patients more susceptible to severe infections, including those caused by Vibrio vulnificus. [1][2]
2. **Chronic Conditions and Infection Risk:** Liver cirrhosis impairs hepatic function and immune response, while chronic ITP can lead to compromised hemostasis. Together, these conditions exacerbate the risks associated with infections. [3]

Vibrio vulnificus Pathogenesis and Risk Factors:

1. **Virulence Factors:** Vibrio vulnificus is characterized by several virulence factors, including a polysaccharide capsule and extracellular toxins that facilitate tissue invasion and damage. These factors contribute to the bacterium's pathogenicity and its ability to cause severe infections. [4]
2. **Opportunistic Nature:** Vibrio vulnificus primarily affects individuals with liver disease, diabetes, or other chronic conditions. In this case, the combination of liver cirrhosis and immune suppression due to medication created an ideal environment for the pathogen to cause a severe infection. [5]



Importance of Early Detection and Diagnosis:

1. **Clinical Presentation:** Early signs of Vibrio vulnificus infection can be subtle, with localized symptoms progressing rapidly to systemic involvement. In this case, the initial symptoms included mild swelling and bleeding from a crab bite, which quickly escalated to severe metabolic acidosis and septic shock. [6]
2. **Diagnostic Challenges:** Diagnosis can be challenging due to the overlapping symptoms with other infections. Prompt blood cultures, wound cultures, and serological tests are crucial for confirming Vibrio vulnificus infection. [7]

Management Strategies:

1. **Antibiotic Therapy:** Immediate initiation of broad-spectrum antibiotics such as Meropenem or Ceftriaxone is essential. Empirical therapy should be adjusted based on culture results and susceptibility profiles. [8]
2. **Supportive Care:** Aggressive fluid resuscitation, vasopressor support, and management of metabolic acidosis are vital. In severe cases, renal replacement therapy (RRT) may be required to address metabolic derangements. [9]
3. **Surgical Intervention:** Surgical debridement is often necessary in cases of necrotizing fasciitis or severe tissue damage to control the spread of infection and remove necrotic tissue. [10]
4. **Preventive Measures:** Preventive strategies include avoiding raw seafood and promptly treating wounds exposed to seawater. For high-risk patients, increased vigilance and preventive measures can reduce the likelihood of severe infections. [11]

Evidence-Based Practices:

1. **Antibiotic Choices:** Beta-lactams and aminoglycosides are effective against Vibrio vulnificus. A review of antibiotic regimens highlights the role of Meropenem in severe cases due to its broad-spectrum activity. [12]
2. **Management Protocols:** Clinical guidelines emphasize early intervention with antibiotics and supportive care to manage severe infections. Protocols should be followed to optimize patient outcomes. [13]
3. **Research and Innovations:** Advances in research focus on improving diagnostic methods and developing novel treatments to enhance the management of Vibrio vulnificus infections. [14]

Conclusion

This case report highlights the severe and rapidly progressive nature of Vibrio vulnificus infections, particularly in immunocompromised patients. The patient's underlying conditions, including liver cirrhosis, chronic ITP, and immunosuppressive medication, contributed significantly to her vulnerability. Early suspicion, prompt diagnosis, and aggressive management are crucial for improving outcomes in such high-risk individuals. Clinicians should maintain a high index of suspicion for Vibrio vulnificus infections in patients with risk factors and implement appropriate interventions to manage these infections effectively.

References

1. Baker-Austin, C., et al. (2018). Vibrio vulnificus infections: A review. *Current Opinion in Infectious Diseases*, 31(6), 569-575.
2. Kumari, N. S., et al. (2017). Vibrio vulnificus infection: a review. *Journal of Clinical Microbiology*, 55(4), 975-982.
3. Morris, J. G. (2017). Vibrio vulnificus and the liver. *Infectious Disease Clinics of North America*, 31(2), 357-373.
4. Gordon, A. C., et al. (2020). Management of metabolic acidosis in critically ill patients. *Critical Care Medicine*, 48(4), 539-549.
5. Dechet, A. M., et al. (2019). Vibrio vulnificus infections: Risk factors and outcomes. *Infection Control & Hospital Epidemiology*, 40(2), 125-131.
6. Stoll, B. J., et al. (2020). Early recognition and management of sepsis in adults. *Journal of Critical Care*, 58, 98-104.
7. Elting, L. S., et al. (2021). Antimicrobial therapy for Vibrio vulnificus: a review. *Clinical Infectious Diseases*, 72(7), 1186-1194.
8. Vincent, J. L., et al. (2019). Sepsis and septic shock: a review of current management and research. *Annals of Intensive Care*, 9(1), 1-14.
9. Wiersinga, W. J., et al. (2018). Management of necrotizing fasciitis. *British Journal of Surgery*, 105(8), 963-973.
10. Smith, G. M., et al. (2022). Antibiotic regimens for severe Vibrio vulnificus infections: A systematic review. *Journal of Antimicrobial Chemotherapy*, 77(6), 1562-1570.
11. Brooks, G. F., et al. (2023). Advances in the management of Vibrio vulnificus infections. *Journal of Medical Microbiology*, 72(4), 551-558.
12. Vena, A., et al. (2021). Sepsis management guidelines: A review and update. *Critical Care*, 25(1), 1-10.
13. Kumar, A., et al. (2019). Early goal-directed therapy in severe sepsis and septic shock. *New England Journal of Medicine*, 368(5), 486-495.
14. Brooks, G. F., et al. (2023). Advances in the management of Vibrio vulnificus infections. *Journal of Medical Microbiology*, 72(4), 551-558.

2024-0308

Prevalence of anaemia and factors influencing blood transfusion in paediatric major non-cardiac surgery: A 5-year retrospective review.

Kogil Thavamoney[1], Rufinah Teo[1*]

1. Department of Anaesthesiology and Intensive Care, Hospital Canselor Tuanku Muhriz, UKM, Malaysia

Background

Perioperative anaemia in paediatric population poses a significant challenge in Malaysia particularly in major surgeries. Thus, this study assessed the prevalence of preoperative anaemia in paediatric patients who had undergone major non-cardiac surgery and factors influencing the perioperative blood transfusion practices.

Methods

A total of four hundred and three patients aged 1 month to 18 years old who had undergone major non-cardiac surgery in Hospital Sultanah Bahiyah, Kedah, Malaysia were retrospectively reviewed. Data on patient demographics, operative details, preoperative haemoglobin (Hb) levels, and postoperative outcomes were collected from the institutional medical records. The preoperative Hb levels were analysed for prevalence of anaemia. The secondary outcomes were measured by analysing the factors influencing the blood transfusions. Post operative disposition, requirement of ventilation and length of stay were analysed for postoperative outcome.

Results

The prevalence of preoperative anaemia was 32.3%. Among the transfused patients, we observed 59.6% of them were anaemic. On multivariable analysis, neurosurgery (odds ratio [OR]:10.61; $p< 0.001$) and orthopaedic speciality (OR:2.52; $p= 0.021$), presence of respiratory comorbidity (OR:14.06; $p<0.001$),preoperative haemoglobin levels (OR: 0.41; $p<0.001$], duration of surgery (OR:1.009; $p<0.001$) and estimated blood loss (OR:1.29; $p<0.001$) were associated with a significantly higher risk for blood transfusions. The transfused group exhibited significant postoperative outcomes in terms of higher postoperative ventilation ($p<0.001$), increased intensive care admission ($p<0.001$), and longer length of stay ($p<0.001$) compared to the non-transfused group.

Conclusion

The prevalence preoperative anaemia is significant in paediatric population undergoing major non-cardiac surgery in Malaysia. Preoperative anaemia increases requirement of perioperative blood transfusion in paediatric population. Nevertheless, perioperative blood transfusion in paediatric patients is multifaceted and influenced by several factors, including neurosurgery and orthopaedic speciality, presence of respiratory comorbidity, preoperative haemoglobin level, duration of surgery and estimated blood loss.

2024-0309

Post-Caesarean Shock, Anemia and Thrombocytopenia: A Case Report on Suspected Complement-mediated Thrombotic Microangiopathy (C-TMA)

Joshan lal Bajracharya[1*], Pankaj Baral[1]

1. Anesthesiology and Critical Care Medicine, Provincial Hospital Bhadrapur, Nepal

Background

Peripartum clinical problems possess a challenge due to complex physiological changes of pregnancy intertwined with pregnancy specific diseases and general medical disorders. Thrombotic microangiopathy (TMA) disorders present as microangiopathic hemolytic anemia, thrombocytopenia and end organ injuries. It may present during pregnancy or postpartum. Diagnosis and differentiation is challenging owing to spectrum of presentation. C-TMA results from dysregulated complement activation due to genetic or acquired predisposition.

Methods

An ASAPS-II 23 year primipara after an uneventful emergency caesarean section for non progress of labor developed shock, oliguria five hours after surgery. Hemorrhagic shock was suspected but neither significant per vaginal bleed nor intraperitoneal collection on abdominal ultrasound scan was found. Lab analysis revealed severe anemia and thrombocytopenia. LDH, serum haptoglobin and indirect bilirubin were raised, but liver enzymes were normal. Direct Coombs test was negative and schistocytes were found in peripheral blood smear. Clotting parameters were normal. There was no purpura. There was no past history of active cancer or solid organ or hematopoietic stem cell transplant. Disseminated intravascular coagulation was ruled out and septicemia was suspected. Blood and urine cultures were sent and broad spectrum antibiotics were started. Drugs were reviewed to rule out drug induced hemolysis, thrombocytopenia and acute kidney injury (AKI). Vitals were maintained with intravenous fluids and blood products. But she developed fever, anuria and progressive AKI. Acute tubular necrosis secondary to shock, and sepsis induced AKI were suspected, and managed symptomatically with antibiotics, fluid and electrolytes. Three cycles of hemodialysis over three days was done for volume overload and hyperkalemia. ADAMTS13 activity could not be performed to rule out thrombotic thrombocytopenic purpura. Hemolytic anemia with renal involvement without neurological symptoms led us to suspect complement-mediated thrombotic microangiopathy. No growth on cultures was found till the third day. High dose intravenous methylprednisolone therapy was then initiated. Thereafter, platelet count and urine output started improving. Patient recovered completely and was discharged on the tenth day.

Results

Complement mediated thrombotic microangiopathy should be suspected in a post-caesarean patient presenting with early explosive onset unexplained shock, severe anemia, thrombocytopenia with AKI in the absence of neurological symptoms. High index of suspicion, early diagnosis and intervention determines outcome. PLASMIC scoring is useful to ascertain ADAMTS-13 activity for Thrombotic thrombocytopenia (TTP). Complement testing if available is important for diagnosis, treatment, family screening and pregnancy planning. Plasma exchange and anti-complement therapies- Eculicizumab improves hematological and renal outcome. Steroids modify intensity of inflammation or immune response. Early high dose corticosteroids may have made a difference in the absence of anti-complement therapy in our case.

2024-0313

Valve-in-vale transcatheter aortic valve replacement with extracorporeal membrane oxygenation in an end-stage renal disease patient with cardiogenic shock

Sayaka Oki[1*], Kyosuke Takahashi[2]

1. Department of Anesthesiology and Critical Care Medicine, Jichi Medical University Saitama Medical Center, Japan
2. Department of Anesthesiology, Tokyo Medical and Dental University Hospital, Japan

Background

Patients with cardiogenic shock secondary to severe aortic stenosis (AS) have a poor prognosis. Transcatheter aortic valve replacement (TAVR) is a standard treatment for patients with AS who cannot tolerate surgery. However, the treatment strategy for patients presenting shock with AS is not established. We describe a unique case in which valve-in-valve (ViV) TAVR was successful for a patient with cardiogenic shock secondary to bioprosthetic aortic valve stenosis.

Methods

An 83-year-old man with a history of arterio-sclerosis obliterans and end-stage renal disease requiring hemodialysis had undergone surgery due to severe AS. The procedure was aortic valve replacement (AVR) with a bioprosthetic valve, which was performed twice in 6 and 11 years ago, respectively. The patient was urgently hospitalized because he presented syncope and dyspnea after hemodialysis. Transthoracic echocardiography showed the progression of structural valve deterioration with a peak velocity of 5.1m/s. He could not continue not only hemodialysis but also continuous renal replacement therapy (CRRT), because he exacerbated hypotension and elevated lactate while on treatment. On 13 hospital days, he developed cardiac arrest. We established emergent veno-arterial extracorporeal membrane oxygenation (VA-ECMO) via the right femoral artery and left femoral vein and Intra-Aortic Balloon Pumping (IABP) via the left femoral artery. Our heart team planned valve-in-valve (ViV) TAVR on V-A ECMO for hemodynamic support, as we considered he could not tolerate surgical AVR. After the initiation of VA-ECMO, we could dehydrate using CRRT.

On 20 hospital days, the patient underwent transfemoral TAVR, which was performed under general anesthesia. Before the procedure, we removed IABP and re-inserted cannulas for VA-ECMO (left femoral venous drainage and left femoral arterial return). We measured blood pressure (BP) using the right brachial sheath to introduce a pig-tail catheter for aortograms because of radio-cephalic arteriovenous fistulas in the left forearm. However, in the case of coronary obstruction, we needed to perform percutaneous coronary intervention (PCI) via the right brachial artery as the patient's risk of coronary obstruction was high. Our heart team discussed and planned to measure BP using a guiding catheter for PCI or the right femoral artery sheath in case. We successfully implanted a 20mm SAPIEN 3 Ultra RESILIA (Edwards Lifesciences, CA) via the right femoral artery. The postoperative course was uneventful. He was weaned off from ECMO later in the day. We restarted CRRT the next day and switched it to hemodialysis on the 13th day after the procedure. He was discharged from the hospital on the 27th day after the procedure without complications.

Results

We successfully performed ViV-TAVR with ECMO support for a patient with bioprosthetic degeneration presenting cardiogenic shock. The strategy for circulatory support and necessary cannulations is key, particularly for a patient with end-stage renal disease. Discussion in a multidisciplinary heart team is essential for the determination of plans.

2024-0314

Effectiveness of Intraperitoneal Tramadol Instillation in Laparoscopic Cholecystectomy: A Systematic Review and Meta-analysis

Christine Lua[1*], Christabelle Toh[1], Manuel Gonzaga[1]

1. Department of Anesthesiology, Davao Doctors Hospital, Philippines

Background

Laparoscopic cholecystectomy (LC) is associated with postoperative discomfort, mostly of visceral origin. Multimodal analgesics are necessary to address this kind of pain. Several techniques including intraperitoneal instillation of local anesthetics, have been investigated following laparoscopy. In addition to this, the intraperitoneal administration of adjuvants like tramadol, is increasingly being used during laparoscopic procedures to enhance pain management.

Methods

This was a systematic review and meta-analysis of randomized control trials conducted among adults who underwent laparoscopic cholecystectomy which looked into postoperative pain scores, rescue analgesia requirement, and adverse events between Intraperitoneal Tramadol (IPT) with or without Local Anesthetic (LA) and any control group. Electronic databases such as The Cochrane Library, Pubmed, Google Scholar, Herdin, and Science Direct were searched for studies using the search: (Surg* OR operat* OR lapa* OR cholecystectom* AND Tramadol* AND intraperitoneal).

Results

Nine randomized controlled trials were included. The pooled standardized mean difference demonstrated significantly lower post-operative pain scores at 30 minutes (SMD=-0.29, 95%CI= -0.51 to -0.06, p=0.01), 1 hour (SMD=-0.92, 95%CI= -1.65 to -0.19, p=0.01), 2 hours (SMD=-0.73, 95%CI= -1.33 to -0.12, p=0.02), 4 hours (SMD=-0.56, 95%CI= -0.92 to -0.20, p=0.002), 12 hours (SMD=-1.08, 95%CI= -1.82 to -0.34, p=0.004),and at 24 hours (SMD=-0.37, 95%CI= -0.60 to -0.13, p=0.002) in patients given IPT than the control group. We also observed significantly lower rescue diclofenac analgesia consumption (SMD= -1.78, 95%CI= -2.48 to -1.08, p<0.00001), longer time to first rescue analgesia (SMD= 2.14, 95%CI= 0.17 to 4.10, p=0.03), lower proportion of patients needing rescue analgesia (RR=0.65, 95%CI= 0.47 to 0.90, p=0.010), and lesser incidence of shoulder pain (RR=0.54, 95%CI= 0.33 to 0.88, p=0.01). We did not observe a significant difference in pain scores at 6 hours post-op (SMD=-0.27, 95%CI= -1.07 to 0.52, p=0.50) and total rescue opioid (SMD= -1.24, 95%CI= -2.72 to 0.25, p=0.10). Also, no significant differences were observed in the risk of nausea (RR=0.87, 95%CI= 0.72 to 1.03, p=0.11), vomiting (RR=0.75, 95%CI= 0.43 to 1.30, p=0.31), pruritus (RR=0.63, 95%CI= 0.19 to 2.07, p=0.45), and shivering (RR=0.80, 95%CI= 0.22 to 2.89, p=0.73). The findings were consistent in the subgroup of studies which compared IPT with LA versus LA only as the control group.

Conclusion

Intraperitoneal instillation of tramadol is an effective and safe strategy for managing postoperative pain in laparoscopic cholecystectomy. Its use within a multimodal analgesic framework can optimize pain relief, with low incidence of adverse effects associated with opioid use. As the field of postoperative pain management continues to evolve, further research is warranted to establish standardized dosage regimen and the technique of administration, as well as assess long-term outcomes associated with this approach.

2024-0318

Endotracheal intubation with the McGRATH™ MAC videolaryngoscope in a child with Pierre Robin syndrome : a case report

Yong Sup Shin[1*], Sujin Baek[1], Soomin Lee[1], Boohwi Hong[1], Woosuk Chung[1],
Sunyeul Lee[1], Chaeseong Lim[1], Youngkwon Ko[1], Yoon hee Kim[1]

1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea

Background

The Pierre Robin syndrome (PRS) presents micrognathia with retrogenia and glossoptosis. A cleft palate is present in 50% of cases. It is a major concern as infants with PRS are known to be difficult to intubate. Although many airway management protocols for difficult intubation have been described fiberoptic intubation. However, the use of fiberoptic intubation in children can be difficult, so alternative methods should be available. We report a case of successful intubation using McGRATH™ MAC videolaryngoscope during induction of general anesthesia in a child with PRS undergoing cleft palate surgery.

Methods

A 19-month-old male child weighing 15 kg with PRS underwent palatoplasty under general anesthesia due to an incomplete cleft palate. Preoperatively, the patient did not show signs of respiratory distress but was found to have micrognathia, glossoptosis and cleft palate. In anticipation of the possibility of difficult intubation, equipment for difficult intubation was prepared, including laryngeal mask airway, videolaryngoscope with different blade types and sizes.

The child patient was transferred from the preparation room to the operating room after intravenous ketamine (1 mg/kg). In the operating room, general monitoring including pulse oximetry was performed, and ketamine (1 mg/kg) was additionally administered intravenously and glycopyrrolate (0.004 mg/kg) was administered as induction of general anesthesia. After confirming that mask ventilation was working well, sevoflurane (2.5%) was inhaled and rocuronium (0.6 mg/kg) was administered. After sufficient muscle relaxation was achieved, endotracheal intubation was performed using McGRATH™ MAC videolaryngoscope with blade No 2. Although the glottic opening was not sufficiently visible, endotracheal intubation was performed relatively easily. Afterwards, inhalation anesthesia was maintained with sevoflurane (2-3%). The surgery was performed for approximately 2 hours without any particular abnormalities during general anesthesia. At the end of the surgery, sugammadex (4 mg/kg) was administered to reverse muscle relaxation, and extubation was performed after confirming sufficient return of spontaneous breathing. After extubation, the patient was transferred to the recovery room with stable respiration, blood pressure, pulse, and arterial pulse oxygen saturation, and the patient was transferred to the ward 1 hour later without any unusual symptoms.

Results

Because difficult intubation is a challenging situation in children with PRS, sufficient preanesthetic evaluation should be performed, the possibility of difficulty in endotracheal intubation should be predicted, and airway management should be prepared accordingly. At this time, the McGRATH™ MAC videolaryngoscope could safely be used in children with PRS.

2024-0319

Applying Basic Physiology as a Rescue Strategy in Adenocarcinoma Lung Presenting with Refractory Hypoxemia Followed by Definitive Advance Intervention

Jagdeep Sharma[1*], Lalita Mitra1, Harsimran Walia[1]

1. Department of Anaesthesia, Critical Care & Pain, Homi Bhabha Cancer Hospital & Research Centre, New Chandigarh, India

Background

Recruitment maneuvers are used for improving respiratory mechanics and in achieving oxygenation and ventilation targets. Various postural maneuvers have been used in tiding over crises. Minimally invasive advanced interventional techniques have helped significantly in reducing morbidity and mortality in critical scenarios.

Methods

A 62-year-old male with adenocarcinoma right lung presented with severe breathing difficulty and diaphoresis. Contrast-enhanced computed tomography scan of the thorax showed a large mass encasing the right main bronchus and all three lobar bronchi, causing complete luminal obstruction with the collapse of the right lung. He was agitated with a respiratory rate of 40/min. Hemodynamic parameters with heart rate 144/min, blood pressure 144/96 mmHg, and oxygen saturation (spO2) was 50% on room air. The patient was intubated and put on mechanical ventilation.

Even on a 100% fraction of inspired oxygen (Fi02), the spO2 remained at 70-75%. The right side of the chest was not expanding, and there were no bilateral breath sounds on auscultation. A chest x-ray also showed a complete right lung collapse (Figure 1).

The treatment was started, as refractory hypoxemia persisted, we applied basic physiology, viz. a positional maneuver and the patient made to the left lateral decubitus position. Within hours the oxygen saturation levels improved to 95- 96%. The FiO2 was reduced to 40% as the blood gas values improved. Repeat chest X-ray showed slight expansion of the right lung in the lateral decubitus position. After a multi-disciplinary discussion, a high dose of external beam radiation therapy was given, and the patient was successfully weaned and extubated in the left lateral decubitus position on day 3. The patient stayed stable in the high-dependency unit. On day 5 patient underwent right endobronchial stenting under general anesthesia with one-lung ventilation (lung isolation done with 37 Fr left-sided double-lumen tube. Following stenting in the interventional radiology suite, the CECT thorax showed full expansion of the right lung (Figure 2). He was extubated after overnight ventilation and shifted to the ward the following morning.

Patients with malignancy-induced airway obstruction are symptomatic with severe impairment of their quality of life. Airway obstruction can be endoluminal, extra-luminal, or a combination of both. Postural maneuver, like lateral decubitus position, helps improve oxygenation by reopening and keeping open non-aerated parts of the lung.

Results

In an era of advanced treatment shifts, revisiting and applying basic physiology can help bridge a crisis. Our case is an excellent integration of basic physiological maneuvers along with advanced interventional radiology techniques to provide a definitive solution for complex medical issues.

2024-0319

Figure & Table

Figure 1. Collapsed Lung due to Extra-luminal Right Main Stem Bronchus Compression

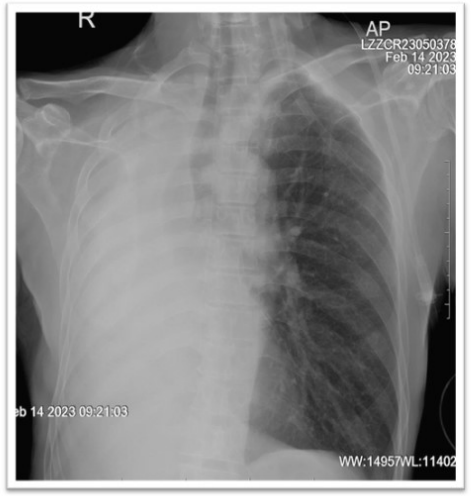
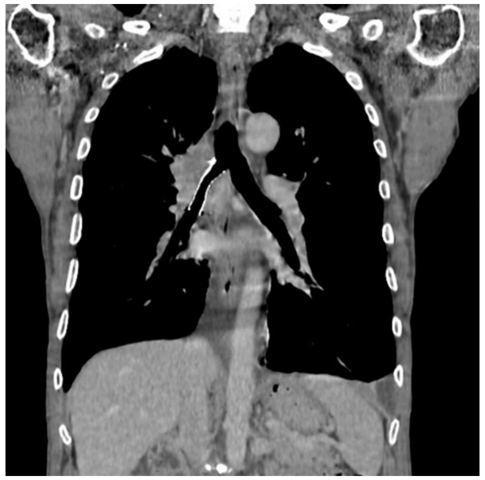


Figure 2. The Right Lung Expanded After the Endo-bronchial Stenting (CECT Thorax)



2024-0324

Anesthetic Management of Pediatric Patient with Uncorrected Double- Outlet Right Ventricle for CT-Scan Guided Percutaneous Hepatic Abscess Aspiration: A Case Report

Ma. Denise Cabral[1], Karen Adapon-sajo[1*]

1. Anesthesia Department, Las Pinas General Hospital and Satellite Trauma Center, Philippines

Background

Double outlet right ventricle (DORV) is a rare congenital heart defect where both the aorta and pulmonary artery arise from the right ventricle, disrupting normal blood flow and creating parallel systemic and pulmonary circulations. This condition, occurring in less than 1% of all CHDs, is often associated with additional anomalies like ventricular septal defects (VSD) and pulmonary stenosis.

Anesthesia management for DORV patients is complex due to their intricate cardiac physiology and risk of hemodynamic instability. Intravenous (IV) sedation is essential, allowing controlled sedation while maintaining spontaneous ventilation and cardiovascular stability. Pediatric patients with DORV undergoing non-operating room anesthesia (NORA) require meticulous planning to manage risks such as adverse reactions, respiratory issues, and cardiovascular events.

This case report describes the anesthetic management of an 8-year-old male with DORV and severe pulmonary stenosis requiring percutaneous aspiration for a hepatic abscess, emphasizing the challenges and effectiveness of IV sedation in achieving a successful outcome.

Methods

An 8-year-old male with congenital heart disease, diagnosed in 2019, presented with a suspected hepatic abscess, hepatomegaly, and an enlarged right kidney. He had a month-long history of intermittent fever, convulsions, and right upper quadrant pain. Born to a 21-year-old mother with routine prenatal care, the patient has polydactyly but passed newborn screening without issues. Upon admission, he exhibited tachycardia, low oxygen saturation, and abdominal tenderness. Physical examination revealed weakness, a systolic murmur, cyanosis, clubbing, and chest pain, along with symptoms of cough, nausea, vomiting, and swelling of the face, scrotum, and feet. This case underscores the complexities of DORV's cardiac anatomy and the necessity of tailored anesthesia, particularly intravenous (IV) sedation.

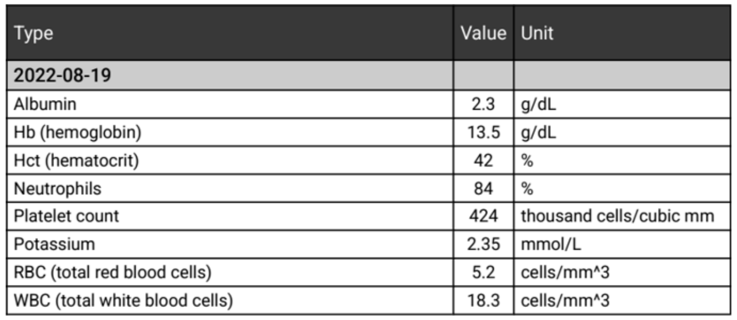
Results

This case report highlights the complexities of managing anesthesia in a pediatric patient with double outlet right ventricle (DORV) undergoing a non-operating room procedure. The use of intravenous sedation with midazolam and ketamine effectively provided sedation while maintaining cardiovascular stability. The successful outcome emphasizes the need for meticulous planning, close monitoring, and a collaborative approach in handling complex congenital heart defects. It demonstrates the importance of tailored care plans and interdisciplinary teamwork to achieve optimal results, as reflected in the patient's smooth recovery and resolution of symptoms.

2024-0324

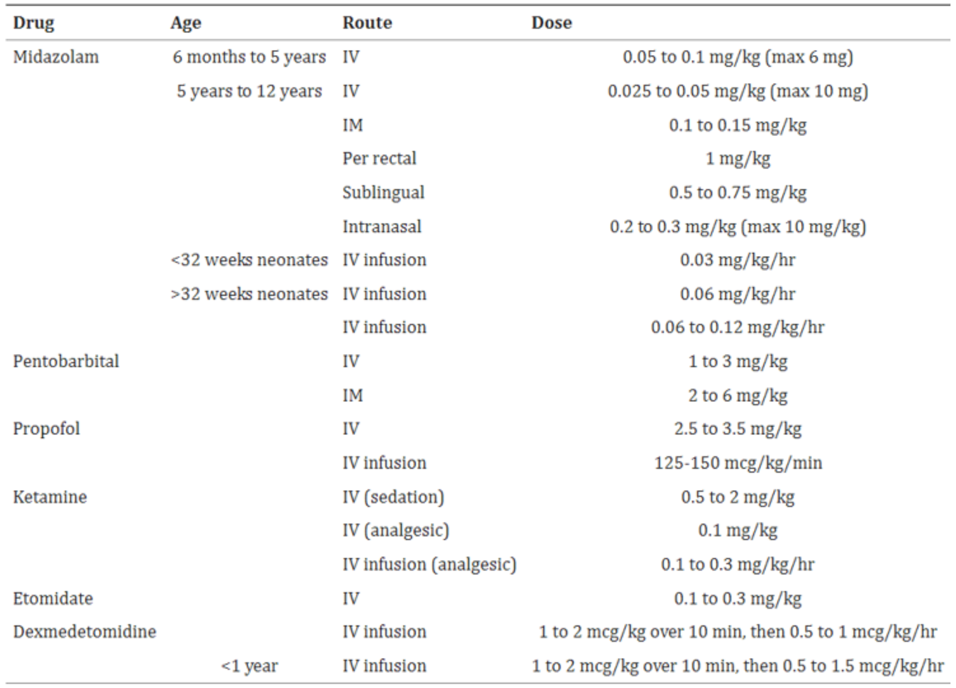
Figure & Table

Table 1. Laboratory testing revealed elevated white blood cell count, neutrophilia, thrombocytosis, low albumin levels, and low potassium levels, which are indicative of an inflammatory process.



Type	Value	Unit
2022-08-19		
Albumin	2.3	g/dL
Hb (hemoglobin)	13.5	g/dL
Hct (hematocrit)	42	%
Neutrophils	84	%
Platelet count	424	thousand cells/cubic mm
Potassium	2.35	mmol/L
RBC (total red blood cells)	5.2	cells/mm^3
WBC (total white blood cells)	18.3	cells/mm^3

Table 2. Dosages of commonly used drugs for sedation in children.



Drug	Age	Route	Dose
Midazolam	6 months to 5 years	IV	0.05 to 0.1 mg/kg (max 6 mg)
	5 years to 12 years	IV	0.025 to 0.05 mg/kg (max 10 mg)
		IM	0.1 to 0.15 mg/kg
		Per rectal	1 mg/kg
		Sublingual	0.5 to 0.75 mg/kg
		Intranasal	0.2 to 0.3 mg/kg (max 10 mg/kg)
	<32 weeks neonates	IV infusion	0.03 mg/kg/hr
	>32 weeks neonates	IV infusion	0.06 mg/kg/hr
		IV infusion	0.06 to 0.12 mg/kg/hr
Pentobarbital		IV	1 to 3 mg/kg
		IM	2 to 6 mg/kg
Propofol		IV	2.5 to 3.5 mg/kg
		IV infusion	125-150 mcg/kg/min
Ketamine		IV (sedation)	0.5 to 2 mg/kg
		IV (analgesic)	0.1 mg/kg
		IV infusion (analgesic)	0.1 to 0.3 mg/kg/hr
Etomidate		IV	0.1 to 0.3 mg/kg
Dexmedetomidine		IV infusion	1 to 2 mcg/kg over 10 min, then 0.5 to 1 mcg/kg/hr
	<1 year	IV infusion	1 to 2 mcg/kg over 10 min, then 0.5 to 1.5 mcg/kg/hr

2024-0326

Cruising through Crouzon's syndrome

Uma Kamat[1], **Sanjeevani Zadkar**[1*], **Anita Shetty**[2]
1. Anaesthesia, Seth G.S. Medical College & KEM Hospital, India
2. Anaesthesia, R.N Cooper Hospital & HBT trauma center, India

Background

Crouzon's syndrome is an autosomal dominant syndrome due to FGFR2 gene mutation commonly.Hydrocephalus due to aqueductal stenosis in a case of craniosynostosis is seen in FGFR3 gene mutation.

It is associated with early fusion of cranial sutures leading to multiple anomalies of head & face. Difficult airway is a major concern faced by an anesthesiologist in these Postoperative airway edema could further compound the airway dilemma.

Methods

6 month old male child, weighing 5.3 kg,presented with enlarged head,dysmorphic facies & delayed milestones to the paediatric department.He was referred to neurosurgery for craniosynostosis repair(cranioplasty).Patient had proptosis,enlarged head & high arched palate.MRI brain revealed clover leaf skull/ turricephaly,enlarged lateral ventricles with aqueductal stenosis.Routine blood investigations, Chest Xray,2 D echocardiography,USG abdomen revealed no other significant systemic anomalies.Parents of the child were counselled regarding high risk & need for postoperative ICU stay. Difficult airway crash cart was kept ready.After attaching standard ASA monitors,induction done with 02 + sevoflurane,0.5 mcg/kg Fentanyl IV, Propofol 2 mg/kg IV. Mask ventilation was possible only after oral airway insertion.Videolaryngoscopy guided intubation showed CL 2 a glottic view & 4 mm uncuffed ETT was passed.Intraoperative course was uneventful.Blood loss was 120 ml of which 100 ml replaced slowly over 2 hours. Iv Paracetamol for Pain relief(15mg/kg) given.Postoperative patient was extubated & shifted to ICU for observation on supplemental 02.Patient developed tachypnea after 6 hrs (RR-60 / min) along with fever spike. Paediatric opinion was done to rule out airway edema or chest Adrenaline nebulization & steroids did not resolve the tachypnea.Patient kept on HFNC. Patient shifted to higher antibiotics after high WBC count.

Next day patient developed left sided focal convulsions & fever – patient intubated.During intubation,purulent secretions seen in posterior pharynx. Inj.Levera 20mg/kg/ day bd started.He was extubated on postoperative Day 3.

Patient maintained 99% Sp02 on high flow nasal 02,but had persistent bradycardia & HTN- 3% NaCL infusion started to decrease ICT.He was taken up for right sided ventriculoperitoneal shunt (I/v/o raised ICT) after 10 days.Recovery was uneventful post VP shunt.

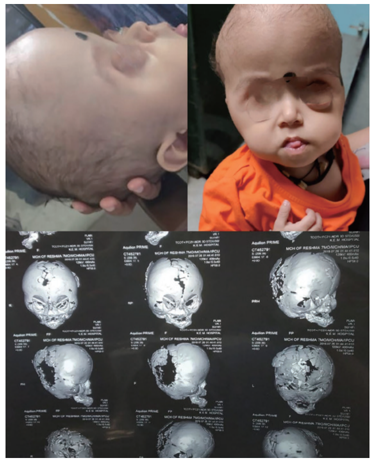
Results

Crouzon's syndrome poses a multitude of challenges to the anesthesiologist.Airway challenges are the most dreaded. Proper Examination, planning, preparation along with multidisciplinary approach goes a long way in helping us cruise through this challenge.Also postoperative vigilance for any complications is what an anesthesiologist needs to be mindful of.

2024-0326

Figure & Table

Firgure 1.



Firgure 2.

2024-0344

The Impact of Frailty on Postoperative Complications and Resource Utilization in Older Patients Undergoing Hip Fracture Surgery

Hiroshi Yonekura[1*]

1. Department of Anesthesiology and Pain Medicine, Fujita Health University Bantane Hospital, Japan

Background

Patients undergoing hip fracture surgery are generally elderly, often with multiple comorbidities, and commonly in a frail condition. Frailty, a state of increased vulnerability to adverse events in older patients, has become an essential clinical consideration for elderly populations undergoing hip fracture surgery. However, the impact of frailty on postoperative outcomes and resource utilization in these patients remains unclear. Therefore, it is crucial to understand the role of frailty in patients undergoing hip fracture surgery. We analyzed the association between preoperative frailty and severe postoperative complications and resource utilization using a nationally representative electronic medical records database in Japan.

Methods

We included all patients aged 65 years and older who underwent hip fracture surgery between April 2005 and December 2021. Patients without preoperative serum creatinine values, those with severe kidney failure, and those on dialysis were excluded. Frailty was assessed using the Hospital Frailty Risk Score (HFRS), with a score of ≥5 indicating frailty. The primary outcome was acute kidney injury (AKI) within 7 days postoperatively. Secondary outcomes included postoperative complications (major adverse kidney events [MAKE], cardiac, and pulmonary) within 30 days, as well as resource utilization, such as ICU admission, transfusion, and length of hospital stay. For sensitivity analyses, we modeled HFRS as a continuous variable and used restricted cubic spline curves with four knots to explore non-linear associations between HFRS and outcomes.

Results

Between April 2005 and December 2021, a total of 29,684 hip fracture patients were included, of whom 17,656 (59.5%) were classified as frail (HFRS ≥ 5). The rate of AKI was 3.6% in the non-frail group and 4.5% in the frail group. Compared to the non-frail group, the adjusted odds ratio for the frail group was 0.97 (95% CI: 0.84–1.11, P=0.62) for AKI, 1.12 (95% CI: 0.87–1.45, P=0.39) for MAKE30, 1.31 (95% CI: 0.90–1.92, P=0.16) for cardiac complications, and 1.89 (95% CI: 1.61–2.22, P<0.0001) for pulmonary complications. The frail group also had significantly higher transfusion rates and longer hospital stays. Restricted cubic spline curves showed that the risk of postoperative pulmonary complications and transfusion use increased monotonically with higher HFRS.

Conclusion

This large, retrospective, nationwide cohort study demonstrated that preoperative frailty, as measured by the HFRS, was significantly associated with an increased risk of pulmonary complications but not with AKI, MAKE30, or cardiac complications. Screening elderly hip fracture patients using the HFRS may help identify those at higher risk for pulmonary complications and increased resource utilization.

2024-0347

Anaesthetic Management of Tracheal Stenosis Repair: Challenges in Cross-Field Ventilation

James Joseph[1*], Lee Kok tong[1], Mazlilah Abdul malek[1], Zuhrah Zakaria[1], Norly Ismail[1]

1. Cardiothoracic Anaesthesia and Perfusion, Hospital Sultan Idris Shah, Serdang, Malaysia

Background

Tracheal stenosis is a relatively rare complication of prolonged tracheal intubation and can present as a potentially life-threatening emergency. Tracheal resection with primary re-anastomosis is a well-defined life saving procedure for severe tracheal stenosis refractory to balloon dilatation where anaesthetic management is crucial in ensuring a favourable outcome. We report the overwhelming challenges in anaesthetic management during tracheal resection for severe tracheal stenosis.

Methods

Case 1:

39-year-old man with a complex medical history of liver cirrhosis, bronchiectasis and recurrent chest infections requiring multiple endotracheal intubations, presented with shortness of breath. Lung HRCT: Post-PTB lung fibrosis with bronchiectasis, severe tracheal stenosis (lumen measuring 0.2cm, 0.5cm in length) at level of C6/C7 vertebra. Intubated with ETT 6.5mm. Level of stenosis identified with bronchoscopy. ETT withdrawn to upper trachea, lesion transected, new ETT inserted into distal trachea to resume ventilation (cross-field ventilation). After end-to-end anastomosis done, the previous ETT was pushed beyond anastomosis and patient was weaned in the ICU.

Case 2:

45-year old man with psychiatric disorder on treatment, history of requiring endotracheal intubation for drug overdose. Presented with worsening dyspnea and stridor five months post-intubation. CECT Neck and Thorax revealed tracheal stenosis at level C7/T1 with narrowest lumen measuring 0.4cm. He was intubated with ETT 5.5mm. Flexometallic tube size 5.5mm was inserted by surgeon into distal trachea. Stenosis across 3 tracheal rings were resected with primary anastomosis. Prior to tying down anterior wall sutures, new ETT size 7.5mm was pushed beyond anastomosis site by fibreoptic-guided exchange and patient was weaned in the ICU.

Results

Both patients had successful tracheal resection and reconstruction surgeries with a comprehensive peri-operative management: pre-operative counselling, extensive outline of cross field ventilation and a multi-disciplinary pre/intra/postoperative care. Both patients were able to be weaned within 24 hours, extubated and had uncomplicated post operative recovery period.

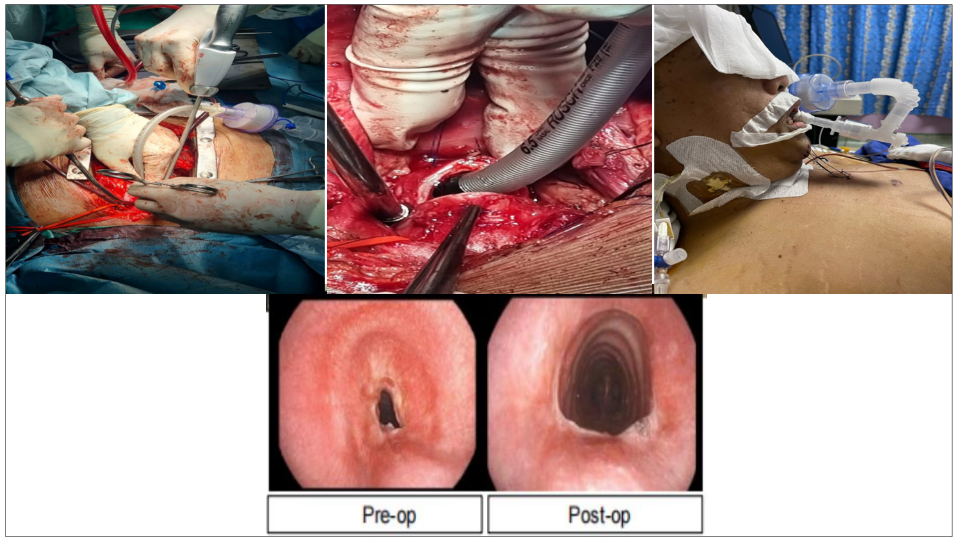
Learning points:

1. The success in maintaining anaesthesia and securing airway whilst aiming to provide a good surgical access in complex cases such as tracheal resection relies on extensive pre-operative planning, communication and teamwork between the anaesthetist and the surgeon.
2. Cross field ventilation technique is a safe modality, proven to be successful in tracheal resection surgery negating the need of extracorporeal membrane oxygenation (ECMO) or cardiopulmonary bypass (CPB) despite the demonstrated success of these two alternatives.
3. Cross field ventilation technique is associated with less perioperative blood loss compared to surgery done utilizing ECMO or CPB.

2024-0347

Figure & Table

Firgure 1.



101ST KOREANESTHESIA 2024

The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

AWARDS

Title Awards	Winner
KSA Grand Academic Award	Jungchan Park (Sungkyunkwan University)
KSA Academic Award	Seong-Hyop Kim (Konkuk University)
KJA Research Award	Hyung Tae Kim (University of Ulsan) Seong-Soo Choi (University of Ulsan)
APM Research Award	Seonghoon Ko (Jeonbuk National University)
Young Researcher Award	Susie Yoon (Seoul National University)
KSA-WSPC Award	Jae Hun Kim (Konkuk University)
Lee Young-ju KSA Award	Hyun-Jung Shin (Seoul National University) Junghee Ryu (Seoul National University)

101st KOREANESTHESIA 2024

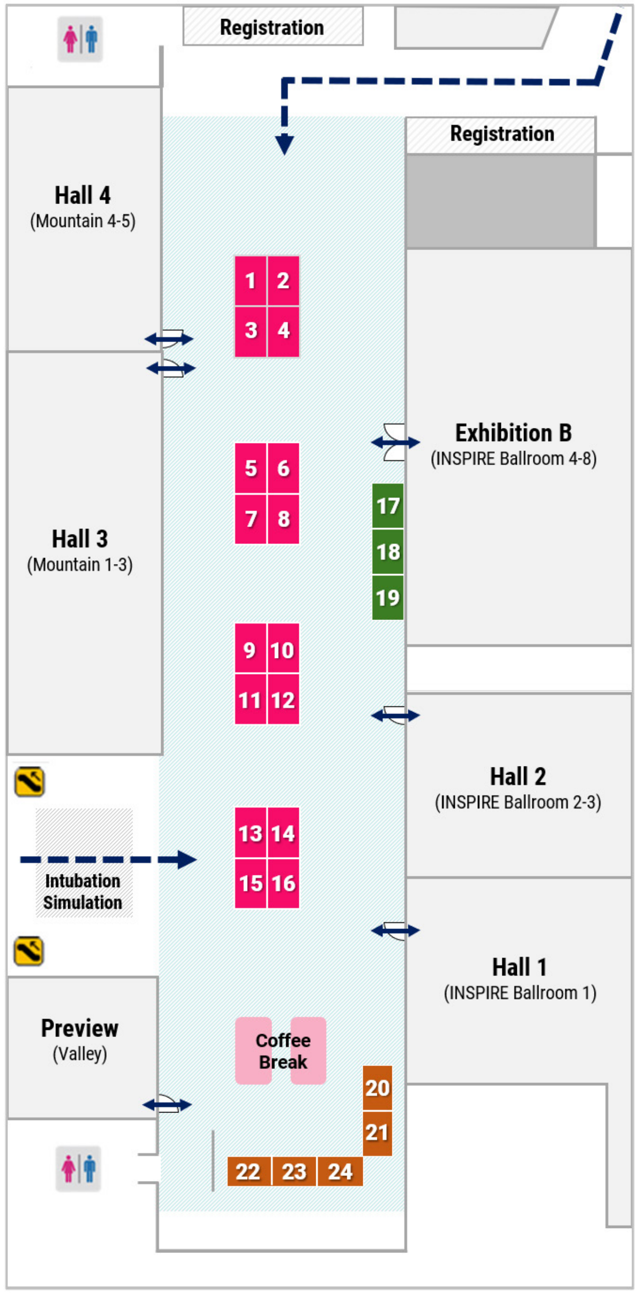
The 101st Annual Scientific Meeting of the Korean Society of Anesthesiologists

EXHIBITION

| PARTNERS | Medtronic Hana Pharm Co., Ltd. Edwards Masimo

Exhibition A - INSPIRE Ballroom Foyer

🟥 Partner 🟩 Platinum 🟧 Gold ⬜ Silver 🟦 Basic 🟫 Special Guest



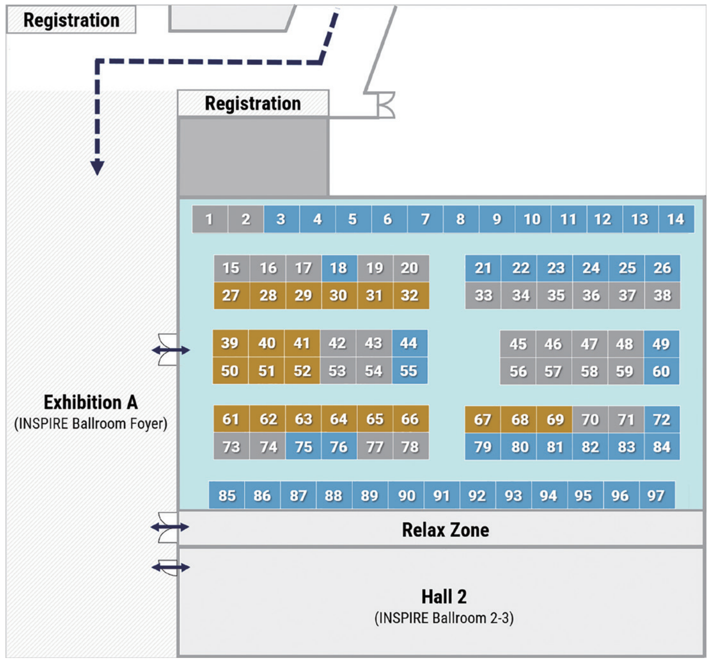
Partner	
A1-4	Hana Pharm Co.,Ltd.
A5-8	Edwards Lifesciences Korea
A9-12	Masimo
A13-16	Medtronic Korea

Platinum	
A17-19	HK inno.N

Special Guest	
A20	ASA
A21	AACA
A22	KPS + KJP
A23	APM
A24	KJA

Exhibition B - INSPIRE Ballroom 4-8

🟥 Partner 🟩 Platinum 🟧 Gold ⬜ Silver 🟦 Basic 🟫 Special Guest



Gold	
B27-29	BORYUNG
B30-32	UPINEMED
B39-41	ACEMEDICAL
B50-52	Roche Diagnostics Korea
B61-63	GE HealthCare
B64-66	VIVOZON
B67-69	HANLIM PHARM

Silver	
B1-2	PHILIPS KOREA
B15-17	UNIMEDICS
B19-20	BEYONDMED CO.,LTD
B33-34	Solventum
B35-36	PharmaResearch
B37-38	B. Braun Korea
B42-43	WOOYOUNG MEDICAL
B45-46	Pharmbio Korea Inc.
B47-48	KyongBo Pharmaceutical Co.,Ltd
B53-54	Draeger Korea
B56-57	Promedics
B58-59	Fresenius Kabi Korea
B70-71	Ilsung Pharmaceuticals
B73-74	DAIICHI SANKYO KOREA
B77-78	BCWORLD PHARM

Basic			
B3	Mindray	B72	Seoil Pacific Corporation
B4	BLUEDOC	B75	LEEJUNGTRADE
B5	Nihon Kohden Korea	B76	C&Q MEDICAL Co., Ltd
B6	WERFEN	B79	ChinooMTech
B7	PILMEDICARE	B80	J MEDICAL
B8	Teleflex Korea	B81	LUCKY MEDICAL
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101-3503, Lotte Castle President, 109
Mapo-daero, Mapo-gu, Seoul, 04146, Korea
Tel +82-2-792-5128 / **Fax** +82-2-792-4089
Homepage http://www.anesthesia.or.kr
E-mail anesthesia@kams.or.kr

| Edited by | **MWNETWORKS**
4F 704, Nonhyeon-ro, Gangnam-gu, Seoul, Republic of Korea
Tel +82-2-558-3110 / **Fax** +82-70-8270-3110
Homepage http:///www.mwnetworks.co.kr/mwnetworks
E-mail info@mwnetworks.co.kr

연수평점 안내

프로그램 구분	11월 7일(목)	11월 8일(금)	11월 9일(土)
메인프로그램	6평점	6평점	6평점
추계연수강좌	6평점	–	–
KMA 필수교육	–	–	2평점
지도전문의교육	–	–	4평점

- ! **1일 최대 6평점** (체류시간 1시간 당 1평점 부여)
- ! 최초 입장과 최종 퇴장 기준으로 평점이 산정됩니다.(Break 및 점심 시간 제외)
- ! 11월 9일(土) KMA 필수교육을 수강하시는 경우, 일반평점은 **최대 4평점**만 인정됩니다.
- ! 최종 평점 확인은 학술대회 종료 2주 후 홈페이지에서 확인 가능합니다.

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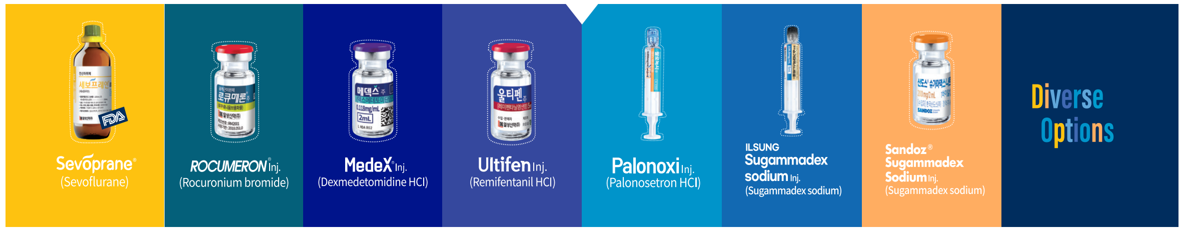

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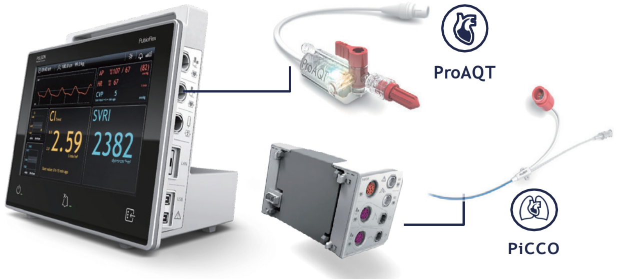

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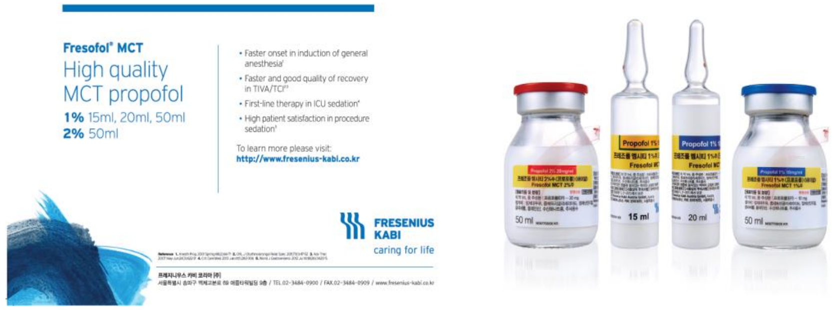
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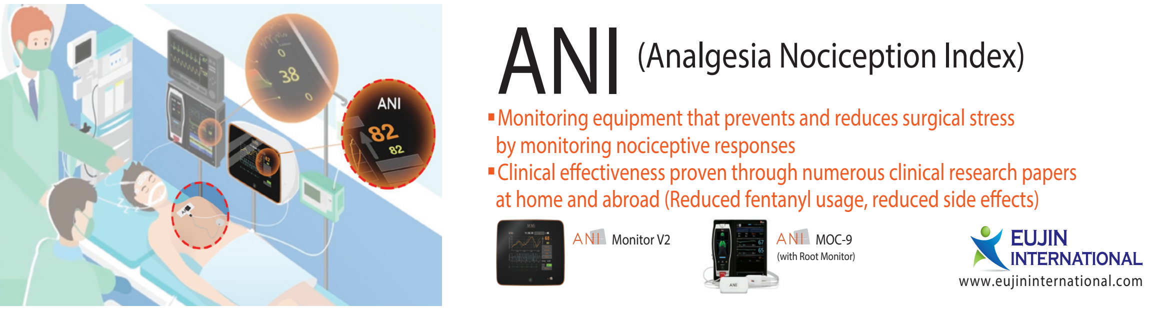
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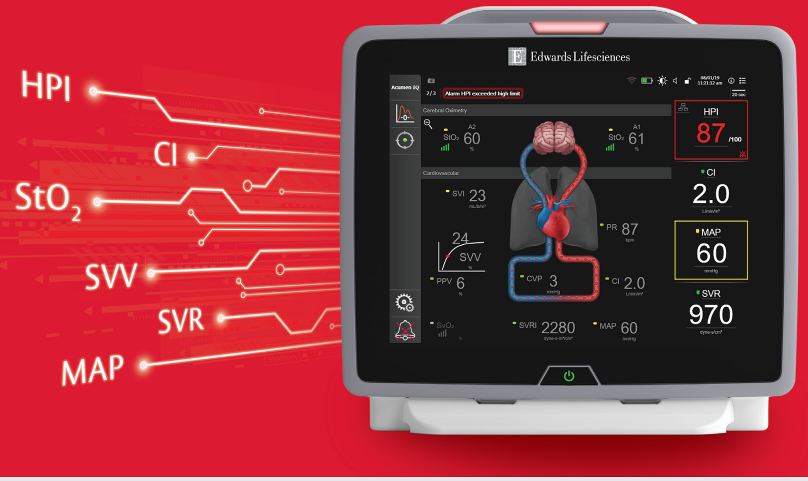

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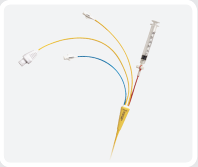

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