

Volume 1 Issue 5 ~ Jul-Sep 2024

The Anaesthesia Pulse

The Official Newsletter of ISA Noida GB Nagar

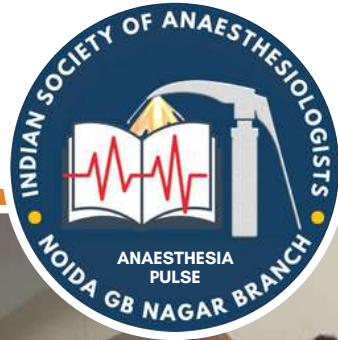


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Message from President ISA Noida GBN



Dr Peeyush Chaudhary

Dear Friends,

It is that time of the year once again where festivities are in the air and 16th October, our own Anaesthesia Day is just round the corner too. We celebrate the administration of the first successful anaesthesia by WTG Morton way back in 1846.

The anaesthesia fraternity of Noida, in its persistent zeal of academic pursuits has diligently been holding the monthly academic meets at various hospitals.

Once again our branch has been given a prestigious opportunity to host an ISA National Sponsored CME which we have decided to club with a Doctor's Cricket League in the month of Feb 2025. We expect all the members of the organisation to pitch in with their contribution and make it successful.

**Long live ISA
With best wishes,**

Dr Peeyush Chaudhary



Message from immediate past President ISA Noida GBN



Dr Kapil Singhal

Dear Friends,

As the term of the current team comes to a close and I move on to take the responsibility of President of ISA UP State, I want to take a moment to express my deepest gratitude and appreciation to each and every one of you. It has been an honor and privilege to serve this esteemed organization as founder president.

Over the past 03 years, we have made significant progress and have made ISA Noida GB Nagar branch as one of the best branches across the country. We have worked tirelessly to keep the momentum going and achieve so many laurels at an individual and branch level. Not only office bearers and the executive team but each and every member has played critical roles in keeping our branch growing. Among the numerous achievements, it's noteworthy to mention the quarterly newsletter under the guidance of our editor Dr Poonam Motiani; even many state branches are unable to start or maintain it.

Celebration of Foundation Day and 2nd Annual CME in the month of July was another feat seldom achieved by any city branch. I am proud of what we have achieved together, and I am confident that our branch will continue to thrive under the leadership of our incoming President Dr Peeyush Chaudhary, and his new team.

I encourage each of you to remain engaged, motivated, and committed to ongoing improvement and growth of branch. Continue to prioritize evidence-based practice, stay abreast of emerging trends and technologies, and support one another in your daily work.

In the end, I'll request you all to celebrate World Anaesthesia Day at your workplace and make it memorable for everyone.

Thank you for your dedication to our field. Together, we can achieve great things.

**Sincerely,
Jai Hind, Jai ISA**

Dr. Kapil Singhal



Message from Hon. Secretary ISA Noida GBN



Dr Mukul K. Jain

Namaste

As the Secretary of ISA Noida GB Nagar branch, it is with great pride and a sense of purpose that I present this journal. This publication serves not only as a record of our activities and achievements but also as a reflection of our collective efforts and aspirations. Throughout the year, we have faced challenges and celebrated successes, all while fostering a sense of community and collaboration.

In these pages, you will find accounts of our initiatives, insights from our members, and highlights of our events. This journal embodies our commitment to transparency, engagement, and continuous improvement. I hope it inspires further dialogue and encourages new ideas as we strive to enhance our impact within the organization and the broader community.

Thank you for your dedication and contributions. Together, we are building a vibrant future.

Sincerely,

Dr. Mukul Jain



Dr Poonam Motiani Editor's note

Dear Esteemed Readers,

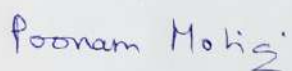
Welcome to the fifth issue of our Own Anesthesia newsletter, The Anaesthesia Pulse, our platform to celebrate our achievements, share knowledge, and reinforce our commitment to excellence in patient care.

We have an exciting lineup in this issue, starting with a recap of our recent Foundation Day and 2nd Annual CME in the month of July. It was a wonderful opportunity to connect, share knowledge, and celebrate our achievements as a community.

In this issue, we also delve into several critical topics including low flow anesthesia, discussing its benefits and challenges as we aim to reduce our environmental impact, on NORA (non-operating room anesthesia), highlighting best practices for safe administration in diverse settings; a discussion on CVP malposition, offering strategies for prevention and management and on Anaesthetic Management of an Elderly Patient with Severe Mitral Stenosis for Decompressive Laminectomy.

We would also like to put on record our utmost appreciation for Dr Kapil Singhal, our Branch founder President, as he moves on to take the responsibility of President ISA UP State for his infectious enthusiasm, perseverance and untiring efforts. I extend my heartfelt thanks to ISA Noida GBN Executive Committee members, our contributors and our editorial team whose unwavering dedication makes our newsletter possible. Thank you for your continued support and readership. We look forward to your feedback and suggestions!

Warm regards,



Dr Poonam Motiani



Achievement of the branch and its members



A: 2ND ANNUAL CME AND FOUNDATION DAY OF ISA NOIDA GB NAGAR 2024

The field of Anaesthesia is rapidly growing, taking giant strides in not only making complex surgeries safe for the patients but also relieving pain and imparting expertise in managing the critically ill. In the pursuit of achieving these goals, there has been a sea of change in patient management by the inculcation of technology and innovation in the field of anaesthesia. It becomes imperative that anaesthesiologists are geared up to the challenge of understanding these intricacies and adopting them to ensure the safe and ethical practice of their specialty. Keeping this in mind, Annual CME was organised on 'Emerging trends in Neuroanaesthesia and its implications in managing Neurosurgical problems'.

ISA NOIDA Gautam Buddha Nagar City Branch was inaugurated on 23rd July 2021. It is a vibrant, academic and social platform for sharing knowledge and providing academic and professional support to each other. Since the time of inception, our branch tries to organise different type of activities throughout the year under banner of ISA and is quite the leader in it. 2nd Annual CME and Foundation Day celebration was organised to bring anaesthesiologists of the district on same platform not only for sharing knowledge but also to have a fun-filled evening with family and friends accompanied by music and dinner.

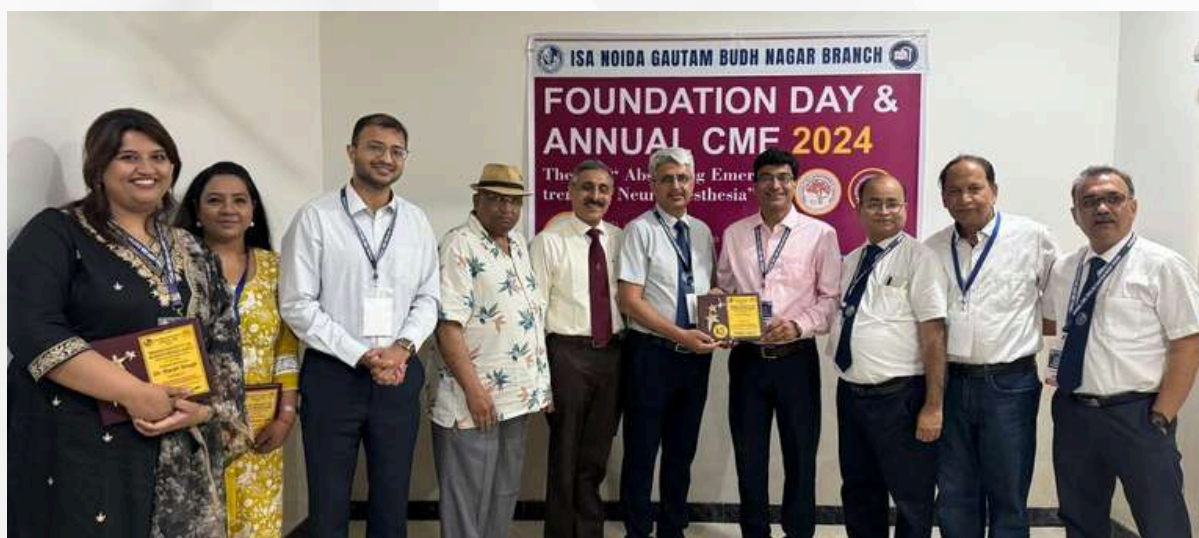
Chief Guest Dr R.K Bhasker (GC ISA National), Guest of Honour Dr Apurva Agarwal (President ISA UP State), Chief Patron Dr Srikant Sharma (Director Kailash Hospital and Neuro Institute, Noida) graced the occasion of Flag Hoisting and inauguration ceremony along with office bearers of ISA Noida GB Nagar. Organising secretary Dr Kapil Singhal gave the welcome address when he highlighted various achievements of branch and also encouraged the members to participate in various ISA activities at branch, state and national level. Dr Peeyush Chaudhary President ISA Noida GB Nagar gave vote of thanks. Inauguration ceremony ended with singing of the National Anthem.

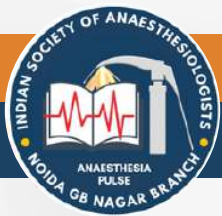
Annual CME was a great success in terms of around 110 paid registrations and a full house attendance at the time of scientific deliberations, where around twenty lectures, video presentations and panel discussions were conducted by eminent faculty in the field of Neuroanesthesia and Critical Care. Icing on the cake was Panel discussion on issues of private practitioners (private practitioners forum) which witnessed active participation from the members.

General Body Meeting was conducted in the evening and the minutes of meeting recorded.

Musical night was arranged at the lovely venue of Noida Golf Course where more than hundred members of families and friends enjoyed the evening with dance, DJ, drinks and dinner.







B. First Foundation Day CME 2024, Post Graduate Institute of Child Health, Noida

On the occasion of the First Foundation Day celebration of the Department of Paediatric Anaesthesia, PGICH, Noida, a CME was conducted on the 5th of August 2024, in collaboration with ISA Noida GBN.

Prof (Dr.) Arun K Singh, Director, PGICH was the Chief Patron; Dr Mukul K. Jain, Professor and Head of Department and Dr Poonam Motiani, Professor, were the Organising Chairpersons; Dr Sunaakshi Puri, Assistant Professor, the Organising Secretary and Dr Amrit Kaur, Assistant Professor, the Treasurer. The occasion was graced by Dr CK Dua as the Chief Guest. Other eminent faculty who graced the occasion from various institutions across Delhi and Noida included Dr D. K. Singh (Dean, PGICH), Dr Kapil Singhal, Dr Munisha Aggarwal, Dr U. C. Verma, Dr A.K. Sethi, Dr Ranju Singh, Dr Nazia Nazir, Dr Asha Tyagi to name a few. In addition, the faculty and residents from various departments at our institute, the ex-IAPA fellows and senior residents, and the nursing and technical staff attended the function and contributed in its successful conduct. Following a welcome lunch, the program started with the inauguration program, lamp lighting, brief introduction of the department and its progress, cake cutting ceremony and launch of a manual of paediatric anaesthesia, compiled by our department.

The academic program included three lectures and one panel discussion by anesthesiologists and non-anesthesiologists. A poster competition was also held in between the sessions. The program was concluded with the felicitation ceremony and a vote of thanks by the esteemed head of department, followed by high tea.




Foundation day CME 2024

Department of Paediatric anaesthesia, PGICH, Noida

In collaboration with ISA Noida GBN

MONDAY
5th August 2024

1-4 PM

Postgraduate Institute of Child Health, Noida

Commitment to Comfort : Illuminating Paediatric Anaesthesia Principles

Talks and panel discussion by eminent faculties
Poster competition : Safe Anaesthesia for Children
(For medical and paramedical staff)

Patron	Organising Chairman	Organising Co-Chairman	Organising Secretary	Treasurer
				
Prof Arun K. Singh Director PGICH, Noida	Dr Mukul K Jain Professor and Head Paediatric Anaesthesia, PGICH	Dr Priyanshi Mittani Professor Paediatric Anaesthesia, PGICH	Dr Sonakshi Parit Assistant Professor Paediatric Anaesthesia, PGICH	Dr Amrit Kaur Assistant Professor Paediatric Anaesthesia, PGICH





A. AUGUST 2024

The monthly meet was conducted by ESI, Noida Hospital on 3 August 2024 in an Online mode. The talks included "A comparison of Ambu Aura gain and LMA proSeal in adult patients posted for laparoscopic surgeries" by Dr Shruti Gupta, Senior resident. This session was moderated by Dr Seema Kalra, Senior Consultant and HOD ESI hospital. Another interesting topic "Anaesthesia and AI, recent trends" were presented by Dr Barkha, Medical Officer and moderated by Dr Vijayshree Kataria, Consultant Anaesthesiologist

SYNOPSIS OF THE TALKS

1. A comparison of Ambu Aura gain and LMA ProSeal in adult patients posted for laparoscopic surgeries"

Second generation supraglottic airways are increasingly being used in surgical patients undergoing laparoscopic surgery. Preventing aspiration at higher airway pressures may be at the expense of a higher cuff pressure which can impair mucosal perfusion. We attempted to elucidate whether Ambu AuraGain™ (AAU) would provide a higher oropharyngeal leak pressure (OLP) with a lower mucosal pressure in comparison to ProSeal™ laryngeal mask airway (PLMA).

The introduction of the ProSeal™ laryngeal mask airway (PLMA) (Teleflex®, NC, USA), a second-generation SGA, led to its clinical use in patients undergoing laparoscopic surgery. The ability of an SGA to prevent aspiration at higher airway pressures is desirable, but it may be at the expense of a higher cuff pressure which may impair mucosal perfusion. This may result in greater airway morbidities. Thus, an ideal SGA would provide a high oropharyngeal leak pressure (OLP) with a low pharyngeal mucosal pressure.

The Ambu AuraGain™ (Ambu®, DK) is a disposable, preformed second generation SGA with integrated gastric access and intubation capability, introduced some time back.

In laparoscopic surgeries, the incidence of suboptimal and failed ventilation is often high with SGAs owing to the high peak airway pressures required during Carbo peritoneum. Second generation SGAs allow higher airway pressures due to their effective seal.

In our study, we observed that the OLP of AAU was comparable to that of PLMA. AAU provides adequate sealing pressures and effective ventilation with lower calculated pharyngeal mucosal pressure, compared to PLMA.

2. Anaesthesia and AI, recent trends

Artificial intelligence (AI) is defined as the broad concept of machines designed to understand and perform tasks on their own in a “smart” manner. It can be thought of as the programming of computers to simulate cognitive functions of the human mind, such as pattern recognition and problem solving. One important feature of AI is the ability to learn; that is, modification of actions based on previous experience. However, only a minority of AI-based studies focus on integration of AI in daily clinical workflow in anaesthesia; and just a handful of these have been shown to impact clinical care. Improvement of anaesthesia provider's productivity and patient outcome by using “augmented intelligence” based on pooled patient data as well as incorporation of clinical guidelines is the underlying goal for adoption of AI.

In India, we foresee multiple difficulties starting from data viability, standardization of monitoring, acceptance, and validation of basic technological tools. Handwritten medical records continue to be the rule rather than an exception in advanced surgical setups. The timeline may be unpredictable, yet the medical profession cannot steer clear of this eventuality.



**INDIAN SOCIETY OF ANAESTHESIOLOGISTS
NOIDA GAUTAM BUDH NAGAR
MONTHLY CME: AUG 2024**

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**SESSION 1:
COMPARISON OF AMBU AURA GAIN AND LMA PROSEAL IN ADULT PATIENTS SCHEDULED FOR LAPROSCOPIC SURGERIES.**

PRESENTER
DR SHRUTI GUPTA
SENIOR RESIDENT
DEPARTMENT OF ANESTHESIOLOGY, ESIC NOIDA

MODERATOR
DR SEEMA KALRA
SENIOR CONSULTANT AND HOD, DEPARTMENT OF ANESTHESIOLOGY ESIC NOIDA

**SESSION 2:
ANESTHESIA AND AI - RECENT TRENDS**

PRESENTER
DR BARKHA
MEDICAL OFFICER,
ESIC NOIDA

MODERATOR
DR VIJAYSHREE KATARIA
CONSULTANT, DEPARTMENT OF ANESTHESIOLOGY ESIC NOIDA

DATE: 3 AUGUST 2024 | TIME: 4 PM | MODE: ONLINE

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Dr. Anurag Choudhary (Joint Secretary)
Dr. Somnath T. Bhatia (Treasurer)

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B. SEPTEMBER 2024

The monthly meet was conducted by Cloudnine Hospital on 30 September 2024 in an Offline mode. The talks included “Anaesthesia for obese Parturient” by Dr Nidhi Sinha, Consultant Anaesthesiologist and “ERAS Protocol” by Dr Amrita Nandi, Consultant Anaesthesiologist. The session was moderated by Dr Peeyush Chaudhary, SR Consultant and HOD Anaesthesia. This was followed by a fun activity with the Audience, and Executive Committee Meeting

SYNOPSIS OF THE TALKS

1. Anaesthesia for obese Parturient

Maternal obesity is increasing worldwide and is associated with adverse outcomes for both mother and baby. Multidisciplinary team involvement is vital for managing the parturient with obesity. Neuraxial analgesia should be offered early in labour. Continuous neuraxial techniques are optimal for Caesarean delivery. General anaesthesia poses significant risk in these high-risk patients.

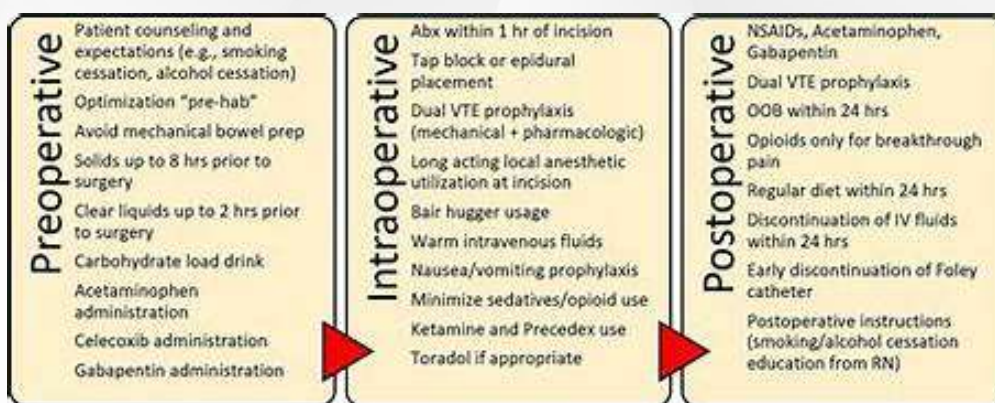
The importance of patient positioning, preoxygenation, presence of adequate personnel and difficult airway equipment cannot be emphasised enough.

Obesity also increases the risks for postpartum complications, including infection (endometritis, wound, urinary and respiratory), venous thromboembolism (VTE), respiratory depression and cardiovascular complications. Postpartum management should therefore focus on minimising the risk of developing these complications. The location of where the parturient with obesity is best managed after surgical delivery should be individualised; it should account for the presence of other comorbidities, peripartum complications and need for invasive monitoring or respiratory support. Parturient with obesity who are otherwise healthy with an uncomplicated delivery can be safely managed on a postpartum ward. Patients identified as requiring a higher level of postoperative monitoring and treatment may require admission to maternal high-dependency unit or ICU.

2. ERAS Protocol

Enhanced recovery after major surgery protocols is evidence-based, multimodal approaches used to facilitate recovery after major surgical procedures in the preoperative, intraoperative, and postoperative periods. Anaesthesia management plays a key role in providing standardized care and achieving earlier recovery.

The ERAS system, due to its relatively new venture into the healthcare system, requires systemic auditing to improve outcomes continually. Auditing will identify pitfalls in communication, and issues with collaboration between teams, and improve compliance and adherence to ERAS protocols.



Low Flow Anaesthesia: its role in decreasing carbon dioxide emissions linked to Anaesthesia

Dr Priyankar Sarkar, Consultant, BLK-Max Hospital, New Delhi

Introduction

A technique which provides for a FGF lesser than the patient's alveolar ventilation can be called low flow anaesthesia; 30-50% of the FGF can be recirculated after absorption of CO₂.

Required equipments for Low Flow Anaesthesia

1. Leak proof circle breathing system
2. Flowmeters calibrated to deliver low flows
3. End-tidal agent/ gas monitoring for measurement of inspiratory and expiratory concentrations
4. Vaporisers capable of delivering accurate VA at low flows
5. Standard ASA monitoring

Changes for the Climate conscious anaesthesiologist

Expounding on the basics of LFA is beyond the scope of this article. Instead I will share a few pointers which can stimulate the brain of an anaesthesiologist eager to make a "green" impact

1. Limit flows during induction phase (upto 4L/min)
2. While intubating, decrease FGF to a minimum instead of switching off vaporiser
3. The same breathing circuit maybe used for multiple patients with change of HMEs at both ends
4. End tidal monitoring of oxygen to prevent hypoxia; $ETO_2 > 0.35$ keeps a healthy buffer
5. End tidal monitoring of agent and maintenance of MAC to prevent awareness
6. Liberal use of intravenous agents to
 - Deepen the plane of anaesthesia
 - Maintain target blood pressure
 - Provide hypotensive anaesthesiaas any change in MAC will take time at low flows

Minimum FGF during usage of Sevoflurane

Many anaesthesiologists are wary of using Sevoflurane at flows below 2L/min because of alleged production of compound A, recommendations of certain books and even US FDA endorsement. Nevertheless American Society of Anaesthesiology evaluated number of scientific studies and commented in a statement, "(ASA) concludes there is no reasonable evidence to support a lower limit of fresh gas flow when using sevoflurane. Therefore, the ASA supports the use of low fresh gas flows when sevoflurane is administered". It further commented that such usage has economic and environmental benefits.

Sevoflurane is the popular & readily accessible alternative to Desflurane, hence dissemination of the above information is crucial to popularising LFA amongst users of sevoflurane. Pointedly European Union never introduced a minimal flow for sevoflurane.

	DesF	DesF	DesF	SevoF	SevoF	SevoF
Fresh gas flows Litre/minute	2.0	1.0	0.5	2.0	1.0	0.5
Consumption ml	84	48	29	39	24	16
Carbon dioxide emissions (gm)	315	178	109	7.8	4.7	3.1
Cost (rupees)	2400	1300	800	850	500	350

The above table compares VA usage for 2 hours steady state simulation in a 40-year old 80-kg patient. The CO₂e was calculated as per Ryan et al using the latest GWP100 values and for 1 MAC hour. The table clearly shows the high volumes of Desflurane used under same conditions in comparison to Sevoflurane; consequently the differences in CO₂e and cost follow.

Also when Desflurane is used at 0.5L/min the volume consumed becomes almost one-third compared to its usage at 2L/min: 84ml vs 29ml.

The longer the surgery, the greater the differences in the volume of VA consumed during the course of anaesthesia in contrast to non-usage of LFA.

The overall cost of VA + soda lime absorbent is not increased with LFA for both Desflurane and Sevoflurane.



Low Flow Anaesthesia: its role in decreasing carbon dioxide emissions linked to Anaesthesia



The amount of heat absorbed by the planet after consumption of one bottle of Desflurane is 1790kg of CO₂ vs 579 kg in case of Sevoflurane

Climate change and Anaesthesia: we, the anaesthesiologist, can make a difference

The above information is available through a series of presentations on our campaign website. ISA Noida GBN has launched this not-for-profit campaign to spread awareness about the subtle changes we can adopt in our daily practice of Anaesthesia which will limit the carbon dioxide emissions linked to our specialty. In other words we have the choice of being an environment-friendly anaesthesiologist and practice sustainable anaesthesia.

This unique website was started in Feb 2024 while the campaign was launched on 5th June 2024 on the occasion of World Environment Day at a national-level webinar.

I will request everyone to connect with this campaign, peruse the variety of materials on this site and leave their valuable feedback.

Glossary

FGF fresh gas flow

CO₂ carbon dioxide

LFA low flow anaesthesia

VA volatile anaesthetic

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Understanding Malposition of Central Venous Catheters in Children: Two Case Reports

Dr Poonam Motiani Professor, Paediatric Anaesthesia, Post Graduate Institute of Child Health, Noida

Abstract

Central venous catheterization (CVC) is essential for assessing blood volume and cardiac status in pediatric patients. This report examines two cases of CVC malposition in children, emphasizing the challenges and complications of catheter insertion. Case 1 involved an infant requiring a PICC line for chemotherapy, initially malpositioned in the left jugular vein but successfully repositioned using fluoroscopic guidance. Case 2 described a two-month-old with biliary atresia whose CVC was misplaced in the subclavian vein, also corrected with fluoroscopic assistance. This report highlights the importance of technical skill and awareness of potential complications, as CVC misplacement occurs in 3-4% of cases and can lead to serious injuries. Various confirmation techniques are reviewed, including ultrasound, ECG guidance, and chest X-ray. Thorough training and the use of diagnostic tools are crucial for preventing malposition and ensuring patient safety in pediatric CVC procedures.

Introduction

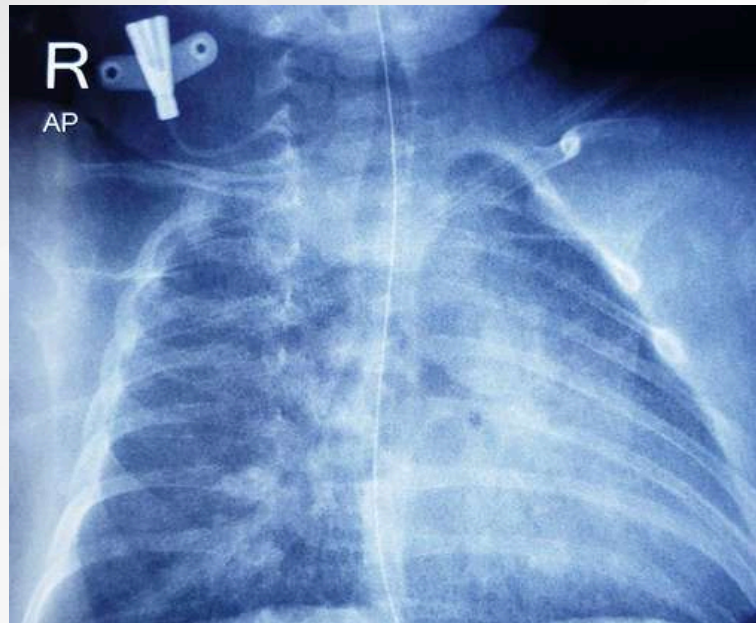
Central venous catheterization (CVC) is vital for assessing blood volume, cardiac status, and vasomotor tone by placing a catheter in a central vein. CVCs enable the administration of vasoactive drugs, chemotherapy, parenteral nutrition, and provide access for patients with poor peripheral veins. They can be mono- or multi-lumened and include peripherally inserted central catheters (PICCs). In young children, CVC insertion presents challenges, with malposition occurring in 3-4% of cases (1), often leading to complications (2). The POCA registry (1998-2004) identified CVC-related lung and vascular injuries as major causes of equipment-related cardiac arrests in pediatric patients (3). We discuss two cases to explore prevention, identification, and correction strategies.

Case 1

An infant required a PICC line for chemotherapy. A 4 Fr, Groshong® single lumen PICC was inserted in the left basilic vein under ultrasound guidance and fixed at 22 cm after confirming backflow. A post-procedure chest X-ray showed the catheter tip in the ipsilateral jugular vein. The PICC line was withdrawn and repositioned to 20 cm using fluoroscopic guidance (Fig 1).

Case 2

A two-month-old with biliary atresia needed a CVC for a Kasai procedure. A 22 G, 4 cm, single lumen CVC, was inserted into the right internal jugular vein (IJV) under ultrasound guidance using the Seldinger technique under anesthesia. A chest X-ray revealed the CVC misplaced in the subclavian vein (Fig 2). The catheter was pulled out 2 cm and repositioned using the guide wire and fluoroscopic guidance.



Discussion

Effective CVC placement requires technical skill and awareness of potential complications. The right internal jugular vein (IJV) is preferred due to its direct course, which reduces risks like stenosis and thrombosis (4). The optimal CVC tip position is within a large central vein (superior or inferior vena cava), outside the pericardial sac, parallel to the long axis, and not abutting the vein or heart wall (5).

Misplacement can occur within the venous system, which is more common and less dangerous, or in areas like the pleura, pericardium, or peritoneal space, which are rarer and riskier. Factors influencing misplacement include insertion site, needle bevel direction, vein anatomy (6), technique, body position, and patient factors.

Types of Complications

1. I.V. Misplacement: Incorrect catheter positioning is common without X-ray screening, particularly with subclavian or left-sided placements. Malpositioned IV catheters may require repositioning or replacement. In both cases, repositioning was successful, highlighting the need for vigilance against potential complications.
2. Intra-Arterial Misplacement: This occurs in 1-11% of procedures (7). Recognized cases require immediate intervention, while unrecognized cases can lead to serious complications.
3. Extravascular Placement: Malpositioned equipment can damage nearby structures, leading to perforation and bleeding. Complications may include cardiac perforation, tamponade, and pneumothorax.

Confirmation Techniques

- Ultrasound Guidance: Useful for identifying target veins but limited in preventing distal misplacement.
- Pressure Transducers: Confirm placement in venous or arterial systems prior to guidewire insertion.
- ECG Guidance: Achieves high accuracy for placement verification at the caval-atrial junction (6).
- Chest X-ray: Commonly used to confirm catheter position, though it has limitations due to parallax error (7).

Ultrasound-guided venous puncture and fluoroscopy have demonstrated high success rates (10). In both our cases, fluoroscopy assisted in repositioning the misplaced catheters.

Conclusion

Minimizing CVC malposition in children requires effective training in catheter insertion techniques and the use of diagnostic tools such as ultrasound and ECG guidance. Recognizing malposition patterns and utilizing further imaging, when necessary, can enhance patient safety and improve CVC success rates.

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Successful Anaesthetic Management of an Elderly Patient with Severe Mitral Stenosis for Decompressive Laminectomy

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Abstract

Mitral stenosis, commonly resulting from rheumatic heart disease, remains a prevalent issue in developing countries. Severe MS is defined by a valve area of $<1 \text{ cm}^2$ and/or a mean pressure gradient $>10 \text{ mmHg}$. Complications of severe MS include atrial fibrillation, pulmonary hypertension, and pulmonary edema. (1,2) The anaesthetic management of these patients for non-cardiac surgeries represents a considerable challenge.

We present the successful anaesthetic management of an 84-year-old female with a history of rheumatic heart disease (RHD) and severe mitral stenosis (MS), who underwent decompressive laminectomy and fixation for L4-L5 lumbar stenosis. The case highlights the perioperative challenges and considerations associated with managing an elderly patient with significant cardiovascular comorbidities.

Case Presentation

An 84-year-old female, who presented to our hospital with severe back pain and an inability to sit or walk, was diagnosed with lumbar stenosis (L4-L5) with instability. Surgical decompressive laminectomy with fixation was planned. The patient had a history of RHD and had undergone a closed mitral valvotomy. Her medications included nicomalon (stopped 5 days prior to surgery), ramipril, and lasilactone (furosemide + spironolactone). She reported no new cardiovascular symptoms except intermittent breathlessness.

On examination, her heart rate was 59 bpm, blood pressure 132/71 mmHg, and SpO_2 was 98% on room air. A preoperative echocardiogram revealed moderate-to-severe mitral stenosis (mitral valve area: 1 cm^2 , mitral pressure gradient: 5-6 mmHg), thickened mitral valve, mild-to-moderate mitral regurgitation (MR), moderate-to-severe tricuspid regurgitation (TR), pulmonary hypertension (PA pressure 38mmHg) and dilated right atrium. The left ventricular ejection fraction was 50-55%. Her other preoperative investigations, including coagulation profile, were within normal limits.

With informed high-risk consent, general anaesthesia (GA) was planned. A wide-bore peripheral intravenous access was established, and a left radial artery was cannulated for invasive blood pressure monitoring. Other routine monitoring was applied. Anaesthesia induction was performed using fentanyl and etomidate to minimize hemodynamic instability. 2% Lignocaine (60mg) was administered prior to intubation to attenuate the stress response of laryngoscopy/intubation. Rocuronium was administered for neuromuscular relaxation, and intubation was achieved with a flexometallic endotracheal tube. Anaesthesia was maintained with oxygen, air (FiO₂ 0.4), and sevoflurane (MAC 1.0-1.2). Hemodynamic parameters were carefully managed, with heart rate maintained between 60-70 bpm and blood pressure within 110-135/60-80 mmHg. Restrictive fluid therapy was utilized. The procedure lasted 2 and half hours. Local anaesthetic infiltration was done by the surgeon at the incision site for postoperative pain.

Sugammadex was used for neuromuscular reversal to avoid the hemodynamic fluctuations associated with neostigmine-glycopyrrolate. The patient was successfully extubated and transferred to the ICU for observation and monitoring. Postoperative pain relief is an important consideration for these patients. Multimodal analgesia was used postoperatively including IV paracetamol, tramadol and transdermal buprenorphine (10mcg/hr) patch. Her recovery was uneventful, and she was discharged after 3 days.

Discussion

The anaesthetic management of patients with MS requires careful preoperative assessment of the symptoms, severity, and investigations. The ongoing medications may include an anticoagulant which may need to be stopped or changed to heparin. Though MS is generally well tolerated, severe disease can cause atrial fibrillation, pulmonary hypertension, pulmonary edema and increasing dyspnea. (2) (3)

Since MS is a fixed cardiac output state, key perioperative considerations include maintaining normovolemia, avoiding tachycardia. Pulmonary vascular resistance should be maintained by preventing hypoxia, hypercarbia, and acidosis and avoiding the use of N₂O (3)

Neuraxial anaesthesia, especially subarachnoid block, is typically avoided due to the patient's anticoagulation status and risk of decrease in SVR and profound hypotension. In some cases, epidural anaesthesia has been successfully employed, especially in obstetric patients. (4)

Postoperative care is critical, with effective pain management and continued hemodynamic monitoring, in an intensive care setting. Our case demonstrates that with meticulous perioperative planning, patients with complex cardiovascular conditions can undergo major non-cardiac surgery safely.

Conclusion

The successful management of this case underscores the importance of thorough preoperative evaluation and vigilant intraoperative and postoperative care in patients with rheumatic heart disease and mitral stenosis. An individualized anaesthetic approach, tailored to the patient's cardiovascular condition, is essential to optimizing outcomes in such high-risk surgeries.

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NORA (Non-Operating Room Anaesthesia) – Anaesthesia for Paediatric MRI

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MRI Suite anaesthesia has some special concerns be it for an adult / paediatric. Magnetic field has its implications on various instruments, monitoring devices, resuscitation equipments, implants etc.

In MRI Suite, there are lack of resources for resuscitation and trained persons for help. There is lack of access to the patient which leads to difficulty in monitoring and managing emergencies. Lengthy tubings and extensions pose another challenge in managing a child for sedation in MRI. Lastly, but not the least the temperature in MRI can lead to hypothermia. Coils in MRI suite create noise: Low continuous noise is created by STATIC FIELD and Disturbing sound is created by DYNAMIC FIELD which can also induce currents and arrhythmias. There are major concerns for equipment's to be kept in MRI Suite - MR safe vs MR Conditional vs MR unsafe equipment's.

To carry out pediatric MRI sedation the skilled and competent anesthesiologist should know the tools of the trade i.e. sedation medications that one should know well and be familiar with. He/ she should know the right tool for the procedure and discuss the variable needs for procedural sedation and pharmacological/non pharmacological options with parents, concerned speciality from where the child is referred. Knowing the tricks of the trade is a key to carry out uneventful sedation.

The ideal paediatric sedation is rapid induction and emergence, providing good anxiolysis, analgesia and amnesia. There is sufficient control of movement of all limbs to allow for ease of completion of scan and maintaining effective spontaneous ventilation and control of airway throughout the procedure. Having a complete cardiopulmonary stability throughout with minimal side effects is ideal sedation. Different methods of carrying out paediatric sedation in MRI are : reducing noise by putting ear plugs / noise attenuators, needle free pharmacological techniques using lollipops of opioids etc. but under vigilance. Feed and swaddle technique is popularly used for infants less than 6months of age. Non pharmacological measures like engaging the child with video games / toys and mock MRI's are meant for children above 5 years of age.



Tailoring each protocol to the clinical indication and study can both reduce the need for sedation and maximize the yield of sedated studies. Sedation for paediatric brain MRI is unavoidable in certain clinical and diagnostic scenarios, but given the growing concern regarding the risks of sedation, each case should be evaluated individually, with the goal of minimizing the use of sedation while still addressing the clinical indication.

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1. GIMS inaugurated its CRTC Centre (Comprehensive Resuscitation Training Centre)

GIMS inaugurated its CRTC Centre (Comprehensive Resuscitation Training Centre) with the aim to conduct regular (CCLS) Comprehensive Cardiopulmonary Life support training of the medical and paramedical staff. The Workshop was held on 6th & 7th September 2024, at Patanjali Hall, GIMS, Greater Noida by the Department of Anaesthesiology. The Anaesthesiologists are at the forefront of clinical teams that bring together individuals with different skill sets attributes and styles. A good team teamwork leads to improved patient outcomes, increased staff satisfaction and better healthcare delivery system.

Director GIMS, Dr Saurabh Srivastava inaugurated the event and emphasized the importance of such skill-based workshops. The Chief guest for the event was Dr (Brig) Rakesh Gupta, ex-Director GIMS & Medical Director Kailash Healthcare, who agreed to grace the occasion and enlightened the audience with his thoughts and vision. Dr Rakesh Garg, Prof Onco-anaesthesia, AIIMS, New Delhi, introduced the workshop, its scope, layout and training faculty. Nazia Nazir, Professor & Head, Department of Anaesthesiology presented the vote of thanks for the attendees.

Faculty from reputed various institutes of Delhi NCR were present as faculty trainers. There was active participation by large number of delegates from various medical Colleges of New Delhi, JLNM Aligarh, PGICH, GMC Patiala & GIMS. The program was very successful and informative and such programmes will go a long way in teaching basic life-saving skills for the overall benefit of the society. GIMS has endeavoured to continue doing such programs under its CRTC Centre for furthering patient care and medical education.



A. National CPR Week: ISA Noida GBN Empowers Teachers and Staff at Mata Bhagwati Chadha Niketan: A Heartfelt Initiative for Special Needs Children

The Indian Society of Anesthesiologists (ISA) Noida GBN took a significant step towards community outreach during National CPR Week by conducting a comprehensive "First Aid and CPR Training" workshop, on 27th July 2024, for teachers and staff at the Mata Bhagwati Chadha Niketan Charitable School, Sector 128, Noida. This specialized school caters to children with special needs, highlighting the critical importance of equipping their caregivers with the skills to respond effectively in emergency situations.

The training, conducted by a distinguished panel of experts from the ISA Noida GBN, ensured high-quality instruction and practical application of life-saving techniques. The experts included Dr. Kapil Singhal, Director and Head, Anesthesia & Critical care, Dy Medical Director, Metro Hospitals and Heart Institute, Noida; Dr. Peeyush Chaudhary: HOD Anesthesia, Cloudnine Hospital Noida, Dr. Sameer T Bolia: HOD Anesthesia, Apollo Hospital Noida and Dr. Deepak Thapa: Senior Consultant Anesthesia & Critical Care, Metro Multi-speciality Hospital Noida.

Impact:

Over 100 participants from the school's dedicated teaching and support staff benefited from the training, gaining valuable knowledge and hands-on experience in First Aid and CPR.

Importance for Special Needs Children:

This training held particular significance for the special needs community. Children with special needs often face unique challenges and may require additional care and support in emergencies. By equipping teachers and staff with these essential skills, the school ensures a proactive and prepared environment for all its students.

ISA Noida GBN's Commitment to Community Service:

The ISA Noida GBN demonstrated its commitment to community service by organizing this vital workshop. By empowering the staff at Mata Bhagwati Chadha Niketan, they have made a tangible difference in the lives of these special needs children and their caregivers. This initiative sets a powerful example for other organizations to prioritize training and awareness programs, fostering a safer and more supportive environment for all communities.



B. Empowering Volunteers: COLS Training for Delhi Half Marathon

The Delhi Half Marathon is one of India's premier sporting events, attracting thousands of runners and spectators each year. Ensuring the safety and well-being of participants is paramount, and that's where dedicated volunteers come in. Cardiac arrests can occur without warning, and prompt action is crucial to save lives. COLS training equips volunteers with the skills to respond effectively in emergency situations, providing CPR until medical professionals arrive.

Dr. Kapil Singhal, Director and Head, Anesthesia & Critical care, and Dr. Deepak Thapa, Senior Consultant Anesthesia & Critical Care, Metro Hospitals and Heart Institute, Noida conducted a COLS (Cardiopulmonary Resuscitation and Basic Life Support) training session to train volunteers, including nurses and ward boys, at Metro Multi-speciality Hospital, Noida on 16th September 2024.

Key Takeaways from COLS Training were:

1. Recognizing cardiac arrest signs and symptoms
2. Performing CPR (cardiopulmonary resuscitation)
3. Using Automated External Defibrillators (AEDs)
4. Basic life support techniques
5. Managing choking and airway obstruction

Benefits for Volunteers:

1. Enhanced confidence in emergency response
2. Ability to make a difference in someone's life
3. Development of new skills



Family Dinner on Foundation day

To commemorate the 2ND FOUNDATION DAY OF ISA NOIDA GB NAGAR , A Musical night was arranged at the lovely venue of Noida Golf Course on 23/07/224, where more than hundred members of families and friends enjoyed the evening with dance, DJ, drinks and dinner.





Upcoming Clinical Meets



The academic calendar of ISA GB Nagar is packed with deliberations over various topics in the field of Anesthesiology, intensive care and pain management.

The World Anaesthesia Day on October 16th is an exciting occasion for anaesthesiologists globally, and the celebrations in Noida promise to be engaging and educational.

ISA Noida GBN will celebrate World Anaesthesia Day at Metro Multispecialty Hospital, featuring a CME, a skit, and a slogan/quote/poem contest. PGICH Noida will also, hosting a CME, a quiz, and a poster competition in collaboration with ISA Noida GBN. These celebrations will bring together anaesthesiologists from various hospitals in Noida and Delhi -NCR!

Carrying the baton further will be Jaypee hospital, Noida in the month of November with their maiden presentation in this assembly and will surely present us with valuable insights.

We will end the year with one more presentations in the month of December. The venue will be declared as we go forward.

ISA GB Noida Nagar continues to shine as a branch which holds the record of keeping ahead of the contemporary branches at all fronts especially academics.

Long live ISA Noida GB Nagar.

Volume 1 Issue 5

The Anaesthesia Pulse

The Official Newsletter of ISA Noida GB Nagar



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