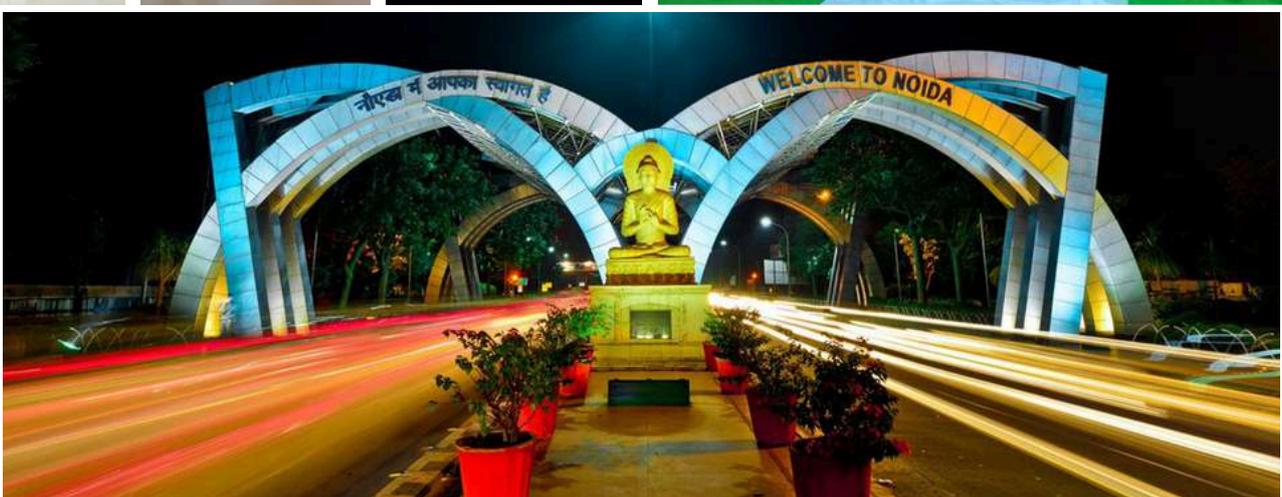
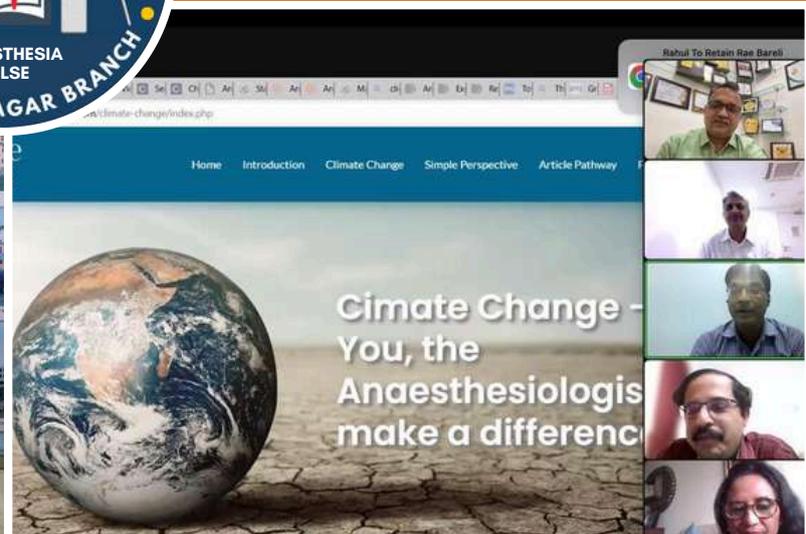
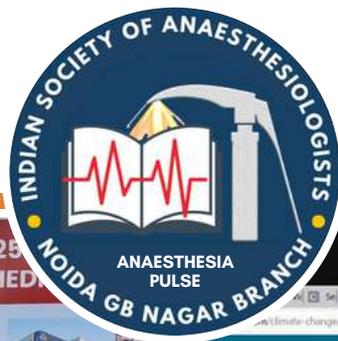
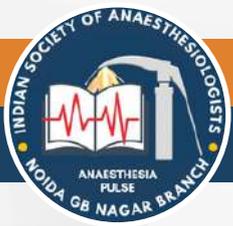


Volume 1 Issue 4 ~ Apr-Jun 2024

# The Anaesthesia Pulse

The Official Newsletter of ISA Noida GB Nagar





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(Editor)



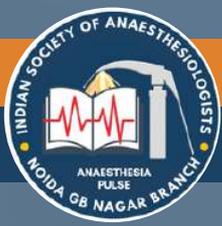
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## Message from President ISA Noida GBN



**Dr Peeyush Chaudhary**

**Dear friends,**

ISA Noida Gautam Budh Nagar was conceptualized and created to fill the gap that was there in the academic pursuit of this specialty and right from its inception three years back we have managed to fulfill the aim. At the juncture of the third anniversary of the branch, I would like to congratulate all the members for being actively involved in spreading knowledge amongst ourselves and awareness about the various life-saving protocols like COLS among the public. The monthly CMEs are regularly held at different hospitals with full enthusiasm along with various conferences. Like last year, we are once again organizing an annual CME on 21st July and in the month of February 2025, we have been granted an annual sponsored CME by the National ISA which we plan to incorporate a cricket/ sports tournament as well.

Once again the Editorial team needs to be congratulated for doing a wonderful job of bringing out the quarterly newsletter well in time.

**Jai Hind**

**Jai ISA**

**Dr Peeyush Chaudhary**



## Message from immediate past President ISA Noida GBN



**Dr Kapil Singhal**

**Dear Friends,**

As we navigate through another quarter, I am continually inspired by the dedication and resilience of members of ISA Noida Gautam Budh Nagar. Our collective efforts have not only taken our branch to newer heights but also driven significant progress in academics and public awareness.

In this issue, I am thrilled to highlight several achievements. First and foremost is the State level webinar on the occasion of world environment day, only city branch of ISA to do so ; next is continuation of newsletter itself for which our editorial team deserves applause, then we had HIC week organised in June towards our commitment for social welfare and community outreach programs, in which many of our members contributed at the forefront, academic activities and COLS and BCLS trainings are now a regular feature.

As we look to the future, it is essential to continue fostering a culture of continuous learning and innovation. Our upcoming annual CME promises to be a rich platform for sharing knowledge, networking, and exploring the latest advancements in our field. I encourage all of you to participate actively and bring your unique perspectives to the table.

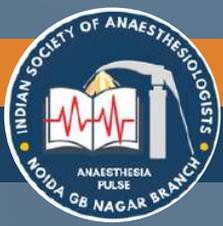
Moreover, I am excited to announce new elected team of our branch. I'm confident that our new team along with other Co-opted members will take branch to new heights by conducting many more activities. Your feedback and involvement in these programs will be invaluable as we strive to meet your needs and aspirations.

In closing, I want to extend my heartfelt gratitude to each of you for your unwavering commitment and support for the growth of branch. Your passion, expertise, and compassion are the bedrock of our profession and the driving force behind our collective success. Together, we will continue to make a profound impact on the lives of those we serve and on our peers.

Thank you for your dedication and support. I look forward to seeing you at our upcoming events and continuing this journey of excellence together.

**Warm regards,  
Jai Hind Jai ISA**

**Dr. Kapil Singhal**



# Message from Hon. Secretary ISA Noida GBN



**Dr Mukul K. Jain**

## **Dear Members,**

I hope this message finds you well. As your Branch Secretary, I am pleased to share that our branch is doing well in the field of academics and training. In some other fields like sports and cultural activities we are lacking, and it may be improved with your help. We have several exciting events lined up for the coming months, including our annual foundation day CME on 21st July 2024 in collaboration with Kailash Hospital. As all of you are aware to sustain any branch/program, there is a need for money so it is my humble request to start an annual membership maintenance fee. Your continued support is crucial in sustaining our branch activities and initiatives. Don't forget to explore the resources available to you as a member. We are actively involved in community projects in the form of a Life support awareness program and conducted many activities. If you're interested in volunteering or have ideas for future initiatives, please reach out to us. Thank you for your ongoing support and participation. Together, we can continue to strengthen our branch community and achieve our shared goals.

## **Best regards**

**Dr. Mukul Jain**



## Dr Poonam Motiani Editor's note

### Dear Esteemed Readers,

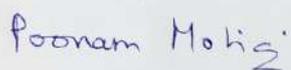
I am delighted to present to you the fourth edition of our own Anaesthesia newsletter, The Anaesthesia Pulse, a platform where we celebrate our achievements, share knowledge, and reinforce our commitment to excellence in patient care.

This edition marks a special occasion as we reflect on two significant events that were celebrated by our branch in this quarter- The World Environment Day and Hospital Infection Week. As part of the Environment Day activities, our branch organised a very informative CME, to raise awareness about sustainable healthcare practices, promoting recycling efforts and reducing carbon footprint, crucial efforts in our journey towards a greener and healthier future. Further, the very well organised and attended Hospital Infection Week provided not only Medical but also Allied Medical personnel, an opportunity to strengthen the infection prevention protocols, through training sessions and interactive workshops, to maintain the highest standards of patient safety and hygiene.

Further in this edition, you will find insightful articles and updates on recent advancements in anaesthesia.

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 as we embark on this journey together.

### Warm regards



**Dr Poonam Motiani**



### **National launch of campaign on Climate Change and Anaesthesia on World Environment Day (5th June 2024)**

WE, THE ANAESTHESIOLOGISTS, CAN MAKE A DIFFERENCE

Consequent to the changing times i.e. the climate change events affecting every part of the globe—India, USA, South America, Europe, Antarctica—ISA Noida GBN unveiled the campaign **Climate change: We, the Anaesthesiologists, can make a difference** on World Environment Day 5th June 2024. The launch was an online event hosted by ISA UP state in collaboration with ISA Noida GBN.

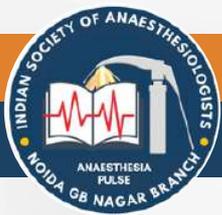
The welcome address was given by Dr Peeyush Chaudhary, President ISA Noida GBN while the event was moderated by Dr Kapil Singhal, President Elect ISA UP. Senior office bearers of ISA UP state Dr Apurva Aggarwal, ISA UP state President and Dr Sandeep Sahu, ISA UP state Secretary along with Dr RK Bhaskar, GC member ISA National graced the occasion with their presence; Ms Sanchita Jindal, former advisor (scientist G) Ministry of Environment, Forest and Climate change kindly agreed to be the chief guest at this event and shared some valuable notes on biomedical waste management.

Dr Priyankar Sarkar, Consultant anaesthesia at BLK-Max hospital New Delhi and lead collaborator for the campaign, was the speaker at the event. The webinar sought to illustrate how an anaesthesiologist could look to adapt their practice in view of the fact that perioperative carbon dioxide emissions are 5% of the total healthcare emission and ever increasing:

1. Using sevoflurane/ isoflurane instead of desflurane in routine cases
2. Using desflurane and nitrous oxide only for clinically indicated cases
3. Using low flow anaesthesia wherever possible
4. Integrating TIVA total intravenous anaesthesia in one's practice
5. Accessing the linked website on [isanoidagbnagar.com](http://isanoidagbnagar.com) for additional information, data, questionnaire and much more

Dr Mukul Kumar Jain, Secretary ISA Noida GBN gave the vote of thanks. The event was attended by around 50 audience members from across the country and was quite well received.





### **HOSPITAL INFECTION WEEK (12TH TO 15TH JUNE 2024)**

ISA Noida Gautam Budh Nagar successfully organised 2nd Annual Hospital Infection Prevention week in association with Metro Hospitals and Heart Institute, Noida. It was a four days program, in which lectures and workshops were conducted by eminent faculty-- Anaesthesiologists and Intensivists-- of the region.

Day 01 began with disinfection, bio medical waste management and hand hygiene training for GDAs and housekeeping staff which was attended by more than 40 delegates. They were made aware about the importance of disinfection, BMW management and hand hygiene and were also trained in all the implementation techniques.

Day 02-04 were kept for training of nurses in which around 100 nurses from different hospitals of Noida and Greater Noida registered as delegates.

On Day 02, 12 didactic lectures were delivered and chaired by eminent faculty of Noida NCR and were very well appreciated by all the delegates.

Inauguration function was presided by Directors of Metro group of Hospitals Dr Sonia Lal Gupta and Dr Sameer Gupta; Dr Peeyush Chaudhary, Dr Mukul Kr Jain, Dr Kanika Kanwar (Medical Director - Metro Hospitals and Heart Institute) were other dignitaries on the dias. Dr Sonia Lal Gupta lauded the efforts of ISA Noida GB Nagar in partnering for various academic endeavours and pledged to take this annual event to a larger scale from next year onwards. All the dignitaries on the dias addressed the audience and inauguration function ended with vote of thanks by organising secretary Dr Kapil Singhal.

Workshops of high-level disinfection of scopes, Surgical Sterilisation, Hospital Acquired Infections, Care Bundles etc were conducted and all the delegates were given chance to have hands on experience.

Last and final day was an exciting one for the participants-- it was marked by poster presentations, quiz competitions and slogan competition. Total 20 teams participated in quiz competition, 16 posters were displayed and 15 slogans were received. All the participants , delegates and winners were felicitated by Dr Kapil Singhal, Dr Peeyush Chaudhary , Dr Kanika Kanwar, Dr Mukul Kr Jain and Dr Sameer T Bolia.





## Celebrating Excellence in Critical Care: Inspiring Intensivist 2024 Award

In a glitzy function two eminent anaesthesiologists cum intensivists of Gautam Buddha Nagar Dr Kapil Singhal, Deputy Director Senior Consultant Anaesthesia and Critical Care, Metro Hospital and Research Institute and Dr Sonia Mathur, senior consultant and Head of Dept Neo Hospital were felicitated at the prestigious Intensivists Conclave 2024 organised by Times Network group. This event brought together galaxy of stalwarts, healthcare providers, administrators and guests who have demonstrated exceptional dedication, innovation and excellence in patient care.



## April 2024

The monthly clinical meet of ISA GB NAGAR was hosted by Neo Hospital, Noida in Hybrid mode on 29 April 2024. The talk on "Awake Craniotomy" was presented by Dr Ankit Jain, Consultant Anaesthesia and the session was moderated by Dr Sonia Mathur, Senior Consultant and HOD, Neo Hospital. It was attended by Anaesthesiologists in both Offline and Online mode and was followed by a very healthy discussion and interaction.

### SYNOPSIS OF THE TALK

Awake craniotomy is mainly used for mapping and resection of lesions in vitally important brain areas where imaging is not sufficiently sensitive. These are most commonly speech and motor areas. The awake approach has become increasingly popular with wider indications due to the advantage of better neurological and other perioperative outcomes including analgesia and postoperative nausea and vomiting. Improvements in anaesthetic agents and techniques especially laryngeal mask airway have made a great contribution. Frequently used medications are propofol, dexmedetomidine, and remifentanyl. Common anaesthetic regimens range from light-moderate sedation, deep sedation, or general anaesthesia during the pre-mapping and post-mapping phases. In all sedation-anaesthesia techniques, the patients are awake and able to speak and/or move during the mapping phase. This approach to intracranial surgical procedures requires skill, experience, and commitment on the part of the entire OR team.

Common challenges include hypertension, seizures, somnolence, agitation, oxygen desaturation, "tight brain", and shivering. The patient should initially be cared for in a high-dependency unit or ICU familiar with neurosurgical patients. Pain management can be achieved by small doses of opioids intravenously including patient-controlled analgesia, and oral opioids combined with acetaminophen.



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

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**NEO HOSPITAL IN ASSOCIATION WITH ISA NOIDA GB NAGAR PRESENTS**

**TOPIC - "AWAKE CRANIOTOMY"**



**PRESENTER**  
**DR ANKIT JAIN**  
CONSULTANT ANAESTHESIA



**MODERATOR**  
**DR SONIA MATHUR**  
SENIOR CONSULTANT AND HOD

---

**DATE- 29TH APRIL 2024, MONDAY, 4 PM**  
**VENUE- BASEMENT 2, NEW BUILDING, NEO HOSPITAL, SECTOR 50, NOIDA**  
**MODE- HYBRID**

**ZOOM LINK - <https://us06web.zoom.us/j/81313157723?pwd=rxNz0PaDh775mqzV3JfOEFlTWw3Qm.1>**



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Dr. Mukul Kumar Jain  
(Hon. Secretary)



Dr. Sameer T. Bosis  
(Treasurer)

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## May 2024

The monthly meet was conducted by Cloudnine Hospital on 18 May 2024 in an Offline mode. The talks included “Hypertensive Disease of pregnancy” by Dr Nidhi Sinha, Consultant Anaesthesiologist and “Documentation in Anaesthesia” by Dr Peeyush Chaudhary, HOD Anaesthesia. This was followed by a fun activity with the Audience, followed by a Valedictory function and prize distribution by Dr Amrita Nandi, Consultant Anaesthesiologist.

### **SYNOPSIS OF THE TALKS**

#### **1. HYPERTENSIVE DISEASE OF PREGNANCY**

Hypertension is the most common medical disorder occurring during pregnancy, complicating 5% to 10% of all pregnancies. It is also the leading cause of maternal mortality in industrialized countries, and its prevalence is increasing. This increase may in part be caused by the increasing prevalence of cardiometabolic disease in women of childbearing age. Maternal age of more than 40 years, prepregnancy obesity, excess weight gain during pregnancy, and gestational diabetes are all associated with increased risks of maternal hypertension.

Balancing the risks and benefits of the treatment of increased blood pressure in pregnant women on both the mother and fetus is an important consideration. Overall, based on the current evidence, ACOG recognizes that pregnant women with severe hypertension (blood pressure  $\geq 160/110$  mm Hg) should be treated with antihypertensives to prevent maternal vascular complications such as stroke and placental abruption. All antihypertensive medications cross the placenta, but there is scant evidence on the impact of most antihypertensive medication classes on pregnancy outcomes and fetal risk. The exception to this is the known teratogenicity of angiotensin receptor blockers, angiotensin-converting enzyme (ACE) inhibitors, and direct renin inhibitors, which are always contraindicated in pregnancy. ACOG recommends the use of  $\beta$ -blockers and calcium channel blockers as first-line agents for the treatment of HDPs. Labetalol, a mixed alpha-adrenergic and beta-adrenergic blocker, is the most common beta-blocker used in pregnancy. In addition, pindolol and long-acting metoprolol are less studied in pregnancy but are considered acceptable alternatives, especially for women with concurrent heart failure who are chronically treated with metoprolol. Atenolol should be avoided in pregnancy because of its association with a heightened risk of fetal growth restriction and low birth weight.

## 2. DOCUMENTATION IN ANAESTHESIA

Documentation is completed in all three phases of anaesthesia -related care: pre-anaesthesia , intraoperative anaesthesia , and post-anaesthesia . To better understand how anaesthesia clinical documentation can support your facility's efficiency goals, examine the data points captured by anaesthesia providers:

### Pre-anaesthesia Evaluation

The pre-anaesthesia evaluation is collected via a patient interview. In addition to typical medical history questions and NPO status, anaesthesia providers will:

- Conduct an appropriate physical examination including vital signs, height, weight, and documentation of airway assessment and cardiopulmonary exam.
- Review objective diagnostic data and medical records.
- Assign an ASA physical status.
- Document the anesthetic plan, including post-anaesthesia and pain management care plans.
- Document informed consent of the anesthetic plan and post-operative pain management plan.
- Administer appropriate premedication and prophylactic antibiotics.

### Intraoperative/Procedural Anaesthesia Documentation

The intraoperative documentation aspect of anaesthesia care is a time-based record of events in the operating room. This information is beneficial when looking for ways to reverse operating room inefficiencies. In addition to physiologic monitoring data, intraoperative charting captures:

- Medications administered ,Intravenous fluids delivered, anaesthesia techniques used, Patient positioning and actions to reduce the chance of adverse patient effects or complications
- Additional procedures performed (for example, use of ultrasound)
- Unusual or noteworthy events during surgery, Patient status at the transfer of care to the PACU.

## Post-anaesthesia Documentation

Post-anaesthesia documentation is a time-based record of events reflecting the patient status on admission and discharge from the PACU as determined by a qualified anaesthesia provider. This record would include any significant or unexpected post-procedural events or complications. It would also document the patient's physiologic condition and the presence or absence of any anaesthesia - related complications or complaints.

Analysing detailed clinical information such as drugs and agents utilized, order sets and equipment used can be incredibly valuable in eliminating wastage, increasing operating room turnover and enhancing other efficiencies. Clinical indicators and complication information collected for every patient is also helpful in predicting surgical case duration. Keep in mind that collecting this data is one thing; interpreting it is another. Implementing an anaesthesia informatics management system (AIMS) makes analyzing anaesthesia data accessible and allows other departments to make more informed decisions.



## **A minimalist approach to a patient with complete heart block for a caesarean section- A Case report**

**Dr Priyankar Sarkar, Consultant Anaesthesiologist**

**Dr Saloni Vijay Paranjape, Senior Consultant Anaesthesiologist  
BLK-Max Hospital, Pusa Road, New Delhi, India**

A 34-year old 36 weeks primigravida was posted for an elective caesarean section. Her case was specifically mentioned by the obstetrician to the anaesthesia team after posting it for elective caesarean section and a pre-anesthetic checkup done. She revealed that she had a low pulse rate which she knew since her teenage years. Her echocardiogram showed no structural abnormalities with a left ventricular ejection fraction of 55%. In the treadmill test she achieved a heart rate of 153beats /min which was 82% of her target heart rate with no ventricular ectopic beats; the test was discontinued on account of patient fatigue (normal QTc and chronotropic competence demonstrated on treadmill stress test).

On day of surgery the anaesthesiologist met her and noted baseline electrocardiogram (ECG) showing narrow complex complete heart block, rate of 48/min and blood pressure (BP) 112/56mmHg. On discussion with the cardiologist it was decided to pre-emptively administer intravenous (IV) atropine 0.6mg and proceed with transcutaneous pacing pads available in the operating room. On administering IV atropine her heart rate rose to 66/min with corresponding BP of 138/75mmHg.

She was given a subarachnoid block with 8mg 0.5% hyperbaric bupivacaine with 20mcg fentanyl. Post block she showed no hemodynamic instability with rate 64/min and BP 124/67mmHG. After delivery of the baby and oxytocin administration HR remained stable 61/min. By the end of the surgery her HR had decreased to 49/min, BP 108/62mmHg. She received 1200ml crystalloids intraoperatively with 700ml blood loss and 150ml urine output. She was shifted to postanesthesia care unit for monitoring and later shifted to her room. Post partum hospital stay and follow up at 6 weeks was uneventful.

### **Discussion**

Permanent pacing is the rule for patients with CHB but as with all rules there are exceptions. The European Society of Cardiology guidelines on cardiac pacing and cardiac resynchronisation therapy recommend prophylactic pacing in asymptomatic patients with any of the following risk factors: mean daytime heart rate <50/minute, pauses greater than three times cycle length of ventricular escape rhythm, a broad QRS escape rhythm, prolonged QT interval or complex ventricular ectopy or if the patient is symptomatic.

The ESC guidelines on management of cardiovascular disease in pregnancy discourage temporary pacing in stable patients with CHB during delivery but support it for symptomatic patients; however the evidence cited is limited to a single study.

Previously a number of case reports have described different approaches vis a vis pacing and type of anaesthesia with a good maternal as well as neonatal outcome. Suri et al reported 4 cases of CHB presenting during pregnancy, 3 of whom were nulliparous. [5] Amongst them two patients did not have any pacemaker inserted—one had a structural heart disease corrected by surgery while another presented during labour and didn't have time. A third patient had a temporary pacemaker inserted prophylactically despite her being multiparous and having gone through a previous childbirth uneventfully. Two of them underwent caesarean section under general anaesthesia.

The case series review by Hidaka et al in 2011 is an exhaustive article as to how the different management strategies of such patients compare. The authors tabulated a list of asymptomatic pregnancy cases with CHB from 1984 to 1997 in whom a temporary pacemaker was inserted; outcomes in such patients were good. In 1997 after the institution of a new protocol at their institute, Hidaka et al presented a series of cases where temporary pacing lead was inserted before induction of labor but pacing was done only when the patient became symptomatic. All 9 patients remained asymptomatic and had a good outcome, leading the authors to conclude that asymptomatic pregnant patients with CHB maybe managed without pacing.

Our minimalist approach is in sync with the latest guidelines and is based on certain broad principles--

1. Availability of a comprehensive history from the patient (asymptomatic till date) followed by a thorough cardiological workup (absence of structural heart disease)
2. Early assessment by the Anaesthesiology team and regular follow ups
3. Ability of patient to increase heart rate in response to exercise or certain drugs like atropine in combination with persistence of narrow QRS complexes on ECG (thereby hinting the block is not below the level of atrioventricular node)
4. Choice of anaesthetic technique should be based on obstetrical indication of surgery and patient requirement; pacing pads should be on standby
5. Invasive procedures should be resorted to only in case of hemodynamic instability

## References

1. Glikson M, Nielsen JC, Kronborg MB et al ; ESC Scientific Document Group. 2021 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy. *Eur Heart J.* 2021 Sep 14;42(35):3427-3520. doi: 10.1093/eurheartj/ehab364. Erratum in: *Eur Heart J.* 2022 May 1;43(17):1651. PMID: 34455430.
2. Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J et al ; ESC Scientific Document Group. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy. *Eur Heart J.* 2018 Sep 7;39(34):3165-3241. doi: 10.1093/eurheartj/ehy340. PMID: 30165544
3. Hidaka N, Chiba Y, Fukushima K, Wake N. Pregnant women with complete atrioventricular block: perinatal risks and review of management. *Pacing Clin Electrophysiol.* 2011 Sep;34(9):1161-76. doi: 10.1111/j.1540-8159.2011.03177.x. Epub 2011 Jul 28. PMID: 21797903.
4. Suri V, Keepanasseril A, Aggarwal N et al. Maternal complete heart block in pregnancy: analysis of four cases and review of management. *J Obstet Gynaecol Res.* 2009 Jun;35(3):434-7. doi: 10.1111/j.1447-0756.2008.00961.x. PMID: 19527379.
5. Adekanye O, Srinivas K, Collis RE. Bradyarrhythmias in pregnancy: a case report and review of management. *Int J Obstet Anesth.* 2007 Apr;16(2):165-70. doi: 10.1016/j.ijoa.2006.10.003. Epub 2007 Jan 30. PMID: 17270418

## Anaesthetic management in neonate with Glucose-6-phosphate dehydrogenase deficiency undergoing laparotomy: A Case Report

Dr Shambhavi Sharma<sup>1</sup>, Dr Poonam Motiani<sup>2</sup>, Dr Mukul Jain<sup>3</sup>, Dr Nazia Tauheed<sup>4</sup>

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### INTRODUCTION

Anaesthesia for newborns undergoing major abdominal surgeries is challenging and may be further complicated if a hemolytic condition is present. Glucose-6-phosphate dehydrogenase (G6PD) deficiency, a hemolytic disorder is an X-linked recessive, enzyme disorder<sup>1</sup>, and is commoner in males.<sup>2</sup> Exposure to oxidative stress in G6PD deficient individuals, may lead to haemolysis.<sup>1,3</sup> In this report, we illustrate the safe and successful conduct of general anaesthesia in a neonate with G6PD deficiency.

### CASE REPORT

A 28-day old 2.8 kg neonate presented to the hospital with complaints of distended abdomen, poor feeding, bilious vomiting, inability to pass stools, lethargy and weak cry since birth. The baby born via emergency LSCS, had developed jaundice immediately after birth, which partially resolved within a week. Lab tests showed anaemia and G6PD deficiency. Xray abdomen revealed dilated intestinal loops suggestive of intestinal obstruction. The neonate was planned for and accepted for emergency laparotomy under ASA grade IV E, under general anaesthesia.

### ANAESTHESIA CONCERNS

The mainstay of treatment is to avoid drugs and conditions, which are implicated in haemolysis, and to monitor for and treat haemolysis, should it occur :

1. Avoid those anaesthetic drugs, NSAIDS, antibiotics which precipitate oxidative stress, thus hemolysis (Table 1).
2. Avoid hypoxia, hypercarbia, hypothermia, hypoglycemia, hypokalemia and hyperkalemia.
3. Minimise postoperative pain.
4. Maintain appropriate fluid balance.

WHO classification of G6PD variants, according to the magnitude of enzyme deficiency and severity of haemolysis classifies Class I having severe enzyme deficiency (< 10% of normal) and chronic anaemia; Class II variants having severe enzyme deficiency, but with intermittent hemolysis and Class III variants with moderate enzyme deficiency (10 to 60% of normal) with intermittent hemolysis, usually associated with infections or drugs. Class IV and V are of no clinical significance.

**Table 1: Safe and Unsafe drugs, Chemicals and Anaesthetic agents in G6PD-deficient Population ( Altikat et al)**

Unsafe For Class I, II,III	Safe For Class II And III
Acetanilid	Acetaminophen
Dapsone	Ascorbic Acid
Methylene Blue	Aspirin
Nalidixic Acid	Chloramphenicol
Nitrofurantoin	Chloroquine
Primaquine	Colchicine
Toluidine Blue	Diphenhydramine
Vitamin K	Isoniazid
Sulfacetamide	L-Dopa
Sulfamethoxazole	Menadione
Furazolidone	Procainamide
Diazepam	Quinidine
Isoflurane	Quinine
Sevoflurane	Trimethoprim

## ANAESTHETIC MANAGEMENT

The perioperative management was planned in coordination with surgeons. After parental consent, securing an iv access, instituting standard intraoperative monitoring and Ryle's tube suction, preoxygenation was done. Following induction with Inj Propofol 6mg, Inj Atracurium 1.5 mg was given, gentle IPPV done, and trachea intubated with 3mm uncuffed ETT. Inj Propofol infusion @ 50mcg/kg/min was started along with Inj. Dexmedetomidine @ 0.5 mcg/kg/hour and continued till the end of surgery. Intraoperatively, oxygen / air 50:50 mixture used with low flows, avoiding hypoxia or hypercarbia. I/V fluids were administered as per institutional protocol using 2% Dextrose with RL, avoiding hypovolemia or hypoglycemia. Normothermia was ensured. At the end of surgery, the NMB was reversed with Inj. Neostigmine 0.3 mg and Inj Glycopyrrolate 0.3mcg, and trachea extubated after adequate effort. Postoperatively, supplemental oxygen @ 2L/min administered. Further course and lab tests in the hospital were uneventful and patient was discharged a week later.

## DISCUSSION

Glucose-6-phosphate dehydrogenase (G6PD), an enzyme, plays an important role in maintaining the concentrations of antioxidants in the body. Its main function is to reduce nicotinamide adenine dinucleotide phosphate (NADP) to NADPH, essential for maintaining the concentrations of reduced glutathione, the main erythrocyte antioxidant. In G6PD deficiency, excessive oxidative stress, precipitated by oxidative drugs and invasive surgeries may cause acute hemolytic attacks, jaundice, and anemia.

We induced and maintained anaesthesia with Propofol, which reduces oxidative stress<sup>1</sup>. Inj dexmedetomidine, with antioxidant, analgesic, anti-inflammatory, and sedative properties was used intraoperatively. Intraoperatively, hypoxia, hypercarbia, hypothermia, hypoglycemia, hypokalemia and hyperkalemia were avoided. Due to methemoglobinemia, also being a concern in such patients, local infiltration with lignocaine was avoided.

Further, patients with G6PD deficiency may experience general drug-induced hemolysis 24 to 72 hours after drug delivery, followed by anaemia 7 days later. During the one-week follow-up in our patient, the infant showed no features suggestive of hemolytic anaemia on history or examination (decreased activity, dark red urine) or in lab tests (anaemia, elevated bilirubin, LDH levels).

## CONCLUSION

For neonates with G6PD deficiency, any factor which triggers oxidative stress should be avoided such as inhalational anaesthetic drugs, local anaesthetics, aspirin, antimicrobials etc. Drugs that reduce oxidative stress such as propofol and fentanyl, can be used safely for maintenance .

## REFERENCES

1. Valiaveedan S, Mahajan C, Rath GP et al. Anaesthetic management in patients with glucose-6-phosphate dehydrogenase deficiency undergoing neurosurgical procedures. IJA. 2011 Jan;55(1):68.
2. El Boussaadni Y, Aboufouyoul A, Khabbache K et al. Glucose-6-phosphate dehydrogenase (G6PD) deficiency in girls: a diagnosis not to be missed (a case report). Pan Afr. med.j. 2022;42.
3. Elyassi CA, Rowshan MH. Perioperative management of the glucose-6-phosphate dehydrogenase deficient patient: a review of literature. Anesth. Prog. 2009 Sep 1;56(3):86-91.
4. Altikat S, Cillci M, Buyukokunglu ME. Invitro effects of some anaesthetic drugs on enzymatic activity of human red blood cell glucose-6-phosphate dehydrogenase. Polish J pharmacol. 2002;54:67-71.
5. Takahashi N, Ogawa T, Wajima ZI, Omi A. Dexmedetomidine-based intravenous anesthesia of a pediatric patient with glucose-6-phosphate dehydrogenase (G6PD) deficiency: A case report. Medicine. 2017 May 1;96(21):e6986.

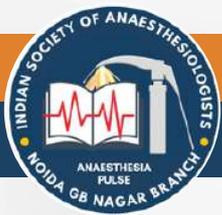
## COLS and BCLS Activity – July 2024

A Workshop on "Basic Cardiac Life Support (BCLS)" under the aegis of Indian Resuscitation Council Federation (IRCF) was conducted on 7th July 2024, at Charak Hall, GIMS, Greater Noida by the Department of Anaesthesiology and Intensive Care. The workshop aimed at imparting the basic resuscitative skills to healthcare providers. The trainees in this session were a batch of 35 interns as our budding doctors should have these skills in their armamentarium.

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 in cases of cardiac arrest whether inside or outside the hospital settings. Director (Brig) Dr Rakesh Gupta inaugurated the event and emphasized the importance of such skill-based workshops. He also enlightened the audience with his thoughts and vision. Dr Nazia Nazir, Professor & Head, Department of Anaesthesiology introduced the workshop, its scope, layout and training faculty. There was active participation by the interns who gave positive feedback regarding their willingness to attend the CCLS program which will be conducted in a few months. GIMS endeavours to train healthcare providers as well as the general public in this basic life saving skills set by creating awareness and conduction of regular workshops.







## 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.

ISA GB Nagar celebrates its **Foundation Day** annually with a lot of zeal and fervour. As a tradition this year too, the Anesthesiologists working in GB Nagar will be coming together on the **21st of July** to partake in the academic fest.

Carrying the baton further will be ESI hospital Noida in the month of **August**. The academic institution is having its maiden presentation in this assembly and I'm sure they will add to our knowledge.

PGICH Noida, will also celebrate its foundation day themed "Commitment to Comfort: Illustrating Paediatric Anaesthesia Principles" in **August 2024**, in collaboration with ISA Noida GBN, and will surely present us with valuable insights.

**In September** month, our new President will conduct the activity in Cloudnine Hospital. They have a history of audience oriented academic presentation and will surely continue the tradition.

Metro hospital Noida will be conducting it's third activity of the year in the month of **October** setting the bar high. The founder president continues to live upto the high standards set for the branch.

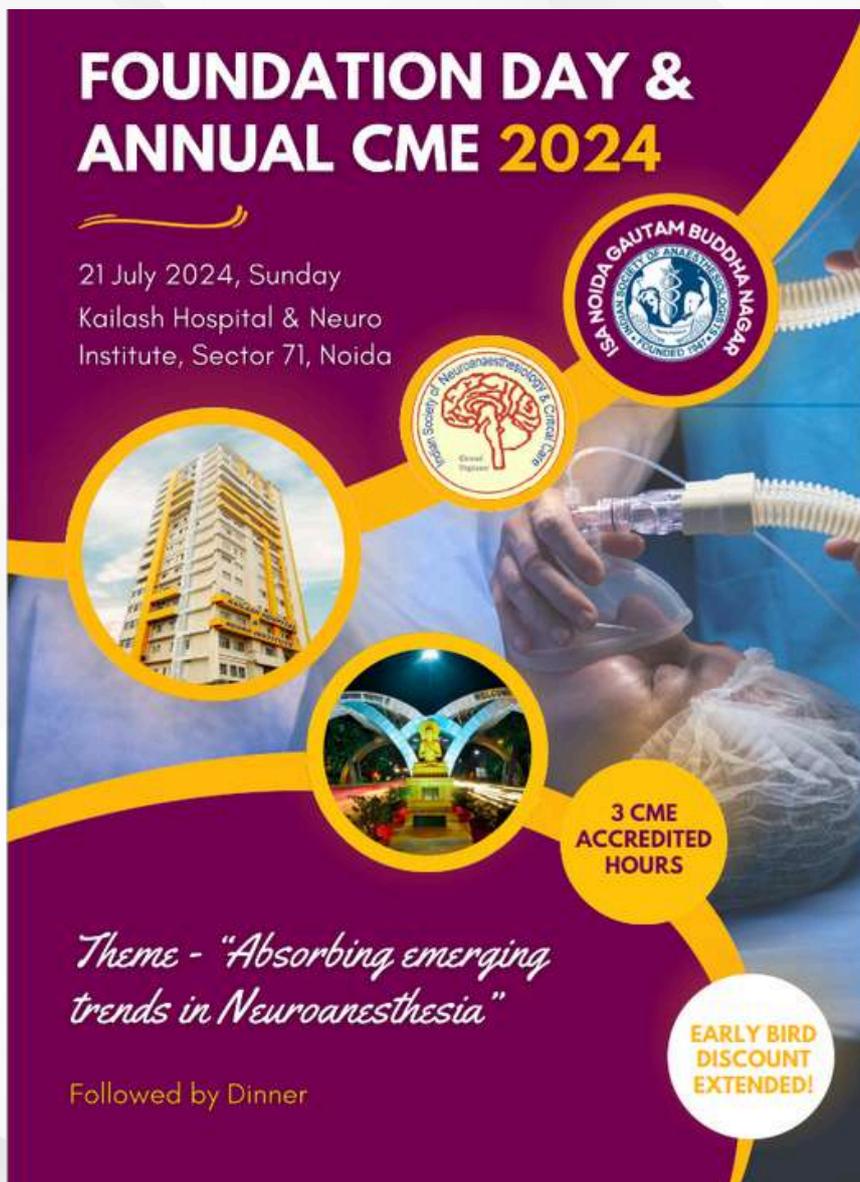
We will end the year with two more presentations in the months of **November** and **December**. The venues will be declared as we go forward.

ISA GB 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 GB Nagar.**

## FOUNDATION DAY & ANNUAL CME 2024

21 July 2024, Sunday  
Kailash Hospital & Neuro Institute, Sector 71, Noida



ISA Noida Gautam Buddha Nagar  
INDIAN SOCIETY OF ANAESTHESIOLOGISTS  
FOUNDED 1947

Indian Society of Neuroanaesthesiology & Critical Care  
Critical Care

3 CME ACCREDITED HOURS

EARLY BIRD DISCOUNT EXTENDED!

*Theme - "Absorbing emerging trends in Neuroanaesthesia"*

Followed by Dinner

## 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**



Prof. Anil K. Singh  
Director  
PGCH, Noida

**Organising Chairman**



Dr. Mukul K. Jain  
Professor and Head  
Paediatric Anaesthesia, PGICH

**Organising Co-Chairman**



Dr. Poojanta Motiani  
Professor  
Paediatric Anaesthesia, PGICH

**Organising Secretary**



Dr. Sonakshi Pari  
Assistant Professor  
Paediatric Anaesthesia, PGICH

**Treasurer**



Dr. Anuraj Kaur  
Assistant Professor  
Paediatric Anaesthesia, PGICH

## Let's laugh together

I Pass Gas for A Living 😂😂

When I asked my gases what's your superpower?

Isoflurane, Sevoflurane , Desflurane to me :

I will walk with you

Every step of the way

No matter where you wander

No matter what you do

Come what may I will walk with you !!

I will walk with you

And treasure every smile of yours during our journey together

No matter what the fashion,

I'll always be your style !!

I will walk with you

Even when the Fate may be unkind

If you get a scrape,

I'll brush away the tears

Come what may I will walk with you !!!!

My Friend ,

Don't talk , just act.

Don't say , just show.

Don't promise , just prove.

I'm there with you always....

This journey with my gases is beautiful in OR always ♥

I pass gas for A Living 😂

Dr Ankita Sharma

Consultant Anaesthesiologist

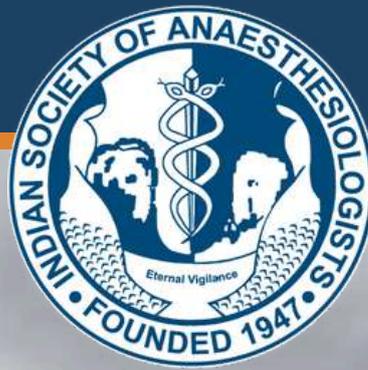
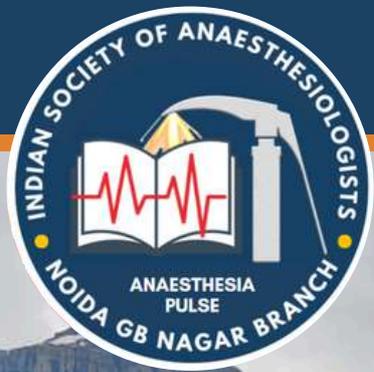
Neo Hospital, Noida



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