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Delhi Branch
Eternal Vigilance

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(ISA Delhi Branch message)

Dear Friends

Greetings

Now we have to gear up for annual ISA Delhi conference. I request participation from various institutions as your involvement will add to the success of these events. Your support and commitment are key to turning this dream into a reality. Annual delhi ISA Conference will be held for three days (Workshops 27 September & Conference 28 - 29 September 2024 at Hyatt Centric Janakpuri, New Delhi

The eight meetings at Akash Hospital Dwarka, Rajeev Gandhi Super Speciality, Tahirpur, AIIMS, VMMC & SJH, MAMC, ESI Basai Darapur, Sir Ganga Ram Hospital & LHMC, New Delhi were well attended.

Best Wishes to all.

Long live ISA.

Dr. Lokesh Kashyap
President Delhi ISA
Ex Professor and Head
Department of Anesthesiology, Pain Medicine and Critical Care
AIIMS, New Delhi

Vice President

(ISA Delhi Branch message)

Respected Delhi ISAains,

Warm Greetings.

Dear friends. Last few days were very challenging for medical profession. We as medical professional and ISA Delhi office bearers strongly condemn brutal rape and murder of one of very promising young budding doctor in R.G. Kar Medical College, Kolkata. Our strong demand of central protection act for safety of working conditions of doctors must be taken by central govt and interference of Hon'ble Supreme Court for justice for young lady doctor.

Last ISA Delhi clinical CME meet of July 2024 was organized by Lady Hardinge Medical College which was well attended by senior faculty and residents. Clinical meeting was excellent with good discussion followed by high tea. ISA Delhi has formed Medico legal and ethics cell to discuss and help various medico legal problems of all ISA Delhi members.

"ISA Delhi academic series" has been huge success to discuss various challenging cases related to anesthesia. Anesthesiologists including PGs, senior faculty and Consultants participated in webinars. Last topic on PIH was very pertinent due to high maternal mortality in India. Our editorial board under dynamic supervision of Dr. Puneet Khanna is working hard to put superb monthly news bulletin consisting of good articles. Lot of Kudos to all young editors from different institutes of Delhi.

Preparation for our annual event, ISACON 2024 is going on and flyer has been released for both Conference and Workshops. I request all to register for ISACON Delhi 2024. Next monthly ISA Clinical meet will be organized by UCMS & GTB hospital on 27 August 2024. I request all to attend these clinical meetings in large numbers.

Best Wishes to all.

Long live ISA.

Dr. Arvind Arya
Vice President Delhi ISA

Honorary Secretary

(ISA Delhi Branch message)

Dear Delhi ISAians,

Greetings from ISA Delhi headquarters!

July in Delhi marks the peak of monsoon season, bringing relief to scrotching summer heat. The rain rejuvenates city's greenary, infuses positive energy but also can lead to challenges like waterlogging . ISA Delhi advices all its members to stay safe feom vector borne diseases such as dengue.

ISA Delhi is pleased to announce that election process for the newly elected governing council for year 2024-2025 was conducted smoothly on the lines of ISA National under the supervision of Dr MD Kaur, election officer. We congratulate newly elected President Dr Munisha Agarwal and Vice President Dr Sonia Wadhawan, they shall be taking oath on 16th October 2024 and join rest of the existing council.

ISA Delhi congratulate Department of Anaesthesiology LHMC under the leadership of Dr Maitree Pandey for successfully organising 8th CME cum Clinical meeting at their newly built plush auditorium on 26 July 2024. It was well attended by many head of departments and budding anaesthesiologists. Versatility of topics and sumptuous high tea was icing on the cake.

Governing council ISA Delhi and organizing committee of 63 annual conference of ISA Delhi ISACON 2024 is all set to welcome you all to the biggest academic extravaganza of the state. There will be eight specialty workshops at different institutions of Delhi on 27th September 2024. Academic fiesta will be on 28th and 29th September 2024 at hotel Hyatt centric. From this year we have started lots of new awards in paper and poster categories so requesting seniors to please encourage residents to submit abstracts.

Long Live ISA Delhi,

Dr Amit Kohli
Honorary Secretary
ISA Delhi

Honorary Treasurer

(ISA Delhi Branch message)

Dear ISA Delhi members,

Greetings from the treasurer's desk.

On behalf of ISA Delhi branch, my heartfelt gratitude goes out to all those who have attended the ISA monthly clinical meets with tremendous enthusiasm.

The stage is being set for the annual conclave of ISA Delhi branch, ISACON Delhi 2024. A three-day conference which commences from 27th September 2024 shall comprise of eight interactive hands-on workshops and an immersive academic design. The maiden brochure of ISACON Delhi 2024 has already been circulated and the full details of the scientific feast shall follow shortly. Please keep the spirits high and participate wholeheartedly in the forthcoming ISACON Delhi 2024 at Hyatt Centric, Janakpuri, New Delhi.

Before I conclude, I would like to remind you that ISA Delhi branch has its own YouTube channel, X and Instagram handle where you can update yourself with the current events and revisit the recorded version of newly launched academic series. You can find the names of social media handles on the cover page of this newsletter. Please subscribe and maximize your engagement there as well.

being valuable members of ISA Delhi.

Long live ISA.
Jai Hind.
With regards,

Dr. Abhijit Kumar

Editor

(ISA Delhi Branch message)

Dear ISA Delhi Members, Greetings!

It is with immense pleasure that we present to you the 8th issue of our monthly newsletter.

The newsletter contains recent advances, unknown topics, current opinions, relevant but less practiced guidelines, historical aspects with current relevance, sections of long case questions, quiz and crosswords.

We extend an invitation to all hospitals to submit case reports, review articles and studies for potential inclusion in the newsletter. We encourage all members to keep the articles coming, contributing to the richness of our community. Active participation from all members is encouraged to enrich the diversity and depth of our community's content.

In our pursuit for academic excellence, we welcome constructive criticism for improvement.

Long Live ISA! Long Live ISA Delhi!

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EIGHTH MONTHLY CLINICAL MEET

ISA Delhi Central Zone Clinical Meet

Lady Hardinge Medical College (26th July, 2024)

Monthly clinical meeting of ISA Delhi central zone was held on 26th July at Lady Hardinge Medical College. The office bearers were welcomed on stage followed by ISA flag hoisting. The meeting began with Saraswati Vandana and lamp lighting. Dr Maitree Pandey, HOD Anaesthesia LHMC, warmly welcomed the gathering. Dr Amit Kohli, Honorary Secretary thoughtfully addressed the gathering followed by valuable addresses from Dr Arvind Arya, Vice President and Dr Lokesh Kashyap, President ISA Delhi. Monthly newsletter was released by Editor ISA Delhi, Dr Puneet Khanna and his team along with GC members and the dignitaries on the dais.

This was followed by the scientific session that included very interesting and pragmatic research topics and case series covering various dimensions of Anaesthesia viz. pain, airway, paediatric anaesthesia, obstetrics, critical care as well as the CME topic on latest anaesthesia technique of TIVA-TCI by Dr Nishant. The scientific topics were followed by discussion and an exciting Quiz by Dr. Preeti. The meeting was attended and appreciated by many senior faculty members including Dr Jayashree Sood, Dr Rakesh Kumar, Dr Aruna Jain, Dr Anu Kapoor, Dr Bimla Sharma. After the scientific session, Dr Amit Kohli gave an overview of upcoming annual national conference of ISA Delhi and encouraged the house to register for ISACON Delhi 2024. Dr Medha Mohta, HOD Anaesthesia, UCMS and GTB hospital invited everyone for the next monthly clinical meet. Dr Ranju Singh concluded the meeting with vote of thanks.

The scientific presentations made during clinical meet are as follows:

Topic 1: TIVA-TCI for bariatric surgery
Speaker- Dr Nishant Kumar
Topic 2: Double whammy: heart and kidney dysfunction in pregnancy- a case series
Speaker- Dr Rigzin, Dr Arshan Ali
Moderators- Dr Nishant Kumar, Dr Maitree Pandey
Topic 3: FOB for difficult pediatric intubation- still the gold standard??
Speaker- Dr Saloni Chugh
Moderators- Dr Ranju Singh, Dr Anshu Gupta, Dr Anshu Gupta, Dr Renu Chauhan
Topic 4: Electroacupuncture for chronic pain due to pelvic inflammatory disease
Speaker- Dr Yuireishang
Moderators- Dr Nishant Kumar, Dr Maitree Pandey

EIGHTH MONTHLY CLINICAL MEET

Topic 5: A randomised controlled trial to compare the conventional and revised landmarks for ultrasound guided cooled radiofrequency ablation of genicular nerves.

Speaker- Dr Divya V

Moderators- Dr Nitin Hayaran, Dr Preeti G Varshney

Compiled by

Dr Preety Varshney

LHMC

HYPNOTHERAPY AND CHRONIC PAIN

Introduction:

Chronic pain conditions, such as osteoarthritis, diabetic neuropathy, neuropathic pain and fibromyalgia, refer to a range of complex and multifaceted disorders that affect millions of individuals worldwide and impose significant burdens on society, healthcare systems, and personal well-being. (1)

Chronic pain is complex to treat. Multidisciplinary approaches are often considered to be key treatment of chronic pain.(2) However, pain management for chronic pain is often done using solely opioids. Yet, this exclusively pharmacological approach yields several undesirable effects, including constipation and central nervous system depression, with the risk of developing opioid tolerance, dependence and addiction that may lead to substance abuse, overdose and death. Thus, there is a need for more readily available strategies for chronic pain management. In this regard, the development of non-pharmacological interventions for chronic pain is highly desirable.

Growing awareness of the limitations of currently available pain treatments make training patients in medical hypnosis an attractive component of pain treatment. For example, there are increasing concerns about the overreliance on analgesic medications, which can have negative side effects, have limited evidence for long-term efficacy, and can result in significant problems associated with addiction or diversion (i.e., non-prescription use of opioids, abuse) (3).

In fact, chronic pain is the most common cause of patients seeking alternative therapy as per a study done by the American Medical Association (4). Lang et al have found that using hypnosis as an alternative therapy reduced the duration of pain and thereby, the costs involved in it's medical treatment (5).

Hypnosis as defined by Kihlstrom is "A social interaction in which one person, designated the subject, responds to suggestions offered by another person, designated the hypnotist, for experiences involving alterations in perception, memory, and voluntary action" (6).

Studies on hypnotherapy: Clinical outcome studies on acute and chronic pain as well as neurophysiological studies in the laboratory have demonstrated that hypnosis is effective over and above placebo treatments and that it has measurable effects on activity in brain areas known to be involved in processing pain. Two general findings from hypnosis trials have particular clinical and theoretical relevance: (a) There is a high degree of variability in response to hypnotic analgesia, and (b) the benefits of hypnosis treatment go beyond pain relief (7).

A systematic review by Elkins et al indicates that hypnotic interventions for chronic pain results in significant reductions in perceived pain that, in some cases, may be maintained for several months. Further, in a few studies, hypnotic treatment was found to be more effective, on average, than some other treatments, such as physical therapy or education, for some types of chronic pain. Apart from reduction in pain, hypnosis may also have other benefits for chronic-pain patients such as reduced anxiety, improved sleep, and enhanced quality of life (8).

A meta-analysis of 18 studies revealed a moderate to large hypnoanalgesic effect, supporting the efficacy of hypnotic techniques for pain management. The results also indicated that hypnotic suggestion was equally effective in reducing both clinical and experimental pain. The overall results suggest broader application of hypnoanalgesic techniques with pain patients (9).

Regarding the type of pain amenable to hypnotherapy, in one of these studies, a significant Time × Treatment Condition × Pain Type (neuropathic vs. nonneuropathic) interaction emerged, explained by the fact that all of the participants who reported a clinically meaningful decrease in pain intensity had neuropathic pain, but none of the participants with nonneuropathic pain reported a meaningful pain reduction following hypnosis treatment. (10)

Response variability : Variability in response to hypnosis treatment is often explained by the issue of hypnotizability. Hypnotizability reflects a person's tendency (or, as some investigators in the field view it, a trait, talent, or ability) to respond positively to a variety of different suggestions following a hypnotic induction.

A number of standardized measures of hypnotizability exist (e.g., the Hypnotic Induction Profile, the Stanford Hypnotic Susceptibility scale, the Harvard Group Scale of Hypnotic Susceptibility and the Stanford Hypnotic Clinical Scale. Each of these measures consists of a standardized hypnotic induction followed by a series of suggestions (for changes in sensory experiences, amnesia, etc.), and the subject's hypnotizability score is the simple sum of positive responses to the suggestions. (8).

What is not hypnotherapy?

Studies on hypnotherapy are often confounded by biases where clinicians often use other complementary alternative techniques like progressive muscle relaxation, cognitive behaviour therapy, guided imagery, meditation, mindfulness and awareness techniques. Jensen et al proposed a basic chronic-pain hypnotic-analgesia intervention that consists

of the following: (a) a standard hypnotic induction that includes a focus of attention and relaxation; (b) suggestions for alteration in subjective experience of pain; (c) hypnotic suggestion lasting at least 20 minutes; (d) four to seven sessions indicating "brief hypnosis treatment" and eight or more sessions to indicate "hypnosis treatment;" and (e) instruction in daily home practice of self-hypnosis. (11).

Contrary to hetero-hypnosis, which is defined by the accompaniment of the patient by an operator – that is, a clinician performing the intervention, Self-hypnosis is characterised by hypnotic induction and suggestion procedures performed by the patient himself. In this fashion, self-hypnosis promotes better self-management of chronic pain beyond therapeutic sessions with a health professional. Self-hypnosis training rests on two key elements, namely, the instructions for practicing self-hypnosis and audio recordings.

HYlaDO (HYpnose de la DOuleur, Hypnosis of pain in French). 16

This new program is a self-hypnosis training program specifically adapted for chronic pain management. The Hylado program is composed of 5 sessions performed by zoom with maximum 8 participants, during which we propose the 5 exercises mentioned. Each session lasts 90 min and is composed as follows.

1 Welcome the patients and discussion of their condition, that is, pain, difficulties encountered, practice of the exercises (20 min).
2 Introduction of the session's exercise and explanation of its use, in accordance with the above-mentioned explanations (10 min).
3 Hypnosis exercise (40 min). This hypnosis follows the same general five steps pattern: An induction procedure that yields a trance experience; that is, a state of increased concentration, focused on internal phenomena, accompanied by a decrease in receptivity to external stimuli; the deepening of the trance; suggestions for desired changes such as relaxation or visiting an imaginary place;
post-hypnotic suggestions aiming to extend the duration of the effects; and finally the return an alert state
4 Feedback with the participants (20 min),

Five exercises of Self-Hypnosis

1. 'Backpack technique', patients are asked to imagine themselves emptying a heavy backpack to achieve lightness.19 In this scenario, the weight of the backpack represents negative elements in their lives, mainly emotions and pain.
2. 'Doing nothing' focuses on acceptance. Here, the suggestions and metaphors evoke

themes of relaxation and meditation in a pleasant place, as well as letting go.

3. Modifying Pain: The third exercise rests on visualisation techniques to reduce their pain experience via metaphors. For example, a needle can represent pain and be transformed into something more tolerable, even pleasant, such as a feather.
4. Magic Hand : fourth exercise rests on imagining a magic hand to relieve the pain.
5. Rossi Technique: The fifth exercise is inspired by a protocol developed by Rossi and capitalises on the patient's resources and strengths to overtake the negative affects. The goal of this exercise is to restore participants' confidence in self-managing their pain.

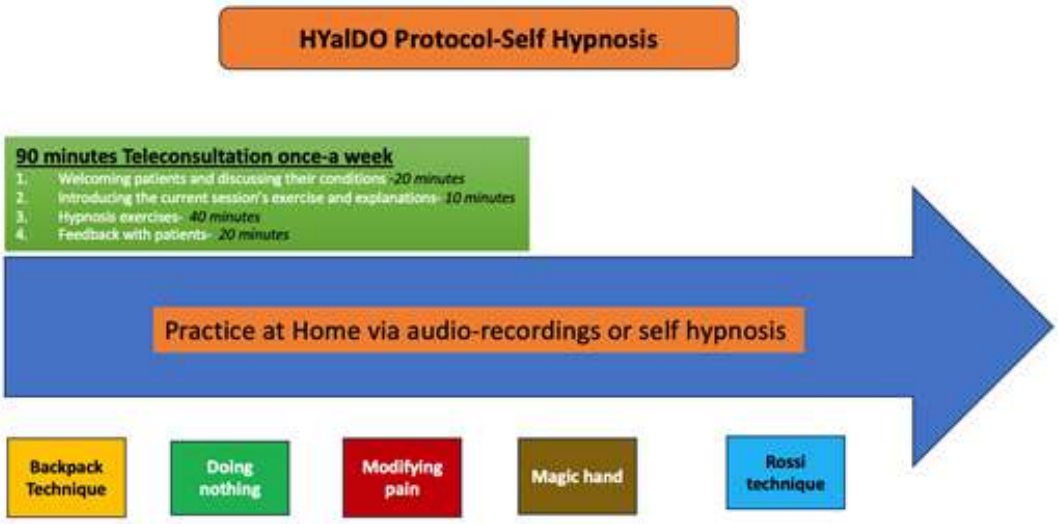

Fig 1: Intervention Protocol for HYlaDO

Non- analgesic benefits of hypnotherapy: Interestingly, apart from analgesia, studies have often reported the non-analgesic benefits of hypnosis. Non-pain-related beneficial treatment effects included improved positive affect, relaxation, and increased energy. These non-pain-related benefits were reported despite the fact that the hypnotic intervention was script driven and focused exclusively on pain management (12).

It is also important to remember that people with chronic pain often suffer from clinically significant depression and anxiety, and mood states can be addressed by hypnosis. Hypnosis can also include suggestions for improving activity levels, adaptive coping responses, adaptive pain-related cognitions, and sleep quality. Thus, clinicians should take full advantage of all potential hypnotic effects to help patients achieve a number of treatment goals; suggestions should rarely, if ever, focus exclusively on pain reduction (13). Imaging changes in hypnotherapy & clinical implications:

There are significant imaging changes during hypnotherapy. The cortical areas most often activated during pain are the thalamus, anterior cingulate cortex (ACC), insular cortex, primary and secondary sensory cortices, and prefrontal cortex. The relative contribution of

each of these areas to the experience of pain varies as a function of the nature of the pain stimuli. Each of the brain areas involved in pain processing has been shown to respond to hypnosis in more than one study: insula, prefrontal cortex, thalamus, primary or secondary cortex, and cingulate cortex (14). Moreover, hypnosis has also been shown to influence the processing of aversive stimulation at the level of the spinal cord. Thus, hypnotic analgesia appears to influence different areas of the nervous system that are involved in the processing of pain rather than having a single, unilateral mechanism.

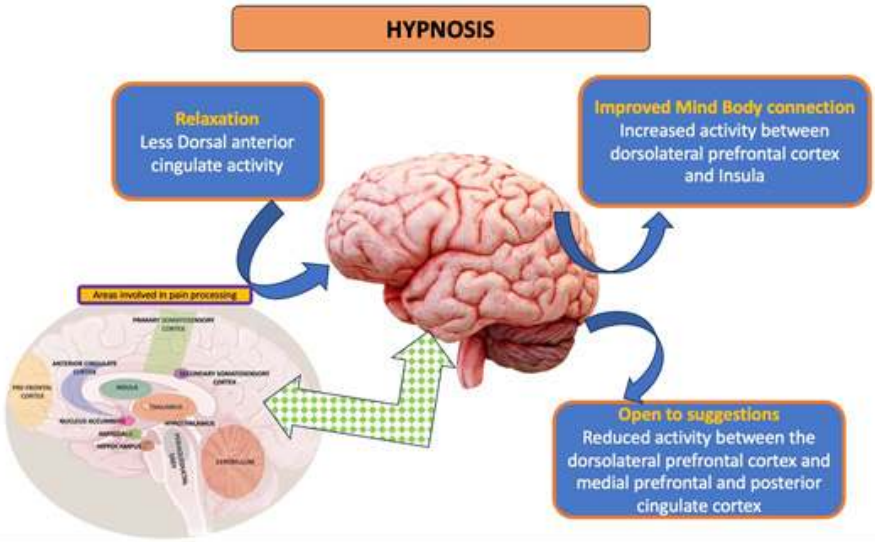

Fig 2: Effect of Hypnosis on brain areas

The experience of pain is associated with more neurons firing at relatively fast (beta, 13–30 Hz) frequencies and fewer neurons firing at slower (alpha, 8–13 Hz) frequencies. Importantly, hypnotic suggestions result in changes in brain activity consistent with those observed in individuals who experience pain relief; with hypnosis, there is a decrease in relative beta activity and an increase in relative alpha activity(15).

The key findings from the studies on the effects of hypnotic analgesia on neurophysiological processes discussed above have two important clinical implications. First, to maximize efficacy, hypnotic treatment should target multiple specific pain domains. Second, clinicians should take full advantage of the calming effects of hypnosis on brain activity and processes.

Key message:

Good practice involves giving patients with chronic pain realistic hope. Many patients find that they experience meaningful reductions in their pain that maintain for a year or more after treatment. Others report that they use the skills they learn to experience pain relief for a few hours at a time when they use self-hypnosis for just a minute or two.

Hypnotic suggestions should target multiple pain domains. As discussed, the importance of providing suggestions to improve outcomes other than just pain relief (sleep quality, well-being, activity level, etc.) when treating chronic pain with hypnosis. This same principle applies when treatment targets pain relief, because pain is a multidimensional construct with sensory, affective, and evaluative components. Each of these domains can be influenced by hypnotic suggestions.

Conclusion:

Thus, to conclude, hypnotherapy does have a significant role in the management of chronic pain, both by producing analgesia and by modulating the cognitive, affective, sensory and evaluative aspects of pain. Patients show variable response to treatment which can be screened by various hypnotizability indices. There is, beyond doubt, a role of hypnotherapy as a complementary therapy to medical management of chronic pain. However, there is a need and scope for high quality RCTs to establish the definitive role of hypnotherapy in the management of chronic pain.

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GREATER PALATINE AND ANTERIOR ETHMOIDAL NERVE BLOCK

Use of local anesthetic blockade in endoscopic nasal surgery provides several advantages. These include reduced intraoperative and postoperative pain, bloodless surgical field, enhanced patient satisfaction.

Greater palatine nerve block involves infiltration of local anesthetic and adrenaline into the region of the greater palatine foramen to induce vasospasm in the greater palatine artery. A 2 ml volume of 2% lignocaine with adrenaline is drawn up into a 2ml syringe and a 25G needle attached. The needle shaft is then bent to 45° at midpoint, bringing the bevel towards the syringe. The greater palatine foramen is located at the posterior aspect of the hard palate, approximately 1 cm medial to the third upper molar on the side of the epistaxis. A finger or cotton wool pledget can be used to palpate it. The needle is gently inserted and aspiration attempted to prevent intra-arterial injection. If no blood is aspirated, 1–2 ml of solution can be infiltrated. Onset of vasospasm is fairly rapid. This allows creation of a much lesser bleeding surgical field. Greater palatine nerve block and subsequent vasospasm has also been found to help in localising bleeding & hence cauterising the bleeder in cases of epistaxis.

Anterior Ethmoidal Block provides anaesthesia and vasoconstriction to the anterior ethmoid neurovascular bundle. It is for middle turbinate and frontal recess surgeries. The block is given in the lateral nasal wall anterior to the root of the middle turbinate with a 23 gauge spinal needle. About 0.5ml of local anaesthetic solution of 1% lidocaine/0.5% Ropivacaine with adrenaline is injected submucosally.

Epinephrine exerts its effects through vasoconstriction, slowing the absorption and metabolism of the primary anesthetic, and decreasing intraoperative bleeding.

LA, Bupivacaine has been found to further decrease bleeding intrinsically. The mechanisms underlying the reduction of nasal mucosa congestion in the context of bupivacaine administration involve its interaction with prostaglandin receptors and sodium pump blockade. Bupivacaine exerts its pharmacological effects by binding to prostaglandin receptors, specifically the prostaglandin receptor subunit EP1 (PGE2/EP1). The EP1 subunit is involved in various physiological processes, including the constriction of bronchioles and blood vessels. By binding to and inhibiting this receptor subunit, bupivacaine induces vasoconstriction, narrowing the blood vessels and reducing blood flow to the area.The binding of bupivacaine to prostaglandin receptors is also associated with its additional analgesic effects. These effects are attributed to the modulation of prostaglandin-mediated signaling pathways involved in pain perception, inflammation,and vasodilation.

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EPIDEMI-‘CON’: IS YOUR INBOX INFECTED?

Dear Readers,

As I was engrossed in reading a news bulletin, I couldn’t help but reflect on how harshly the monsoon is behaving in certain parts of India this year. The widespread flooding is overwhelming for the affected communities. Amid these thoughts, my email inbox began to ping incessantly. Was it another global Microsoft bug, perhaps? But no—it was something far more familiar yet equally overwhelming: a flood of conference notifications.

Seeing these notifications, brochures, and programs left me wondering, does this epidemic of conferences really make sense? Just for September, there were notifications for more than 10 conferences related to anesthesia and allied fields. My mind felt inundated, and I couldn’t help but think of Billie Joe Armstrong's 90s punk rock anthem, "Wake Me Up When September Ends."

During my MBBS graduation and early years in residency, conferences were incredibly attractive. The speakers felt like Einsteins and superheroes, inspiring young minds like mine to dream and achieve great feats. But as time passed and I attended more workshops and conferences, I began to see the other side of these seemingly flawless events.

From a resident’s point of view, conferences add a lot to professional and academic growth. Live events like conferences, workshops, seminars, and symposiums provide unique learning and career-building opportunities that just cannot be found elsewhere. They keep residents up-to-date with important research, allow them to learn directly from others' experiences and trials, share best practices, and develop new skills and techniques. All of these have a direct impact on clinical practice, helping to improve safety and quality of care.

However, the dark side of conferences began to surface as I probed deeper. Favouritism, the same people attending again and again, and, most critically, the costs and lack of grants for many young scholars became apparent. Many residents end up paying out of pocket for travel, lodging, and the ever-increasing workshop registration fees. Add to that the mandatory conference registration and society membership fees, and one can't help but wonder if conferences are just a masked membership drive. Memberships that may or may not be useful to a particular resident throughout their entire career.

From an administrative point of view, the pressure of promotions exposes us to a rat race, where everyone is scrambling to prove their professional growth. It doesn’t matter what

the institution gains from this race; everyone wants to attend conferences..For faculty, conferences offer an opportunity to reconnect with old friends, indulge in a break from the routine, and project oneself professionally. They provide a platform to update on recent advances, develop new skills, and gain deeper knowledge on specific subjects. However, with so many conferences, especially on similar topics, I wonder if we are truly benefiting or just participating in an endless cycle.

Indeed, if a conference is done to update clinicians on recent advances, to help them gain deeper knowledge, or enhance their skills, then the aims are credible. However, in anesthesia alone, there were numerous conferences last year, many covering similar topics. These meetings should cater to all professionals in the field, but the reality is that only a select group attends repeatedly. This raises the question: What is the real purpose of so many conferences?

The recent surge in conference frequency raises significant concerns beyond just the objectives of these events. Attendees are overwhelmed by the sheer volume and cannot attend them all, while presenters struggle to offer new content regularly. Organizers often lack the motivation to assess whether their conferences meet their intended goals, leading to a repetitive cycle of presentations. This unregulated proliferation of conferences is a pressing issue in healthcare, where increased quantity often results in diminished quality and reduced return on investment. Table 1 outlines these potential problems and their impact on the healthcare sector amid this epidemic of numerous conferences.

Table 1: The problems with so many conferences.

Problem	Details
Dilution of Quality	With so many conferences, the quality of presentations often suffers. Speakers recycle content, and the lack of fresh ideas diminishes the overall value of these events.
Financial Burden	The costs associated with attending multiple conferences are a significant burden for individuals and institutions alike. These resources could be better allocated to research or educational programs.
Environmental Impact	The frequent travel required for conferences contributes to a larger carbon footprint, rai sing concerns about sustainability in our profession.

Time Constraints	Attending conferences can disrupt clinical duties, putting additional stress on those who remain to cover responsibilities. This often leads to burnout and affects the work -life balance of healthcare professionals.
Fragmentation of Knowledge	The proliferation of niche conferences can lead to a fragmented understanding of broader developments in the field, making it difficult for professionals to stay informed.
Commercialization	The increasing influence of industry sponsors raises concerns about potential bias in conference content, shifting the focus from genuine academic exchange to revenue generation.
Networking Saturation	With so many opportunities to network, the impact of these interactions diminishes, and the novelty of meeting peers at such events wears off.
Academic Pressure	The pressure to present at conferences to build one's CV leads to a focus on quantity over quality in research output, contributing to stress and burnout among academics.

In a rapidly changing world of Anaesthesiology and allied streams, Conferences and CME are critical and play a vital part of achieving best patient outcomes. Table 2 mentions several ways in which these meetings can be made more effective and serve the purpose they are meant for.

Table 2: The strategies for making conferences more effective:

Strategy	Details
Limit the Number of Conferences	Restrict the total number of CME events to reduce the travel burden on clinicians and the financial strain on the industry. This also helps to maintain focus on the quality of content.
Focus on Specialized Areas	Organize CME events around specific topics rather than general ones, enabling deeper skill development and clearer understanding in focused areas.
Target Specific Audiences	Design conferences for distinct categories of healthcare providers, such as first -contact physicians, young doctors, students, nurses, and paramedical staff, to better meet their specific educational needs.
Set Clear Goals	Ensure each conference has a unique goal, mission, and vision to achieve specific objectives and prevent redundancy in content.

Foster Transparent Industry Partnerships	Encourage healthy, transparent partnerships between the medical profession and industry to promote innovation and effective translation of science into clinical practice, free from bias and conflicts of interest.
Curtail Costs and Focus on Education	Reduce unnecessary expenses by eliminating extravagant social events and focusi ng on the educational component, while still ensuring venues are well-equipped and presentable.
Regulate and Standardize Conferences	Register all conferences with regulatory bodies and establish guidelines for organizing CMEs, including clear aims, methodologies, participants, and faculty selection.
Enhance Communication and Participation	Improve the quality of learning by fostering effective communication and interaction with delegates, creating a more engaging and productive learning environment.

The formation of numerous subsocieties at various levels—national, regional, state, city, and institutional—has fueled a competitive drive to outshine each other, leading to uncontrolled growth in conferences. Many of these conferences resort to inviting authors of published papers as faculty or accepting low-quality abstracts to boost attendance. As a medical society, we must keep our focus on the primary goal of scientific dissemination. Conference objectives should be clearly defined from the outset, aiming to minimize repetition and overlap in both audience and content. Limiting physical meetings to national and regional levels may be a more effective approach moving forward. However, achieving these changes is undoubtedly easier said than done.

In conclusion, while conferences are crucial for advancing medical knowledge, their overwhelming frequency can undermine their effectiveness, strain resources, and disrupt clinical practice. To enhance their value, we should limit the number of conferences, focus on specialized topics, target specific audiences, and ensure transparency and cost-efficiency. By adopting these measures, we can improve the quality of these events and better support healthcare professionals in their ongoing development.

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ROLE OF ANESTHESIOLOGISTS IN THE MANAGEMENT OF CANCER PATIENTS

Global cancer burden is growing amidst the mounting need for services. With advances in medical science now more treatment options are available, but the disease results in poor quality of life of the patients and caregivers, especially in metastatic and recurrent cases. Not only the advances in medical oncology, surgical oncology, nuclear medicine and radiation oncology but the evolved anesthesia techniques have markedly improved the management of this deadly disease. The question arises: what special role can an anesthesiologist play to contribute significantly to the management of such patients? Onco-anesthesiology is emerging as a superspeciality because there is lot to offer as 'perioperative care physicians'. This article highlights the role of anesthesiologists in management of cancer patients besides the usual intraoperative anesthesia, pain and critical care management.

The importance of prehabilitation

Cancer affects the patient physically, emotionally, mentally, financially, and socially. A holistic approach that addresses all these dimensions from the time of diagnosis is needed. These patients come into contact of an anesthesiologist at the time of preanesthetic checkup. Specialized knowledge of the disease physiology, side effects of neoadjuvant chemotherapy and radiotherapy is needed for preoperative evaluation. Surgeons need to be sensitized to send patients to anesthesiologists as early as possible so that prehabilitation is initiated at the earliest, especially for the patients who are frail, emaciated, post neoadjuvant chemotherapy or radiotherapy and posted for major surgeries. Prehabilitation significantly improves the functional reserve of the patient to withstand the surgical stress by making them " fit to fight". It consists of medical optimization, structured preoperative exercise programmes, hematinic optimization, nutritional support, psychological support and reversal of modifiable risk factors e.g. alcohol and smoking cessation. Ideally, this needs a multidisciplinary approach that involves surgeons, anesthesiologists, physiotherapists, psychotherapists, and nutritionists. CPET (Cardio pulmonary exercise testing) plays a major role in risk stratification by providing information on parameters like anaerobic threshold and maximum oxygen consumption. CPET guided training is a part of prehabilitation after neoadjuvant chemoradiotherapy and before surgery.

Integration of palliative care in the perioperative period

Palliative care relieves suffering and improves quality of life of people at any stage whether illness is curable, chronic or life threatening. Anesthesiologists can provide palliative care right from the time of diagnosis till the discharge of the patients. They can provide acute and chronic pain management with pharmacotherapy and interventions in the form of pain blocks, neurolysis and neuroablation. Besides this, cancer patients need total pain management, which involves psychosocial support to the patient and family with

sophisticated prognostication and a higher level of communication. A thorough understanding of symptom burden like nausea, vomiting, constipation, cough, dyspnea etc caused by ongoing treatment or disease progression and its management is essential in these patients. Procedures like ascitic tap, pleural tap, pigtail insertion and pleurodesis can be done to provide symptomatic relief.

Anesthesiologists , as perioperative physicians, can provide holistic management to a patient planned for surgery, whether with curative or palliative intent. While dealing with palliative surgeries, a 'patient and family' centred approach must be followed and shared decision making should be encouraged . Further, if the disease progresses postoperatively, the patient's wishes regarding 'end of life care' should be considered. The benefits of perioperative palliative care are better patient and caregiver satisfaction, a significant reduction in surgical mortality and improved patient-centric and value-based outcomes. Other challenges in palliative surgeries are terminal illness, comorbidities, ethical issues in palliative patients including DNR(do not resuscitate) orders, high risk surgeries, paucity of time for optimization and prehabilitation in emergency surgeries and high symptom burden management.

Importance of ERAS(Enhanced recovery after surgery) and RIOT (Return to intended oncological treatment)

The anesthesia techniques in oncosurgeries should be tailored to enhance patients' postoperative recovery and allow them to return to the intended oncological treatment in a timely manner while minimizing the risk of cancer recurrence and progression.

Minimizing prolonged fasting, deep vein thrombosis prophylaxis, goal directed fluid therapy, maintaining normothermia, early ambulation, early removal of drains, management of postoperative nausea and vomiting and early nutrition postoperatively are some of the basic principles for most of the surgeries that impact the outcome. ERAS guidelines for pancreatoduodenectomy recommend preoperative biliary drainage if the bilirubin level is above 250 µmol/L. Hence, decompression with percutaneous biliary drainage or stenting can be planned preoperatively for such neoplastic cases of obstructive jaundice. Opioid sparing and multimodal analgesia for good pain relief and restricted use of opioids are the mainstay of analgesia, as both opioids and stress due to pain are known to contribute to cancer recurrence.

Lastly comes the challenging scenarios of HIPEC(hyperthermic intraperitoneal chemotherapy), mediastinal, thoracic surgeries and difficult airway in head and neck malignancies and tumors involving the lower airway where the expertise and skill of an anesthesiologist make all the difference.

Oncocritical care

Besides post chemotherapy febrile neutropenia and sepsis or post radiation pneumonitis certain acute medical conditions arise in cancer patients by disease progression, treatment related complications or comorbidities. These oncological or palliative emergencies like superior vena cava syndrome, malignant spinal cord compression, hypercalcemia, malignant bowel obstruction, tumor lysis syndrome, hyperleukocytosis, dyspnea, pain crisis, bleeding and hemorrhage need to be recognized and managed promptly.

Another aspect besides the usual critical care that we offer is integrating palliative care in the intensive care unit for cancer patients. It includes bereavement and psychosocial support for patients and families, assessment of pain and other symptoms of the patient and psychosocial spiritual needs of the family. We need to identify the ‘ surrogate decision maker’ and clarify ‘advanced directives’ in terminally ill patients. A high burden of symptoms in cancer patients affects the quality of life; hence, initiation of palliative care during an ICU stay or even upon discharge improves patient satisfaction and outcomes. Terminally ill patients with no curative intent should be given realistic hope and explained regarding the futility of treatment. In such cases, family meetings should be held to explain palliation and discuss do-not-resuscitate or do-not-escalate orders, if appropriate.

To conclude, anesthesiologists work behind the curtains, but they have an indispensable role to play in the oncology set up, which impacts the life of cancer patients significantly. As perioperative physicians, palliative care physicians, pain management experts and critical care physicians, they have a lot to contribute to cancer management. Dealing with cancer patients demands a deeper understanding of the disease, its perioperative course and its effects on the patient and caregivers. With the evolution of new cancer therapies, there is an excellent scope of research in the field of onco-anesthesia.

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SUPRAGLOTTOPLASTY AND ANAESTHETIC IMPLICATIONS

Introduction

Larnygo -tracheomalacia is a rare yet serious condition associated with high mortality and often requires prolonged intubation and mechanical ventilation(1). It is the most common congential abnormality of larynx and most common cause of non-infective stridor in children appearing few weeks to months after birth, more in inspiration, crying and supine position (1). It is characterized by short aryepiglottic folds, redundant arytenoid tissue, and a long curled epiglottis. By 12-24 months of age, most cases of laryngomalacia self-resolve; however, 10%-20% of patients have severe symptoms that necessitate surgical intervention(2). Commonly associated co-morbidities include- Gastroesophageal reflux disease (GERD), neurological diseases, secondary airway lesions and congenital heart diseases (CHD)(3). Supraglottoplasty is the well-known surgical treatment for laryngomalacia (4). Anaesthetic management of these patients is challenging due to anticipated difficult airway.

Laryngomalacia and Its Surgical Management

Laryngomalacia is a congenital defect secondary to underdevelopment of central nervous system particularly the peripheral nerves and brainstem nuclei responsible for normal respiration. It is the most common congential abnormality of larynx and most common cause of non-infective stridor in children appearing few weeks to months after birth, more in inspiration, crying and supine position (1). A reliable diagnosis in patients with suspected laryngomalacia can be made using flexible laryngoscopy(5). Characteristic findings include inspiratory supraglottic collapse, shortened aryepiglottic folds, tubular or omega shaped epiglottis and poor visualization of the vocal cords(6). Commonly associated co-morbidities include- Gastroesophageal reflux disease (GERD), neurological diseases, secondary airway lesions and congenital heart diseases (CHD)(3). Down syndrome appears to be the most commonly reported associated genetic disorder with laryngomalacia (3).

Supraglottoplasty is the well-known surgical treatment for severe laryngomalacia (4). 10%-20% of patients have severe symptoms that necessitate surgical intervention(2). Supraglottoplasty involves excision of redundant tissue over the lateral edge of epiglottis, aryepiglottic folds , arytenoids and corniculate cartilage(8). It may be classified into the following types- Type 1: Debulking of arytenoids, Type 2: Division of aryepiglottic folds, Type 3: Epiglottis surgery(9). It can be performed using either CO2 laser, microdebrider or with cold steel instruments.

Anaesthetic Implications

Preoperative assessment of these patients should include a targeted history to identify situation and positions that worsen or improve obstructive symptoms . An increased incidence of gastroesophageal reflux disease (GERD) is seen in patients with laryngomalacia

(10). Airway management of these patients is challenging with risk of total airway obstruction (1). Possible anaesthetic options have been described as-sedation with topical anaesthesia , general anesthesia with inhalational or intravenous methods (1). Chief anaesthetic implication during induction of these children is to maintain spontaneous ventilation and to prevent airway collapse due to dynamic nature of obstruction (11).Premedication is essential to prevent vagal responses and sialation (12). Mild sedation prevents the child from crying and hyperventilating as it may worsen the stridor(12). Mask ventilation is challenging in laryngomalacia as the airway may collapse when the muscle tone is lost following induction. Endotracheal intubation of patients with laryngomalacia is difficult due to the large lax overhanging epiglottis. Inhalational induction is preferred and neuromuscular blockade is preferably avoided till the airway is secured with ETT(13). Video laryngoscopy with pediatric scope is another method for difficult intubation if available. Apnoeic and jet ventilation are other methods of anaesthesia (12). No prospective studies have been published to evaluate the utilization of post-operative intubation after supraglottoplasty (14). In a case series survey by Vaibhav etal, he observed that in appropriately selected patients post-operative intubation and ICU monitoring can be safely avoided (12).

Summary

Laryngomalacia is the most common cause of stridor in infancy. The anesthesiologist plays a major role to ensure a safe operating environment. Chief anaesthetic implication during induction of these children is to maintain spontaneous ventilation and to prevent airway collapse. GERD is often associated with severe laryngomalacia. Administration of anaesthesia to a neonate is in itself a challenge which is compounded in these cases by the presence of laryngomalacia. Careful attention to detail is required for a successful outcome.

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HOW REGIONAL ANESTHESIA HELPS IN CHRONIC PAIN MANAGEMENT

Chronic pain is pain persisting or recurring beyond 3 months duration and compromising the patient's quality of life. Chronic pain management includes pharmacotherapy, followed by interventions in refractory cases. Traditionally, the interventions in chronic pain management were performed under fluoroscopy guidance. However, over the last decade, ultrasound has emerged as a promising solution for interventions in chronic pain. Fluoroscopy is mainly used for spine and joint interventions, but its major disadvantage is that it fails to identify blood vessels and viscera, and this is the area where ultrasound takes an upper hand.

Regional anesthesia techniques target a particular nerve or plexus which is the principal pain generator, and depositing local anesthetic agent close to these pain generators blocks the peripheral nerve endings, inhibiting transmission of pain signals to the spinal cord and brain. Recently, regional anesthesia has emerged as an effective treatment modality for certain chronic pain conditions like complex regional pain syndrome, neuropathic pain states and cancer pain.1

There is a vicious cycle of chronic pain, where pain leads to decreased mobility, further leading to disuse atrophy of muscles which then leads to physical dependence and psychological stress, hence further aggravating the pain. The local anesthetic agents used in regional anesthesia would have a short duration of action, so how would it help in chronic pain states? It basically helps to "Break the pain cycle" and then patients are encouraged to start physiotherapy and rehabilitation, which further takes care of the chronic pain.

Myofascial pain is the leading cause of chronic low back pain.2 Fascial plane blocks have recently been explored as an effective means of analgesia for chronic pain conditions,3 especially for myofascial pain. One proposed mechanism of action is that hydro dissection of interfacial planes leads to opening up of various adhesions which might be the cause of chronic myofascial pain.4

Erector spinae plane block (ESPB), has alone proved to be an effective analgesia technique for many chronic pain conditions like chronic low back pain with radiculopathy, cervical radiculopathy, thoracic neuropathic pain, cancer related pain(Figure 1). There are 2 proposed mechanisms of action of ESPB-blocking the dorsal ramus and separation of adhesions by hydro dissection between fascia.5 Low lumbar ESPB has also been tried for analgesia in lower limb chronic regional pain syndrome (CRPS). 6

Another important area where regional anesthesia helps in chronic pain management is persistent post-surgical pain (PPP). Regional anesthesia techniques like thoracic paravertebral block and thoracic ESPB have been proven to be useful for post thoracotomy pain syndrome.7 Entrapment of Ilioinguinal, iliohypogastric, genitofemoral, lateral femoral cutaneous or femoral nerve often leads to chronic post herniorrhaphy inguinal pain (CPIP). This condition can be diagnosed with an ultrasound guided diagnostic block of the particular nerve, followed by ultrasound guided pulsed radiofrequency ablation of the inciting nerve.8

Regional anaesthesia can be used as a treatment modality in chronic shoulder pain (Figure 2). In a recent study, ultrasound guided suprascapular nerve block, followed by ultrasound guided pulsed radiofrequency treatment of the nerve has been shown to provide pain relief up to 6 months in patients with chronic shoulder pain.9 Similarly, ultrasound guided genicular nerve block, followed by radiofrequency ablation of genicular nerves has proven to provide long term pain relief in patients with chronic knee pain due to osteoarthritis.10

The regional anesthesia techniques for chronic pain management provides a targeted approach to the pain generator, hence it helps to avoid major side effects associated with systemic medication like sedation, tolerance and gastrointestinal disturbances. A major advantage of regional anesthesia is avoiding radiation exposure to the patient and pain physician as occurs with fluoroscopy guided procedures. Regional anesthesia techniques also have certain limitations, like the techniques are not yet standardized in terms of the drug and its volume to be used for each patient.1 The duration of analgesia with regional anesthesia techniques is a major limitation which needs further research on the topic.

To conclude, regional anesthesia techniques by skilled hands can take chronic pain management a long way.

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Figures

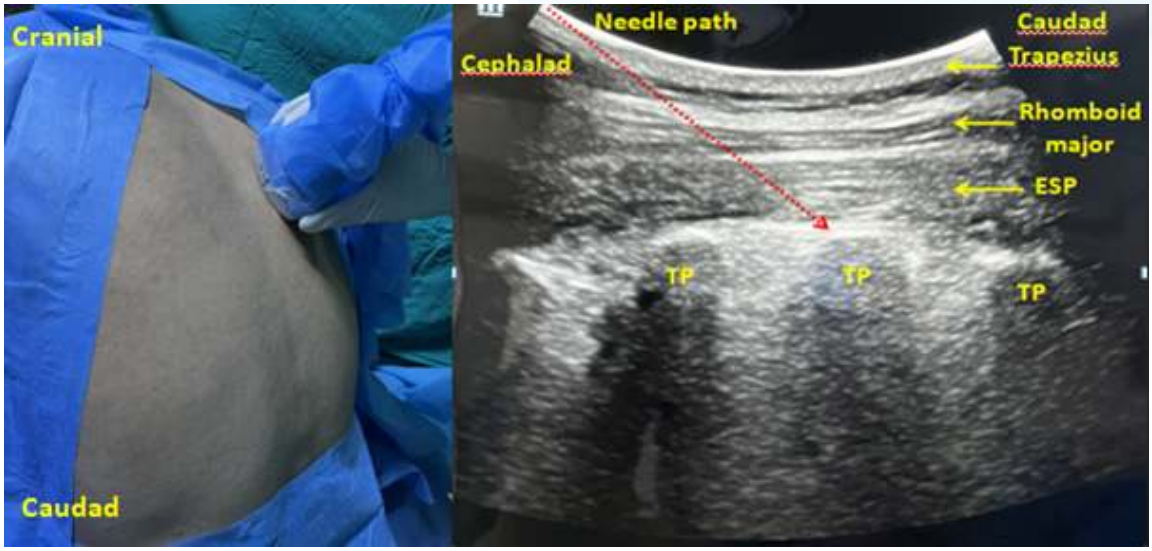

Figure 1: Ultrasound guided Erector spinae plane block being performed for a patient with post thoracotomy pain syndrome.

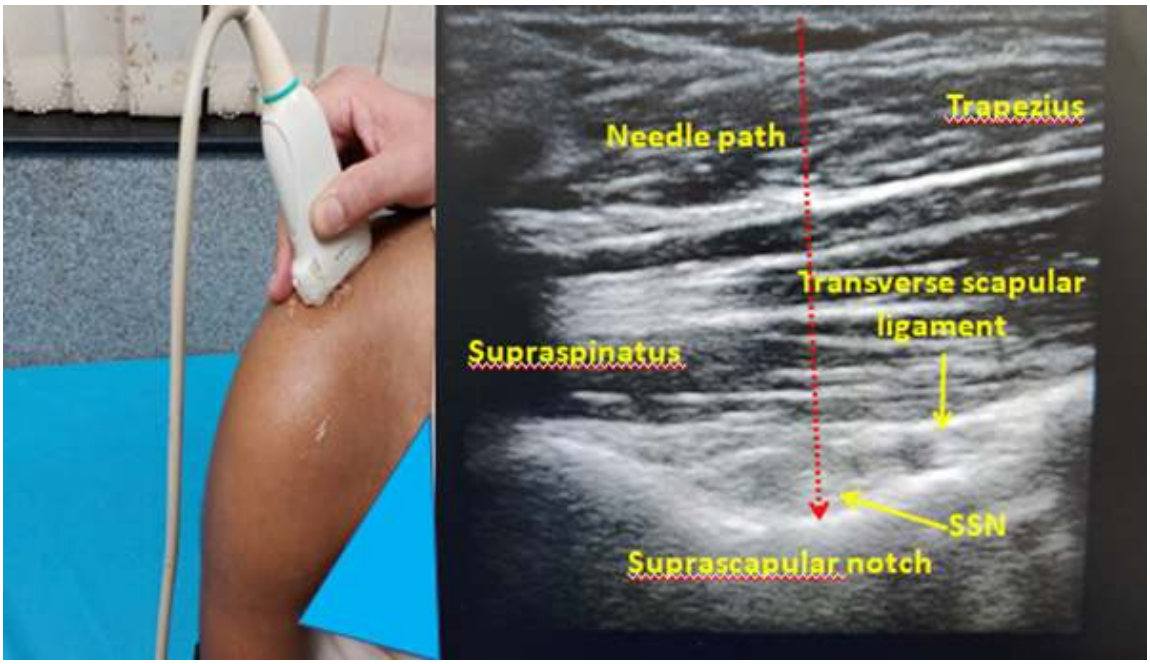

Figure 2: Ultrasound guided suprascapular nerve block in a patient with chronic shoulder pain

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AUTOMATION IN ANAESTHESIA: THE UPRISE OF CLOSED LOOP ANAESTHESIA DELIVERY SYSTEMS

Introduction

The administration of anesthesia is a complex process that requires the constant vigilance and expertise of an anaesthesiologist. A primary challenge is the precise titration of anesthetic drugs to maintain a desired level of unconsciousness, analgesia, and muscle relaxation while minimizing adverse effects. This target should coincide with the smooth conduct of anaesthesia and providing optimum surgical conditions in patients of varied physiological baselines, pathological manifestations and anaesthetic requirements. Traditionally, this has been a manual process, reliant on the anaesthetist's judgment and experience. However, recent advancements in technology have opened up new possibilities for optimizing anesthetic care through automation.

Closed-loop anesthesia (CLA) represents a significant step forward in this direction. By integrating real-time patient monitoring with automated drug delivery, CLA aims to create a dynamic system that continuously adjusts drug infusion rates to maintain a predetermined anesthetic state.(1) This approach holds the promise of enhancing patient safety, improving efficiency, and providing a more consistent and personalized anesthetic experience. In this review, we aim to steer through the basics of closed loop anaesthesia delivery systems, understand the components of a practical CLA system, review the current advancements and challenges and the potential prospects of this recent and beneficial technology.

Understanding Closed-Loop Anesthesia

Closed loop anaesthesia is an automated process that manages delivery of anaesthesia not only through the monitoring of standard physiological parameters such as heart rate, respiratory rate, minute ventilation, air way pressure, end-tidal CO2 through capnography, but also taking into account the depth of anaesthesia, scrutinising the three basic components of anaesthesia, i.e. hypnosis, nociception and muscular relaxation. This is of course above and beyond the, blood

Sensing for hypnosis, or unconsciousness, during anesthesia is critical for patient safety. Various tools to assess the brain activity have been incorporated, but its complex nature has presented challenges for real-time analysis. Electroencephalogram (EEG) has long been recognized as an assessment tool for hypnosis, but better techniques to extract meaningful information from EEG signals, such as the median frequency and spectral edge frequency have also been exploited. However, it was the advent of the Bispectral Index (BIS) monitor which quantifies brain electrical activity, has marked a breakthrough in EEG-based anesthesia monitoring. More recently, entropy-based measures and wavelet-based indices, such as the NeuroSense monitor, have emerged as promising alternatives to BIS, offering potential advantages in terms of speed and sensitivity.

Assessing pain, or nociception, during anesthesia is equally important but presents even

greater challenges. Traditional methods rely primarily on patient self-report and behavioural observations, but are not feasible in an operative setup. Consequently, physiological parameters like heart rate and blood pressure have been used as indirect indicators of pain, but are easily influenced by confounding factors and lack specificity. In recent years, researchers have explored the use of more sophisticated techniques, such as the Surgical Stress Index and wavelet-based cardio-respiratory coherence analysis, to detect nociceptive responses. However, these methods are still under development and require further validation

Monitoring neuromuscular blockade is essential for ensuring adequate muscle relaxation during surgery. Traditional methods of measuring nerve stimulated muscle twitch is quite invasive and time-consuming. Newer lesser invasive approached include phonomyography, which measures muscle sound. However, further research is needed to refine these techniques and make them suitable for a clinical setting.

Components of Closed loop anaesthesia systems.

At the core of CLA is a feedback control loop. This involves the continuous measurement of relevant physiological parameters,that are processed by a control algorithm to determine the necessary adjustments to drug infusion rates. The system then delivers the calculated drug dose, and the process repeats in a continuous cycle.
A typical closed-loop anesthesia system comprises several key components:

- Sensors: These devices continuously monitor patient parameters, including heart rate, blood pressure, oxygen saturation, end-tidal carbon dioxide, and depth of anesthesia.
- Data Acquisition and Processing: The collected data is transmitted to a central processing unit, where it undergoes analysis and interpretation.
- Control Algorithm: This software component determines the optimal drug infusion rates based on the patient's physiological state and predefined targets.
- Drug Delivery System: Precisely controlled infusion pumps deliver the anesthetic agents according to the control algorithm's instructions.

Benefits of Closed-Loop Anesthesia

While CLA is still an emerging field with significant challenges to overcome, the potential benefits are substantial. As technology continues to advance, it is likely that closed-loop anesthesia will play an increasingly important role in the future of anesthetic care. The implementation of closed-loop anesthesia offers several advantages:

- Enhanced Patient Safety: By maintaining a stable anesthetic state, the risk of complications due to inadequate dosing of anaesthetic agents such as hypotension, hypertension, and intraoperative awareness is reduced.
- Improved Efficiency: Automated drug delivery helps to reduce the cognitive load on the anaesthetists, thus helping them to focus on other critical tasks, such as managing the

airway and monitoring the patient's overall condition.

- Optimized Resource Utilization: Closed-loop systems can help reduce drug wastage by precisely delivering the required amount of anesthetic agents.
- Personalized Care: By continuously adapting to individual patient responses, closed-loop anesthesia provides tailored anesthetic care as per the physiological requirements of individual patients.
- Potential for Research and Development: Closed-loop systems generate vast amounts of data, which can be used for research to refine anesthetic protocols and develop new therapeutic strategies.

Challenges and Future Directions:

- Economic Feasibility: The high initial cost of hardware and software presents a significant barrier to widespread adoption of closed-loop anesthesia systems.
- Technical Expertise: Implementing and operating these systems requires specialized training for both medical and engineering professionals, which may limit their accessibility.
- Data Privacy: Protecting sensitive patient information is paramount, necessitating robust security measures to prevent data breaches.
- Algorithm Optimization: Continuous refinement of control algorithms is essential to improve system performance and ensure optimal patient outcomes.
- Educational Implications: The use of automation in anesthesia, compromises the traditional teaching and cognitive learning during medical education that enhances critical thinking, problem-solving, and the ability to interpret data in opposition to use of automated systems.

Conclusion

Closed-loop anesthesia represents a significant step forward in the field of anaesthesiology. By leveraging technology to deliver precise and individualized care, this innovative approach has the potential to revolutionize patient safety and outcomes. As research and development continue to advance, closed-loop systems are poised to become an integral part of the anaesthetist's toolkit, ushering in a new era of patient care.

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PAEDIATRIC OBSTRUCTIVE SLEEP APNEA: CONCERNS

Definition

Paediatric obstructive sleep apnea (OSA) is a sleep related breathing disorder in children characterised by repeated episodes of partial or complete obstruction of the upper airway during sleep.1 This obstruction can lead to disrupted ventilation, hypoxemia, and disturbed sleep.

Diagnosis

Diagnosing OSA in children can be challenging and evaluation primarily relies on a comprehensive review of their medical history. A focused sleep history should include:

1. Evidence of obstructed breathing2:
   Presence of snoring
   Observed pauses in breathing during sleep
   Disturbed sleep and Night terrors
   Frequent nighttime arousals
2. Evidence of poor sleep hygiene2:
   Daytime sleepiness
   Nocturnal enuresis
   Behaviour changes
   Learning difficulties and poor school performance

General physical examination including identifying craniofacial anomalies, estimating tonsil and adenoid size, assessment of obesity, and signs of systemic/ pulmonary hypertension are crucial in the evaluation of the cause of Pediatric OSA.

The gold standard for diagnosing OSA is polysomnography which continuously monitors various physiological variables during sleep to distinguish OSA from primary snoring.3. It should include at least two full nocturnal sleep cycles, conducted without premedication or sleep deprivation.4 The following parameters are recorded during the sleep study:

Apnea-hypopnea index (AHI)- the number of combined hypopnoea and apnoea events secondary to obstructive events during sleep for 60 min.

o Hypopnea is defined as reduction of airflow ≥ 30% for at least two respiratory cycles; it is associated with an arousal or a desaturation > 3%.

o Apnoea is defined as the reduction of airflow of more than 90% for at least two respiratory cycles; it is central if the inspiratory effort is absent and is mixed if there is a respiratory effort present only during part of the event.4

Respiratory disturbance index (RDI)- measures the number of apnoeic/hypopnoeic episodes and a third category Respiratory effort related arousals (RERAs) per hour.

Degree of hypoventilation

In children, the presence of even a single apneic or hypopneic episode per hour is deemed pathological. OSA severity is classified based on the Apnea-Hypopnea Index (AHI) as follows: Mild (AHI 1-4), Moderate (AHI 5-9), and severe (AHI ≥ 10).3 Despite its effectiveness, polysomnography is resource-intensive, expensive, and not always readily available.

Another tool such as The McGill Oximetry Scoring System assesses OSA severity based on the lowest oxygen saturation recorded during nocturnal oximetry.5 This tool helps screen for severe cases and identify children needing urgent intervention.

Table 1: McGill Oximetry Scoring System

Oximetry score	OSA classification	Number of events of $Sp_{O_2} < 90\%$	Number of events of $Sp_{O_2} < 85\%$	Number of events of $Sp_{O_2} < 80\%$
1	Normal/inconclusive for OSA	<3	None	None
2	Mild	≥3	≤3	None
3	Moderate	≥3	>3	≤3
4	Severe	≥3	>3	>3

Anaesthetic Concerns

Anesthesia in children with OSA presents unique challenges and concerns. These include: Preoperative Concerns-

1. Cardiopulmonary status

Children with nadir oxygen desaturation episodes dropping to 70% during sleep are at risk of developing chronic hypercarbia and elevated pulmonary pressures, potentially leading to cor pulmonale.3 Such children should undergo an electrocardiogram, echocardiogram, and a cardiologist evaluation prior to elective surgery.

2. Sedation and Premedication

Sedative premedication should be used with caution in children with severe OSA due to the risk of significant airway obstruction and severe oxygen desaturation. Those who receive sedative premedication must be closely monitored through clinical observation and continuous pulse oximetry until they are safely transferred to the operating room.

PAEDIATRIC OBSTRUCTIVE SLEEP APNEA: CONCERNS

Intraoperative Concerns-

1. Airway Management

Induction of anesthesia anaesthesia can result in a state that resembles that of natural sleep with increased airway collapse. Anaesthetic drugs can exacerbate airway obstruction due to relaxation of the pharyngeal muscles and failure of coordination of upper airway muscles with diaphragmatic activity.

Anaesthetists should ensure that airway management equipment are readily available including various sizes of face masks, oral and nasopharyngeal airways, tracheal tubes, and laryngeal mask airways.
Of all of the potential manoeuvres, the jaw thrust to treat airway obstruction in these patients is the most useful and is superior to the chin lift.

2. Sensitivity to Opioids

Children with OSA are more sensitive to opioids due to various central and peripheral mechanisms. Severe OSA often leads to an up-regulation of μ-opioid receptors from recurrent hypoxemia, increasing the risk of respiratory depression from opioid use. OSA patients also show a diminished ventilatory response to hypoxemia.
It is advisable to use reduced opioid dose with careful titration for these children, along with continuous monitoring, including pulse oximetry. Short-acting opioids are preferred over long-acting ones to facilitate quicker recovery of pharyngeal tone and reduce the risk of postoperative hypoxemia and hypercarbia.

Postoperative Concerns-

Residual effects of anesthetic drugs and opioids used for postoperative pain relief can lead to significant airway obstruction.1,2 These complications typically present as recurrent apneas, hypopneas, oxyhemoglobin desaturation, and hypercarbia.

Therefore, continuous monitoring of oxygen saturation, respiratory rate, and level of consciousness is essential. Postoperative care should be conducted in a setting where monitoring is available, such as a recovery room or ICU.2 Additionally, children with a history of pulmonary hypertension and cor pulmonale may also be at risk for circulatory failure.

In summary, children with OSA pose a distinct risk of perioperative respiratory complication and addressing the above concerns through careful planning and multidisciplinary collaboration can help ensure safer anaesthesia management for children with OSA.

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REGENERATIVE PAIN MEDICINE

Regenerative pain medicine is an emerging discipline that leverages the body's intrinsic healing mechanisms to address chronic pain conditions. With the increasing prevalence of chronic pain and the associated challenges of opioid dependency and inadequate responses to conventional treatments, regenerative therapies are gaining traction as viable alternatives. This essay provides a detailed examination of the principles, methodologies, clinical applications, and future directions of regenerative pain medicine, tailored for medical professionals.

Chronic pain, defined as pain persisting beyond three months, can arise from various etiologies, including musculoskeletal disorders, neuropathic conditions, and inflammatory diseases. Unlike acute pain, which serves a protective function, chronic pain often becomes a complex condition characterized by neuroplastic changes and central sensitization. Traditional pain management strategies, including pharmacological interventions such as opioids and NSAIDs, frequently fall short in addressing the multifaceted nature of chronic pain and may lead to significant adverse effects, including dependency and tolerance. Consequently, there is a pressing need for alternative approaches that not only alleviate symptoms but also target the underlying pathophysiological processes.

Regenerative medicine encompasses a range of techniques aimed at repairing or replacing damaged tissues and organs. The foundational principle is to harness the body's innate healing capabilities through the application of biological therapies. Key methodologies include:

Stem Cell Therapy: Stem cells, characterized by their ability to differentiate into various cell types, are pivotal in tissue regeneration. Mesenchymal stem cells (MSCs), sourced from bone marrow or adipose tissue, have demonstrated promise in modulating inflammation and promoting healing in musculoskeletal injuries and degenerative conditions.

Platelet-Rich Plasma (PRP) Therapy: PRP is derived from the patient's blood and contains a concentrated source of platelets, which release growth factors and cytokines that facilitate tissue repair. Clinical applications include the treatment of tendon injuries, osteoarthritis, and post-surgical recovery.

Viscosupplementation: This technique involves the intra-articular injection of hyaluronic acid to restore the viscoelastic properties of synovial fluid, thereby improving joint function and alleviating pain in conditions such as osteoarthritis.

Prolotherapy: Prolotherapy involves the injection of an irritant solution, often hypertonic dextrose, into painful areas to stimulate a localized inflammatory response that promotes healing and strengthens connective tissues.

Clinical Applications of Regenerative Pain Medicine

The application of regenerative medicine in pain management is diverse, addressing a variety of chronic pain conditions. Notable clinical applications include:

Musculoskeletal Disorders: Regenerative therapies have shown efficacy in treating conditions such as rotator cuff tears, lateral epicondylitis, and knee osteoarthritis. Evidence suggests that both MSC and PRP therapies can significantly reduce pain and improve functional outcomes in these populations.

Spinal Disorders: Regenerative approaches are being investigated as alternatives to surgical interventions for spinal pathologies. Intradiscal injections of stem cells aim to regenerate degenerated intervertebral discs, potentially alleviating pain and improving mobility.

Neuropathic Pain: Emerging research indicates that regenerative therapies may have a role in managing neuropathic pain conditions, such as diabetic neuropathy and post-herpetic neuralgia, by addressing underlying nerve damage and promoting nerve regeneration.

Regenerative pain medicine offers several advantages over traditional pain management strategies:

Targeted Treatment: Regenerative therapies can be administered directly to the site of injury, providing localized relief while minimizing systemic side effects.

Reduced Dependency on Medications: By addressing the underlying mechanisms of pain, regenerative therapies may decrease the need for long-term pharmacological interventions, thus lowering the risk of opioid dependency and associated complications.

Minimally Invasive Procedures: Many regenerative treatments, such as PRP and stem cell injections, are minimally invasive, allowing for quicker recovery times and less disruption to patients' daily activities.

Promotion of Natural Healing: Unlike conventional treatments that may merely mask symptoms, regenerative medicine aims to enhance the body's natural healing processes, potentially leading to more sustainable outcomes.

Despite the promising potential of regenerative pain medicine, several challenges must be addressed:

Standardization of Protocols: The lack of standardized protocols for the extraction, preparation, and administration of regenerative therapies poses challenges in clinical practice. Establishing guidelines will be essential for ensuring consistency and efficacy.

Research and Evidence: While preliminary studies indicate positive outcomes, further

rigorous clinical trials are necessary to validate the efficacy and safety of various regenerative treatments compared to traditional modalities.

Understanding Pain Mechanisms: Continued research into the molecular and cellular mechanisms underlying pain perception and tissue regeneration is crucial for developing more targeted and effective therapies.

Personalization of Treatments: The future of regenerative medicine may involve personalized approaches that consider individual patient characteristics, including genetic factors, overall health, and specific pain conditions, to optimize therapeutic outcomes.

Conclusion

Regenerative pain medicine represents a paradigm shift in the management of chronic pain, offering innovative strategies that harness the body's natural healing capabilities. Through techniques such as stem cell therapy, PRP, and viscosupplementation, clinicians can provide patients with effective pain relief while minimizing the risks associated with traditional pharmacological interventions. As research advances and clinical applications expand, regenerative medicine holds the potential to redefine pain management, offering a more holistic and patient-centered approach to treating chronic pain conditions. By addressing the root causes of pain and promoting healing, regenerative therapies may pave the way for a future where pain management is more effective, sustainable, and aligned with the principles of regenerative medicine.

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ERECTOR SPINAE PLANE BLOCK FOR LOW BACK PAIN WITH RADIATION TO THIGH IN A PATIENT WITH GERM CELL TUMOR LEFT TESTIS WITH RETROPERITONEAL METASTASIS: A CASE REPORT

Background: Neuropathic pain due to cancer is often poorly responsive to oral and topical pharmacotherapy. We present an interesting case of Germ cell tumor with metastasis to retroperitoneum and abdominopelvic region, who developed severe low back ache (LBA) with radiation to thigh and was unable to lie supine for radiotherapy because of the pain despite maximal medical therapy. In this case report we describe the successful application of erector spine plane block (ESPB) for severe neuropathic pain.

Case description: A 26 years male with Germ cell tumor of left testis with metastasis presented to the pain clinic with severe back pain radiating to left hip and back of thigh. A Computed Tomography Scan abdomen revealed a septated cystic lesion in the left hemiscrotum and large multiseptated solid cystic lesion in the retroperitoneum and abdominopelvic region on the left side, one of its solid components showing loss of fat planes with left iliacus, causing compression of the left ureter with upstream left moderate hydroureteronephrosis, destructive soft tissue lesion involving the L5 vertebral body with extension into the bony spinal canal and cystic lesion in the thorax. Findings were suggestive of recurrent left hemiscrotal lesion with metastatic lesions in the thoracoabdominal region and spine. He reported constant burning and stabbing neuropathic pain of 10/10 severity on numerical rating score radiating from his lower back to the back of the left thigh. The patient was not able to sit or lie down due to severe pain and was supposed to undergo radiotherapy for which he needed to lie down.

Ultrasound (US) measurements were performed using a Sonosite Edge machine and a linear transducer (Sonosite Inc) 6 to 13 MHZ. We gave ESPB block at L5 level under ultrasound guidance with 20 ml of 0.25% bupivacaine and 4mg of dexamethasone. The location of the needle tip was confirmed by visible fluid spread, lifting the erector spinae muscle off the bony shadow of the transverse process .Within few minutes, the patient reported significant pain relief with an NRS of 0/10. He remained pain free for 3 days after the block.

The pain score again increased to 8/10 after 6 days and then we planned to give continuous ESPB. After adequate skin asepsis and draping, in sitting position, patient's spine was palpated and L5 spine was marked. 6–13 MHz linear array US transducer in sterile sheath was kept in midline at L5 level in craniocaudal direction and moved laterally 2.5–3 cm from midline (on the side of pain) to identify the L5 transverse process . After infiltration with 2 mL of 2% lignocaine, a 18G Tuohy needle was introduced in a cranio-caudal direction, using in-plane technique and navigated to touch the transverse process underneath the erector spinae muscle. Hydro dissection with 2 ml normal saline was done to confirm separation of Erector spinae muscle from Transverse process. Under US guidance, 25 ml of 0.25% Bupivacaine with 4ml of Dexamethasone was injected in an interfacial plane deep to erector spinae muscle and drug spread was seen in the ESP plane craniocaudally in real time. It was followed by threading an 18 G epidural catheter through the needle caudally, at least 5 cm

beyond the needle tip, deep to the Erector spinae muscle plane. Position of the catheter was confirmed by US and it was secured and maintained for 3 days with infusion of 0.125% Bupivacaine at 5 mL/h using elastomeric pump. Patient subsequently remained pain free for a longer time, the severity of pain was much less and the nature of the pain also changed.

Discussion: ESPB is a novel, ultrasound guided, fascial plane block that has been described for thoracic neuropathic pain1, lower cervical pain2, interscapular myofascial pain etc. This report suggests that ESPB can be considered an effective pain relief modality in lumbar neuropathic pain as well. EPSB is a safe and comparatively easy procedure which provides an extensive coverage of several dermatomes and its Sono anatomy is easily recognizable with no structures at risk of needle injury. In general, the first choice for the treatment of LBA is conservative therapy. However, this patient had already taken many different medications with no results. Epidural block is a good choice for interventional therapy. Caudal epidural block was not effective in this case, probably because fibrotic adhesions which interfered with the spread of the analgesic solution. Spinal cord stimulation also plays an important role in pain management but is more invasive and expensive procedure. Hence, ESPB can be considered valuable primary treatment option before the implementation of more invasive treatments for neuropathic low back pain.

Learning points: A simple and safe fascial plane block like ESPB can be used to treat complex neuropathic pain. Repeated blocks may help to reduce the severity and characteristics of pain and improve the patient's quality of life1. Complication rates and side effects are comparatively very low with this block4.

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SILENT BEGINNINGS: THE ENIGMATIC LINK BETWEEN CHILDHOOD ANAESTHESIA AND ATTENTION DEFICIT HYPERACTIVITY DISORDER

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by persistent patterns of inattention, hyperactivity, and impulsivity. It affects millions of children worldwide, significantly impacting their academic performance, social interactions, and overall quality of life. While genetic predispositions play a substantial role in the development of ADHD, environmental factors are also critical. The interplay between early childhood experiences and developmental outcomes has long intrigued scientists and clinicians alike. One such factor that has recently garnered attention is the exposure to anaesthesia in early childhood. Among the myriad factors under investigation, the potential link between anaesthesia exposure in childhood and the development of ADHD stands out due to its complex and multifaceted nature.

The Hypothesis: Anaesthesia as a Risk Factor

The hypothesis that anaesthesia exposure could be linked to ADHD stems from concerns about the neurotoxic effects of anaesthetic agents on the developing brain. Animal studies have shown that anaesthetics can induce widespread neuronal apoptosis (programmed cell death) and alter synaptic plasticity during critical periods of brain development.[2] These findings have led researchers to investigate whether similar effects might occur in human children and whether these effects could manifest as neurodevelopmental disorders such as ADHD.

Mechanisms of Action

To understand how anaesthesia might influence the development of ADHD, it's essential to consider the underlying mechanisms. Anaesthetics work by modulating neurotransmitter systems, particularly gamma-aminobutyric acid (GABA) and N-methyl-D-aspartate (NMDA) receptors, which are crucial for synaptic development and plasticity. Disruption of these systems during critical windows of brain development could lead to long-lasting changes in neural circuitry.[1]

Furthermore, anaesthesia-induced neuroinflammation has been proposed as a potential mechanism. Anaesthetic agents can trigger an inflammatory response in the brain, leading to microglial activation and the release of pro-inflammatory cytokines. Chronic neuroinflammation has been implicated in various neurodevelopmental disorders, including ADHD. However, the exact pathways through which anaesthesia might contribute to ADHD remain speculative and warrant further investigation.[1]

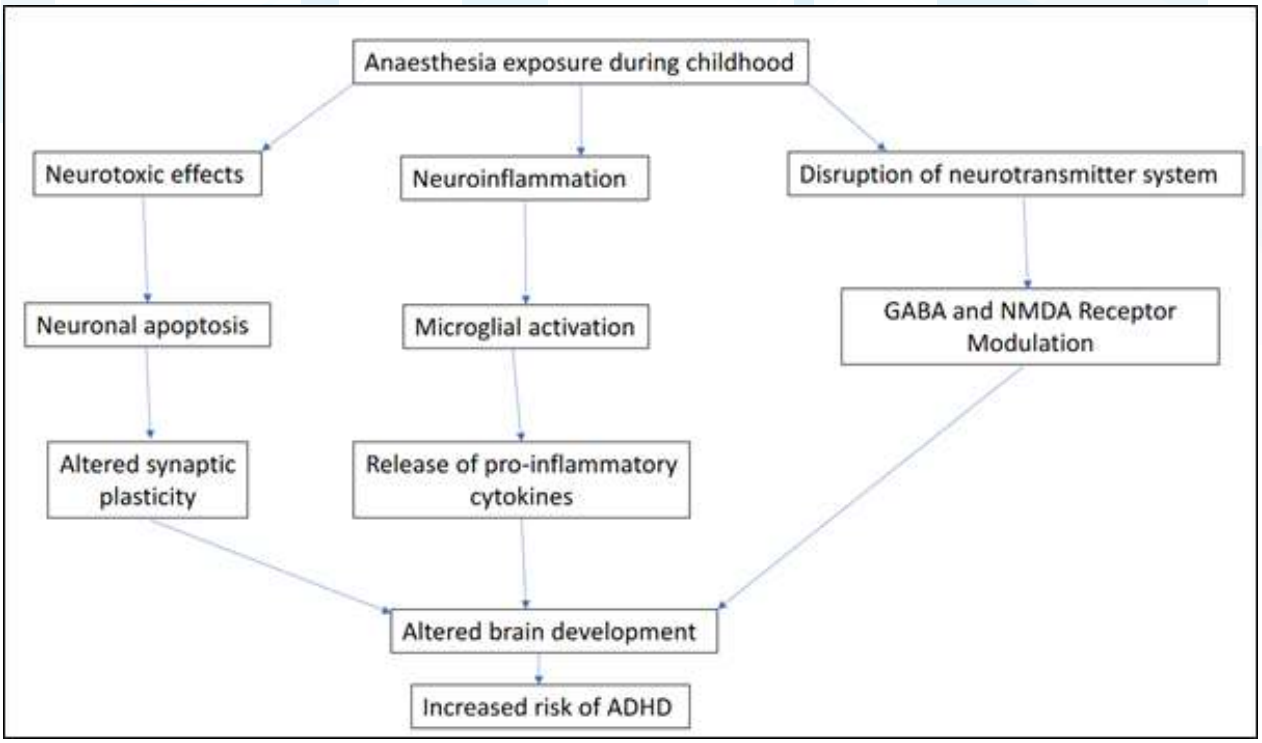

Figure 1: Proposed molecular mechanisms for pathogenesis of anaesthesia associated ADHD

Confounding Factors

It is essential to recognize that the relationship between anaesthesia exposure and ADHD is likely influenced by multiple confounding factors. Children who require surgery and anaesthesia often have underlying medical conditions that could independently contribute to ADHD risk. Additionally, the stress and trauma associated with surgical procedures might impact neurodevelopment, complicating the attribution of observed effects solely to anaesthesia. [1,3]

Current evidence

The existing body of research on this topic presents a mixed and sometimes conflicting picture. Song et al (2023) studied a cohort of 93717 children (born between 2008-2009) who received general anaesthesia with endotracheal intubation (ETI) and were followed till the year 2017. The incidence rate of ADHD was found to be 42.6 and 27.7 per 10,000 person-years (PY) in the exposed and unexposed groups, respectively (absolute rate difference 14.9 [95% CI, 12.5–17.3] per 10,000 PY). In addition, a longer duration of anaesthesia with ETI and more general anaesthesia procedures with ETI were associated with greater risk of ADHD. They concluded that administration of general anaesthesia with ETI to children is associated with an increased risk of ADHD and poor results in a neurodevelopmental screening test.[3]
In a systematic review by Colletti et al (2022), they studied the effect of multiple general anaesthesia (mGA) procedures on the neurodevelopmental development of children below 4

years of age. They concluded that controlled studies on mGA administered before 4 years of age support that there might be a greater risk of neurodevelopmental delay in children receiving mGA, warranting the need for careful risk/benefit considerations.[4]

In a meta-analysis by Song et al (2021) wherein in studied the effect of exposure to general anaesthesia before the age of 3 years on the development of ADHD. It was found that single exposure did not increase the risk of ADHD. However multiple exposure to anaesthesia before the age of 3 years did increase the risk of ADHD (HR: 1.83; 95% CIs: 1.00–3.32; p = 0.05; I2 = 81%).[5]

Clinical Implications

The potential association between anaesthesia exposure and ADHD raises important considerations for clinical practice. Paediatric anaesthesiologists and surgeons must balance the immediate benefits of necessary surgical interventions against the potential long-term risks. Minimizing exposure to anaesthesia, particularly during the first three years of life, might be prudent when feasible. Techniques such as regional anaesthesia and shorter-acting anaesthetic agents could also be explored to mitigate potential risks. [3-5]

Moreover, parents should be informed about the current state of evidence and involved in decision-making processes. While the potential link between anaesthesia and ADHD is still under investigation, transparency and communication are crucial in addressing parental concerns and fostering trust in medical recommendations.

Future Research Directions

To elucidate the relationship between childhood anaesthesia exposure and ADHD, further research is needed. Longitudinal studies with larger sample sizes and standardized methodologies are essential to establish causality and clarify the impact of various anaesthetic agents. Additionally, research should aim to identify specific windows of vulnerability during brain development and explore potential protective strategies to mitigate adverse effects.

Collaborative efforts between neuroscientists, paediatricians, and anaesthesiologists are crucial to advancing our understanding of this complex issue. Incorporating advanced neuroimaging techniques and biomarker analyses could provide valuable insights into the underlying mechanisms and help identify children at higher risk.

Conclusion

The enigmatic link between childhood anaesthesia exposure and ADHD represents a compelling area of research with significant implications for medical practice and public health. While current evidence suggests a potential association, the precise nature and

causality of this relationship remain to be fully elucidated. As research progresses, it is essential to balance the immediate benefits of surgical interventions with the potential long-term risks, ensuring that children receive the best possible care while safeguarding their developmental trajectories.

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ULTRASOUND AT THE BEDSIDE: TRANSFORMING CRITICAL CARE

INTRODUCTION

In recent years, the role of ultrasound in critical care has undergone a remarkable transformation. What was once considered a niche diagnostic tool has now become an indispensable asset in the hands of anaesthesiologists and critical care specialists. The portability, ease of use, and real-time imaging capabilities of ultrasound have revolutionized bedside diagnostics and procedural guidance, leading to improved patient outcomes. However, proper training and correct usage are essential to ensure both patient safety and reliable results1.

NEED FOR ULTRASOUND IN ICU

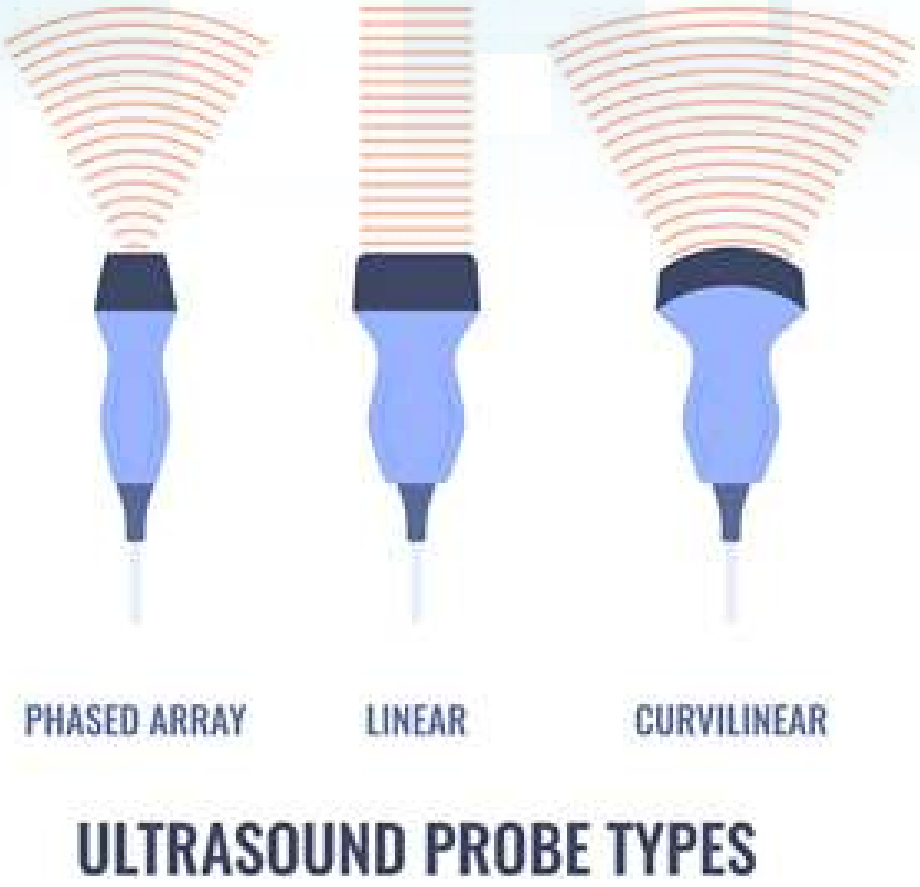
The need for ultrasound in critical care is driven by the demand for immediate, accurate, and non-invasive diagnostics. Traditional imaging techniques, such as X-rays and CT scans, often require patient transportation, which can be risky in unstable patients. Additionally, the delay in obtaining these images can lead to prolonged decision-making times in life-threatening situations. A comprehensive ultrasound (detailed and thorough examination typically performed by a specialist, such as a radiologist or cardiologist) may take more time. Point-of-Care Ultrasound (POCUS), on the other hand, can be performed at the bedside, by a critical care clinician, to address a specific clinical inquiry with a focussed, goal directed evaluation. This is particularly vital in situations where quick, informed decisions can be the difference between life and death.

Moreover, the utility of ultrasound extends beyond diagnostics. It plays a critical role in guiding various invasive procedures, reducing the risk of complications. From central line placements to draining pleural effusions, ultrasound guidance enhances accuracy and safety, thus minimizing the margin for error. This has led to a paradigm shift in critical care, where ultrasound is not just a diagnostic tool but an integral component of patient management.

KNOW YOUR EQUIPMENT

An ultrasound machine consist of a transducer (or probe), a monitor, a control panel, and software for image processing. The transducer is the most critical part as it sends and receives sound waves to create images of internal structures. There are different types of transducers designed for various applications:

1. Linear transducers (high frequency) are typically used for vascular access, pleural imaging, and superficial structures.
2. Curvilinear transducers (lower frequency) are used for abdominal imaging and some types of lung ultrasound.
3. Phased array transducers are commonly employed in cardiac imaging due to their ability to penetrate deeper structures.

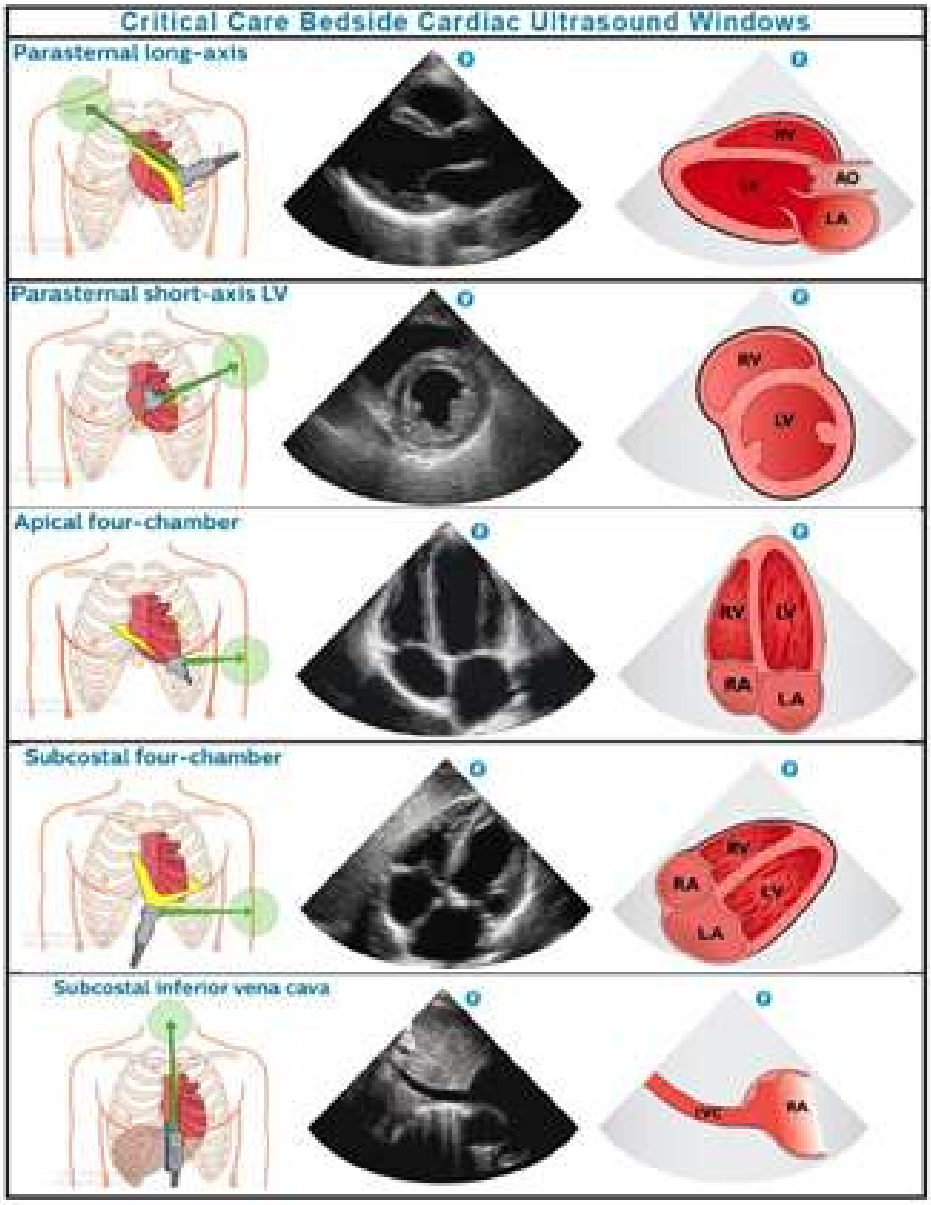


FOCUSSED CARDIAC ULTRASOUND

Focused Cardiac Ultrasound (FoCUS) is a limited, goal-directed echocardiographic assessment performed at the bedside. It is invaluable in assessing cardiac function in critically ill patients, offering immediate information on ventricular function, volume status, and the presence of pericardial effusion. Unlike a comprehensive echocardiogram performed by cardiologists, FoCUS is designed to answer specific clinical questions quickly, such as:

- Is there evidence of significant left or right ventricular dysfunction?
- Is there a pericardial effusion?
- What is the volume status of the patient?

FoCUS has become a critical skill for anaesthesiologists, particularly in the management of perioperative and critically ill patients. It allows for rapid decision-making in scenarios such as hypotension, shock, or cardiac arrest, where traditional echocardiography may not be immediately available. Additionally, it can guide fluid management and the use of inotropes, ensuring that therapeutic interventions are appropriately tailored to the patient's hemodynamic status[2].



LUNG ULTRASOUND

Lung ultrasound has emerged as a powerful tool for the diagnosis and management of various pulmonary conditions. It is particularly useful in critical care for the assessment of pleural effusions, pneumothorax, alveolar consolidation, and interstitial syndrome. The advantage of lung ultrasound lies in its ability to detect abnormalities that may not be visible on chest X-rays, particularly in the early stages[3].

In conditions such as acute respiratory distress syndrome (ARDS) or pneumonia, lung ultrasound can help in identifying the distribution and severity of lung involvement. This information is crucial for optimizing ventilatory strategies and monitoring the response to treatment. Furthermore, lung ultrasound is highly sensitive in detecting pneumothorax, even

in small amounts, which can be life-saving in trauma or postoperative patients[4].

The main LUS signs are

Bat Sign	The pleural line (bat's body) is a horizontal hyperechoic line, typically visualized 0.5 cm below the ribs (bat's wings) in adult patients using a longitudinal approach. It serves as a basic landmark for identifying intercostal space and pleura.
A-lines	Horizontal artifacts visualized as hyperechoic lines below the pleural line, repeated at a constant distance equal to the distance between the pleural line and the probe. A-lines indicate the presence of air beneath the pleural line and correlate with a high
	gas/volume ratio. They are associated with normal lungs when lung sliding is present, but may also be seen in hyperinflation and pneumothorax.
B-lines	Vertical artifacts originating from the pleural line that move synchronously with it, erasing A-lines and reaching the bottom of the screen. They are generated by increased density beneath the visceral pleura, indicating an altered air/tissue ratio.
Lung Sliding	Movement of the pleural line synchronous with tidal ventilation, indicating that the visceral and parietal pleura are in contact and that regional ventilation is present.
Seashore Sign	Seen in M-mode as straight lines above the pleural line and a sandy pattern below it, confirming lung sliding.
Stratosphere Sign	Straight horizontal lines above and beneath the pleural line visualized in M-mode, corresponding to an absence of pleural line movement. This suggests that the parietal and visceral pleura may not be in contact (e.g., pneumothorax), but it can also be seen in cases of emphysematous bullae, pleural adhesions, and severe hyperinflation.
Tissue-like Pattern	Homogeneous texture of a lobe, resembling abdominal parenchyma, indicating a complete loss of aeration.
Air Bronchogram	Hyperechoic intraparenchymal images visualized within a tissue-like pattern, corresponding to air trapped within the consolidation. It can be classified as absent, static (non-patent airway), or dynamic (patent airways)

ABDOMINAL POCUS

The Extended Focused Assessment with Sonography for Trauma (eFAST) is an invaluable tool in the ICU for the rapid assessment of critically ill patients. Originally designed for trauma settings, eFAST has expanded its utility in the ICU by helping to quickly identify conditions like pneumothorax, hemothorax, pericardial effusion, intra-abdominal bleeding, and pleural effusions. The bedside nature of eFAST allows for timely, non-invasive diagnostics, which is crucial in managing unstable patients. Its use has been associated with improved diagnostic accuracy and can guide immediate interventions in critical care[5].

Abdominal POCUS can also be used to diagnose ascites, various gastrointestinal diseases, cause of AKI etc.

DIAPHRAGM ULTRASOUND

Diaphragm ultrasound is becoming an increasingly valuable tool for assessing and monitoring

respiratory function dynamics and weaning off ventilator in critically ill patients. Recent research indicates that using POCUS to evaluate diaphragm thickening fraction in the preoperative period of cardiac surgery may help predict postoperative pulmonary complications. The study found that patients who developed postoperative pneumonia, required prolonged invasive ventilation, or experienced persistent atelectasis had significantly lower thickening fractions[6].

TRANSCRANIAL ULTRASOUND

Transcranial Doppler (TCD) ultrasound is a non-invasive method to assess cerebral blood flow velocity through the basal cerebral arteries. It is increasingly being used in critical care settings to monitor patients with neurological conditions such as subarachnoid hemorrhage, traumatic brain injury, and stroke.TCD provides real-time information on cerebral perfusion and can detect vasospasm. TCD can also be used to assess for elevated intracranial pressure, guiding therapeutic decisions in neurocritical care[7].

DEEP VEIN THROMBOSIS

DVT is a common complication of prolonged ICU stay and timely access to a diagnostic study is not always feasible. Furthermore, DVT causes hemodynamic instability in patients and transportation for imaging is not always possible. Compression ultrasonography (CUS) performed by an intensivist is a rapid alternative, offering a diagnostic accuracy of 95% compared to radiology-performed duplex ultrasonography studies. A healthy vein is easily compressible, whereas DVT is diagnosed when a thrombus is observed in the vein or when the vein is not fully compressible[8].

PROCEDURAL GUIDANCE

POCUS can safely guide invasive procedures. There is a clear advantage for POCUS guidance versus the landmark technique in various bedside needle procedures like central venous catheter insertion, arterial catheterisation, thoracocentesis, pericardiocentesis etc7. The wider availability of ultrasound machines and portable devices, combined with a strong focus on patient safety in critical care, has led to the increased adoption of ultrasound-guided procedures.

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Cleft palate and lip

1. What is the embryological defect to cause to cause cleft palate/lip?
2. What are the ideal ages for correction of Cleft lip and palate respectively? What are the reasons for these age criteria?
3. What are the syndromes associated with cleft lip/palate?
4. Why pierre-robbins is a sequence not a syndrome? What is the classic triad of PRS?
5. What is “Millards rule of 10s”?
6. What all congential anomalies are to be ruled out in children with non-syndromic cleft palate/lip?
7. What types of specialized endotracheal tubes ae used in cleft palate surgeries? Is it possible to do cleft palate surgeries with supra-glottic devices(SAD)?
8. What are intra-operative and post-operative concerns in infants undergoing cleft palate surgeries?
9. What are the advantages of opioid sparing anaesthesia technique in cleft palate surgeries?
10. What are the regional blocks which can be utilized in cleft lip/palate surgeries?
11. In infants with cleft lip what is more difficult breastfeeding or bottle feeding?

Meningomyelocele (MMC)

1. What is neural tube defect? How is it classified?
2. What are the etiological causes of NTD?
3. How will a neonate born with MMC be pre-operatively optimized prior to surgery? What is the ideal time to repair the defect after birth?
4. What is the most common anomaly associated with MMC ? Most common cardiac anomaly seen with MMC is.
5. What is the most common allergy associated with MMC? What steps are to be ensured to prevent sensitization during the hospitalization period?
6. How is the neonate positioned intra-op for securing the airway? Does change in the location and size of MMC change the position for airway management?
7. What are the intra-op concerns in MMC repair surgeries?
8. What are the expected post-operative complication after MMC repair?

9. What is MOM trial? When should fetal surgery be done if fetus is diagnosed with MMC? What are the advantage and disadvantage of correction NTD in fetal stage?
10. Can MMC repair done under spinal anaesthesia?

Infant with hydrocephalus for VP shunt surgeries?

1. Physiology of CSF circulation. What is the rate CSF formation in neonates & infants?
2. How do the clinical symptoms of hydrocephalus vary with age and the location of obstruction?
3. What is cushings' reflex?
4. How are the pre-operative preparation and optimization strategy in children undergoing hydrocephalus for VP shunt surgeries?
5. What difficulties are anticipated in the intra-op period in such children?
6. Given the choice which side is chosen for VP shunt insertion?
7. What is peri-operative fluid management strategy in such patients?
8. What are the different types of pressure valves available in VP shunt?
9. How can you clinically see if VP shunt in-situ is patent? If blocked how to see for the site of blockage?
10. How will you plan extubation in these children? What are the common complications/concerns in immediate post-op period?

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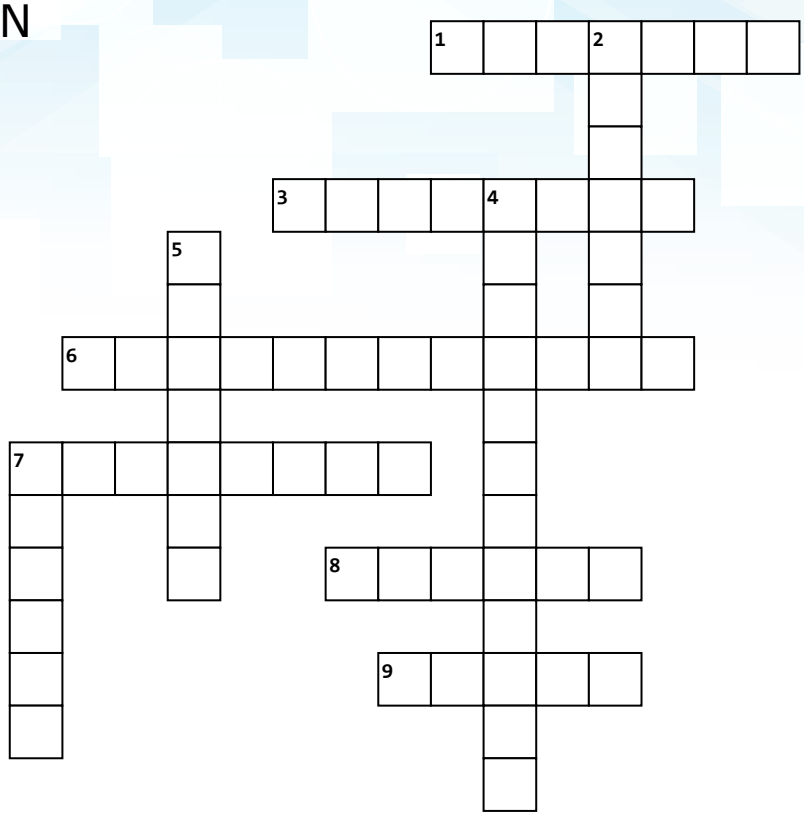
CROSSWORD

AIRWAY EDITION



Across

1. Who first reported the use of HFOV for neonatal respiratory distress syndrome

3. Which branch of SLN pierces thyrohyoid membrane

6. Pioneer of studies on myocardial impedance and HFOV

7. Technique for spraying LA for topicalization of airway using 3-way, oxygen source and syring

8. Airway rescue tool based on the principle of only 3 non surgical airway lifelines for oxygen delivery

9. Anesthesiologist based in Wisconsin who worked with Cook to develop the Airway Exchange Catheter

Down

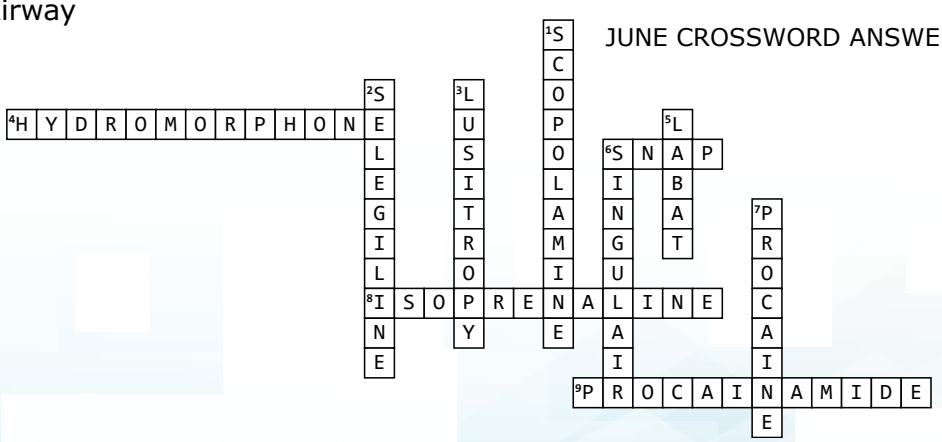
2. Local anaesthetic with vasoconstrictor properties

4. A mu-opioid receptor agonist,analgesic and sedative useful in sedation during awake intubation

5. Who first described the use of handheld adapter attached to bronchoscope to provide jet ventilation during bronchoscopy

7. A solution of LA, bicarbonate and adrenaline used in rhinological procedures for LA and vasoconstriction

JUNE CROSSWORD ANSWERS



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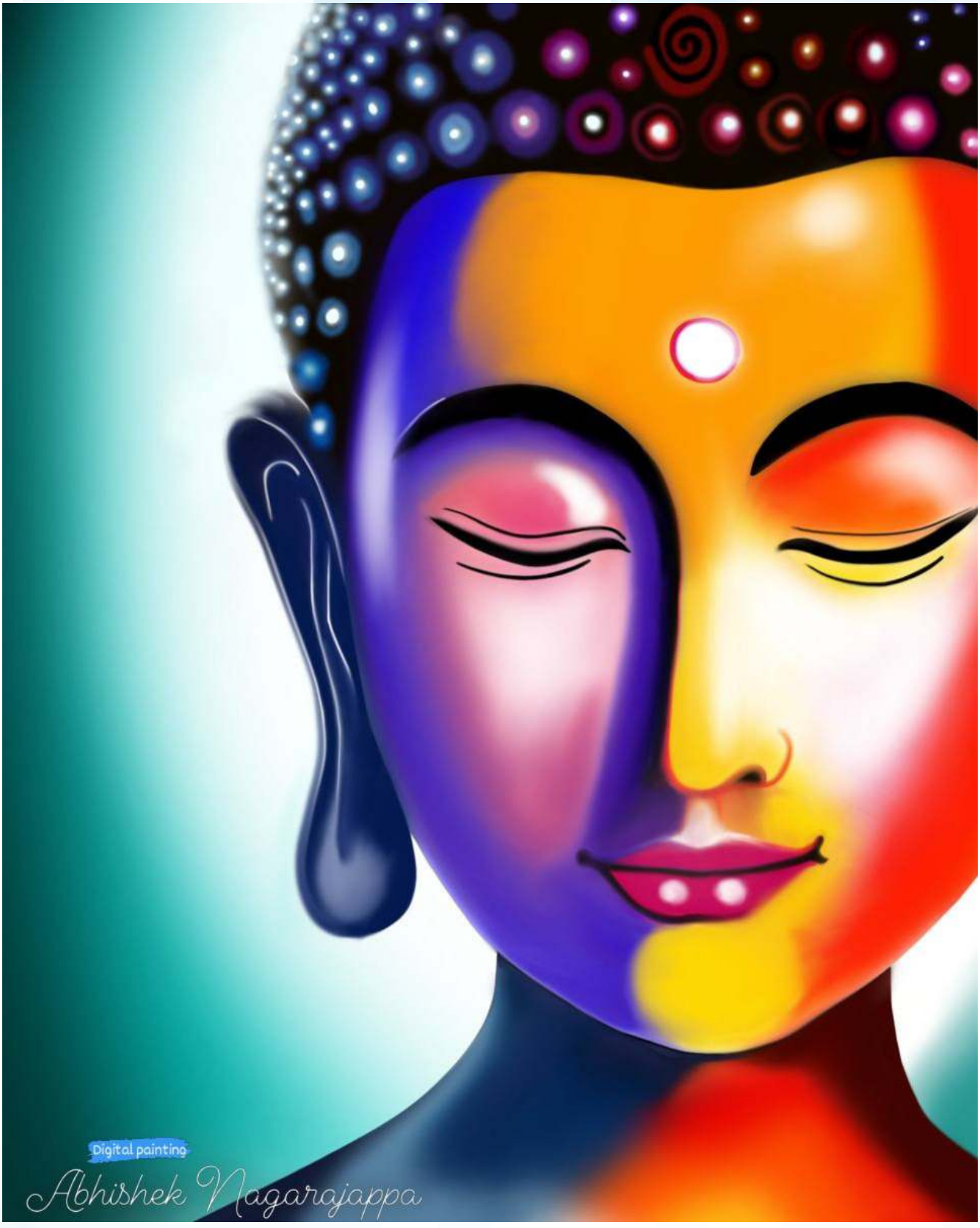

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PAIN MEDICINE: A ROAD LESS TRAVELLED

For a symptom as old as humanity, we only established a dedicated super specialty for pain medicine 60 years ago. Even now, we are still striving to earn the respect and recognition this specialty deserves. The number of doctors willing to take on this challenging field is small, and many who do, choose it for the wrong reasons. Pain is a common symptom across all specialties, but most physicians focus solely on the affected organ rather than seeing the patient as a whole. The situation becomes more complex when pain turns chronic, bringing along a host of issues such as impaired functionality, stress, anxiety, sleep disorders, hopelessness, and unexplained digestive problems, to name a few.

The medical community often looks up to anesthesiologists for pain management services. As a community, we possess the skill-set needed to take the lead in helping patients with chronic pain. However, we must prepare ourselves well for the challenges ahead, which are significant but manageable:

1. *The Lost Art of History-Taking and Examination*: We need to revive the essential skills of taking detailed patient histories and conducting relevant examinations.

2. *Ordering and Interpreting Investigations*: Accurate diagnosis requires careful selection and interpretation of diagnostic tests.

3. *Communication*: Meeting patient expectations in chronic pain management is a global challenge. Effective communication is crucial, especially when explaining the patients' role in their recovery and rehabilitation.

4. *Realistic and Practical Prognostication*: Always remember that the real magic happens in the clinic, not in the operating theater.

5. *Financial Planning*: Setting up a pain clinic involves financial planning, an area where many of us struggle.

6. *Economic Value in Hospitals*: Unfortunately, pain medicine is not a major revenue generator for hospitals, making it an unwanted specialty in the economics of healthcare. Hospitals rarely promote pain clinics, even though regulatory authorities mandate their establishment.

Despite these challenges, they are not insurmountable. They have been overcome in the past and are being tackled by many today:

1. *Hardworking Specialty*: We are one of the most hardworking specialties, so acquiring or refreshing skills should not be a significant issue for us.

2. *Embracing Challenges*: We thrive on challenges, and the entire medical fraternity looks up to us for solutions in difficult situations. If not us, then who will rise to the occasion?

3. *Effective Communication*: We already communicate effectively with our patients, whether it's prognosticating for ICU patients or explaining surgical complications. With a little more focus, we can effectively discuss prognostication and involve patients in their treatment plans.

4. *Financial Wisdom*: We must understand the importance of investing wisely. Setting up a world-class pain clinic is not as costly as it may seem. Many of the required machines are long-term investments that serve a lifetime—our oldest C-arm, for example, is two decades old and still in use. Independent clinics give us the freedom to provide high-quality care without compromising on patient care.

5. *Support from Colleagues*: There are colleagues who value our services and often refer patients to us when they believe we are best suited to help.

6. *Patient Need*: In my over two decades of pain practice, I've realized there is a real need among patients for effective pain medicine specialists. As one patient said, "You are the only doctor who sees me as a person, not just an organ." We need to communicate effectively with our colleagues and patients to convey the value of our specialty.

There is also a level of misunderstanding about our specialty among our anesthesiology colleagues. Some perceive us as "needle-happy snipers" ready to poke something into every patient. We receive many inquiries from doctors who only want to learn how to perform needle procedures. However, the reality is different. We only use interventions (MIPSIs) when conservative management fails, and the patient understands the prognosis and is committed to rehabilitation. Without proper training and exposure during their postgraduate education, many anesthesiologists have a limited understanding of pain management.

They may be drawn to the glamour of running an independent clinic but overlook the extensive knowledge required to treat various pain conditions effectively. While performing MIPSIs will never be a challenge for us—we are, after all, the only specialty trained to introduce needles into the body-the technique and the drugs used are only part of the equation. We must recognize that this super specialty, currently dominated by anesthesiologists, has attracted the interest of other specialties as well. To maintain our leadership, we must continue working hard. A road less traveled does not mean it cannot be traveled; it just requires us to be a bit more cautious as we embark on our journey and, with a positive attitude, enjoy the journey without worrying too much about the destination.

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MONTHLY MEET CALENDER

Sr No	Month	Institution/ Venue	Contact Person
1.	December 2023	West zone at Aakash Health care	Dr Anshu Gupta(GC) & Dr Namita sharma
2.	January 2024	East zone at RGSSH	Dr Arvind Arya and Dr Geetanjali(GC)
3.	February 2024	AIIMS	Dr Lokesh Kashyap, Dr Puneet Khanna & Dr Nishkharsh Gupta (GC)
4.	March 2024	VMMC & Safdarjung Hospital	Dr Sujata Choudhary & Dr Nishkharsh Gupta (GC)
5.	April 2024	MAMC	Dr Munisha Agarwal & Dr Ridhima Sharma(GC)
6.	May 2024	ESIC Group of Hospitals	Dr Prasad CGS & Dr Sudhir Gupta
7.	June 2024	Sir Gangaram Hospital	Dr Jayshree Sood & Dr Ridhima Sharma (GC)
8.	July 2024	LHMC	Dr Maitree Pandey & Dr Ridhima Sharma (GC)
9.	August 2024	UCMS	Dr R.S. Rautela & Dr Geetanjali (GC)
10.	September 2024	PGMER & RML	Dr Neerja Banarjee & Dr Ridhima Sharma (GC)

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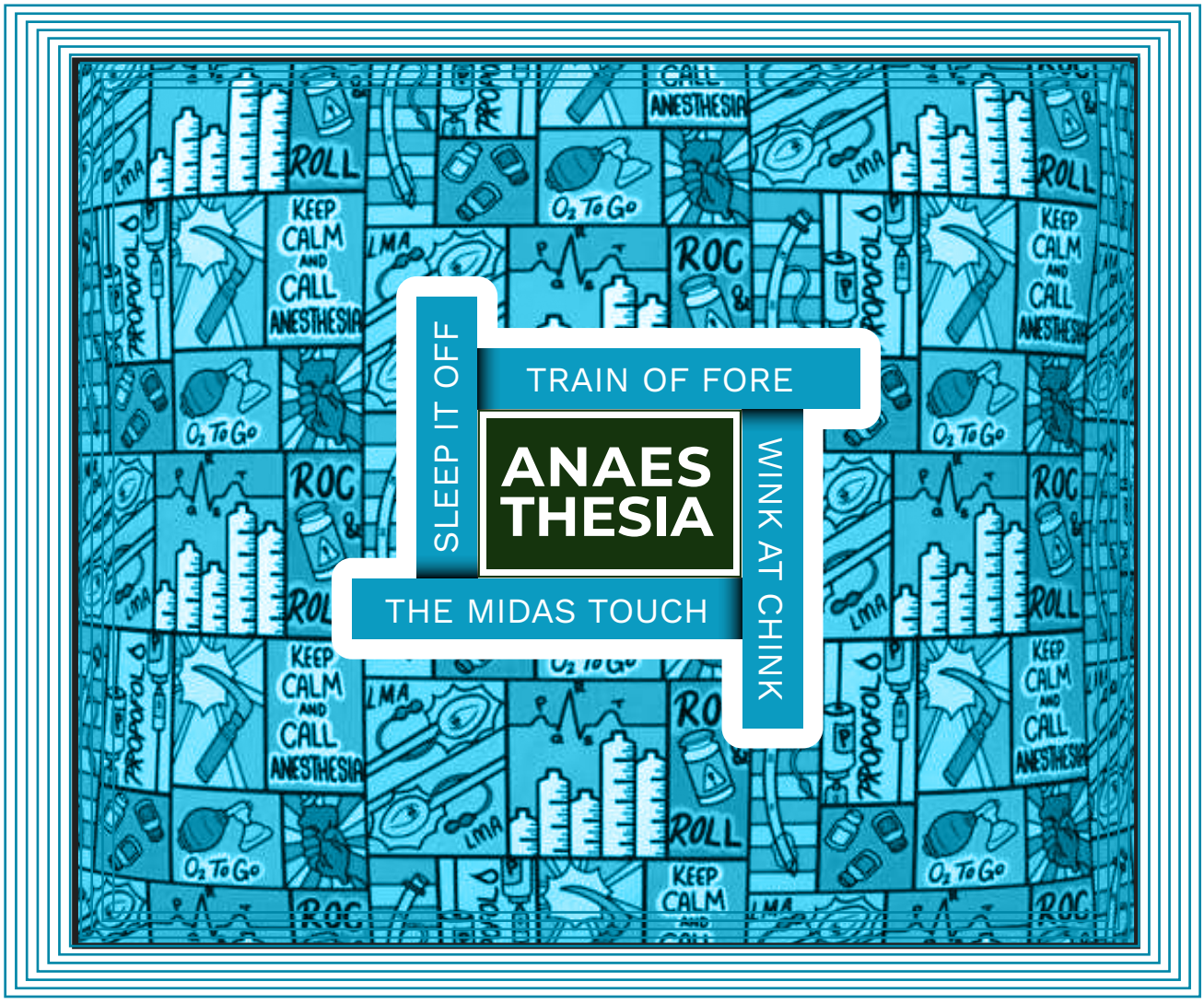

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