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Speakers' Abstract	1A – 20A
Congress Day 1 19th June 2013, Wednesday Pre-Congress Workshop 1 Obstructive Sleep Apnea and Anaesthesia Pre-Congress Workshop 6 TIVA/TCI	1A
Congress Day 2 20th June 2013, Thursday (Morning Session) Plenary 1 Inaugural Say-Wan Lim Oration Symposium 1 Training and Credentialing Symposium 2 Psychological and Non-Pharmacological Approaches in Pain Management Symposium 3 Updates in Obstetric Anaesthesia	2A – 4A
Congress Day 2 20th June 2013, Thursday (Afternoon Session) Symposium 4 Basic Science: Review and Clinical Application Symposium 5 Pain Management in Specific Conditions Symposium 6 Sedation Symposium 7 Pharmacology Symposium 8 Orthopaedic Anaesthesia	4A – 7A
Congress Day 3 21st June 2013, Friday (Morning Session) Plenary 2 Plenary 3 Symposium 9 Management of Chronic Pain: Cancer & Non-Cancer Pain Symposium 10 Anaesthesia for the High-Risk Patient	8A – 11A
Congress Day 3 21st June 2013, Friday (Afternoon Session) Symposium 11 Airway Management Symposium 12 Interventional Pain Medicine Symposium 13 President's Forum Symposium 14 Day Surgery Symposium 15 Anaesthesia for Neurosurgery	12A – 15A
Congress Day 4 22nd June 2013, Saturday (Morning Session) Plenary 4 Plenary 5 Symposium 16 Safety and Quality in Anaesthesia Symposium 17 Paediatric Anaesthesia Symposium 18 Outcomes in Pain Conditions Symposium 19 Cardiothoracic Anaesthesia Symposium 20 Debate: TIVA is Better than Volatile Anaesthesia	16A – 20A
Poster Presentations	21A – 35A
MSA FP-01 – FP-06	36A – 37A
YIA FP-01 – FP-06	38A – 39A

PRE-CONGRESS WORKSHOP 1

Obstructive Sleep Apnea and Anaesthesia

Congress Day 1 | 19th June 2013, Wednesday

THE HEALTH AND ECONOMIC IMPACTS OF SLEEP DISORDERED BREATHING

David Hillman

Sleep is associated with decreased activity of upper airway and respiratory muscles because of reduced ventilatory drive. This predisposes to upper airway obstruction (obstructive sleep apnoea (OSA)) or to sleep hypoventilation in vulnerable individuals. It also predisposes to periodic breathing, which is far more prominent during sleep than when awake. These problems can coexist, for example OSA and sleep hypoventilation are both present in obesity hypoventilation syndrome.

The most common variety of sleep disordered breathing is OSA. It is characterised by repeated episodes of complete (apnoeas) or partial (hypopnoeas) upper airway obstruction. The number of apnoeas plus hypopnoeas per hour of sleep is known the apnoea hypopnoea index (AHI). In adults approximately 9% of men and 4% of women have OSA of at least moderate severity (AHI ≥ 15 events/hr). Age and obesity are predisposing factors and a family history is common. It is usually associated with loud snoring and excessive daytime sleepiness. It predisposes to hypertension, vascular disease, metabolic syndrome, depression, increased work and vehicle accidents and loss of productivity. Sleep hypoventilation is seen where the respiratory muscles, which are less active during sleep, are weak or excessively loaded (e.g. morbid obesity, advanced lung disease) or ventilatory drive is depressed. Left untreated it can progress to respiratory and right heart failure.

Periodic breathing is seen in association with heart failure, neurological disease, chronic narcotic use and (with OSA) complex sleep apnoea. Non-invasively delivered positive airway pressure therapies are cornerstones of treatment for these problems. For OSA continuous positive airway pressure (CPAP) is a standard of treatment. Non-invasive intermittent positive pressure ventilation (NIPPV) is required where sleep hypoventilation is present. In the case of periodic breathing the most appropriate mode is adaptive servo ventilation (ASV), where pressure support increases during the periods of hypoventilation and decreases during the periods of hyperventilation to even out the fluctuations.

These therapies can deliver enormous benefits for individual health and well being. They are highly cost effective: untreated OSA is associated major economic costs. A relatively small proportion of these relate to the costs of diagnosis and treatment of OSA and associated medical disorders. A far greater proportion relates to costs of accidents and lost productivity associated with the condition which are borne by the community. OSA and these other disorders warrant greater efforts to identify and treat them both for the benefit of individual patients and society generally.

PRE-CONGRESS WORKSHOP 1

Obstructive Sleep Apnea and Anaesthesia

Congress Day 1 | 19th June 2013, Wednesday

OSA IN PAEDIATRIC PATIENT: ANAESTHETIC IMPLICATIONS

Shahani Jagdish Menghraj

Obstructive sleep apnoea in children is a complex disorder characterised by repeated nocturnal episodes of increased upper airway resistive load. It affects 1%-3% of children. Children with OSA can present for all types of surgical and diagnostic procedures requiring anaesthesia, with tonsillectomy being the most common surgical treatment for OSA in paediatric age group. Children with OSA have recurrent episodes of partial or complete airway obstruction during sleep, resulting in hypoxemia, hypercapnia and sleep disruption. Thus, it is imperative that the anaesthesiologist be familiar with the potential anaesthetic complications and immediate postoperative problems associated with OSA.

American Society of Anaesthesiologists has published guidelines for perioperative management of OSA in 2006. However, there were many issues excluded from the guideline specifically to the paediatric patients. In this review, I will be discussing the pathophysiology, current treatment options, and recognized approaches to perioperative management of these young and potentially high risk patients.

PRE-CONGRESS WORKSHOP 1

Obstructive Sleep Apnea and Anaesthesia

Congress Day 1 | 19th June 2013, Wednesday

MANAGING THE RISKS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA

Norman Bolden

There is considerable evidence that patients with Obstructive Sleep Apnea (OSA) are at risk for adverse events in the perioperative period.¹⁻⁴ For this reason, various medical organizations have recommended that hospitals develop protocols to manage OSA patients to improve the margin of safety during perioperative management.⁵⁻⁶ No one OSA protocol has been proven to be superior to others⁶⁻⁸, and there is little data clearly indicating that various protocols have affected outcomes. Following a catastrophic event, MetroHealth Medical Center in Cleveland Ohio implemented an OSA protocol to improve the safety margin when managing patients with OSA following surgery⁷. While we do not have a control group to prove the effectiveness of our protocol, we have numerous anecdotal examples of where the additional monitoring required by our protocol seemed to prevent serious adverse events postoperatively in patients with OSA.

Since the majority of patients with OSA are currently undiagnosed, it is imperative to screen patients preoperatively to identify patients at risk for OSA⁹. This allows patient education about the condition and implementation of therapy, and also allows patients at risk to be identified more closely preoperatively and thus facilitates an appropriate intraoperative anesthetic plan, as well as potentially allows for additional monitoring to be secured during the postoperative period.

There is considerable variation in the anesthetic management of patients with OSA and no single anesthetic plan has proven to be superior to another. Lacking high-level evidence, one must consider the known actions of anesthetic agents and theoretical interactions of these agents with the pathophysiological processes present in patients with OSA. With this in mind, it seems prudent to avoid aggressive premedications for anxiety, prepare for the difficult airway, use regional anesthesia where possible, use short acting narcotics, use a multimodal approach to pain management and monitor patient closely in the postoperative period¹⁰.

It is impossible to determine with 100% accuracy which OSA will have an adverse perioperative event; thus, the goal of an OSA protocol is to improve the margin of safety when managing these patients.

PRE-CONGRESS WORKSHOP 6

TIVA/TCI

Congress Day 1 | 19th June 2013, Wednesday

TIVA

Michael G Irwin

Modern anaesthesia is still mostly administered by the inhalational route but there is increasing concern over their potential for pollution and other adverse effects. Nitrous oxide is associated with depression of vitamin B12 function and diminished reproductive health. Exposure to halogenated hydrocarbons may cause reduction in antioxidant activity in plasma and erythrocytes, inhibition of neutrophil apoptosis, depression of central neuro-respiratory activity, increased DNA breaks, effects on cerebral blood circulation and altered renal function. There are other disadvantages of inhalation drugs that can be avoided with propofol such as inhibition of hypoxic vasoconstriction, increased ICP, administration (laryngoscopy, bronchoscopy, jet ventilation), malignant hyperthermia and PONV. Inhalational anaesthetics also have adverse environmental effects, including ozone damage and greenhouse gas effects. Levels of inhalational anaesthetics in the ambient air of operating theatres and recovery rooms often exceed those stated in national guidelines. Such contamination could be avoided with the use of propofol based total intravenous anaesthesia (TIVA) which has also other important advantages over inhalational drugs including quality of recovery and postoperative pain. Major advances have occurred in recent years with this technique. The advent of remifentanyl as a nitrous oxide substitute, generic preparations of propofol and refinements to its lipid vehicle make TIVA economically viable. The arrival of versatile, easy to use commercially available target controlled drug delivery systems have simplified TIVA making it as simple as using a vaporiser. Many have a choice of PK algorithms. The Marsh and Schnider models are most commonly used for propofol. Marsh may under-predict plasma concentrations in elderly (PD sensitivity also increases with age) and is not adjusted for obesity (use LBM in obese). In the Schnider model LBM is calculated using the "James" formula which is OK for normal and moderately obese but leads to a paradoxical decrease in severe obesity. It is mass independent and probably best used in effect site mode. However, the important point about these models is that they can both make proportional changes in blood concentration allowing easy titration. Remifentanyl TCI is also available (Minto) although this drug is also very easy to administer manually (mcg/kg/min) as the PK virtually behaves like a one compartment model.

PLENARY 1

The Inaugural Say-Wan Lim Oration

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

THE DEVELOPMENT OF REGIONAL ANAESTHESIA AND PAIN MEDICINE IN THE ASIA PACIFIC REGION

Ramani Vijayan

Local / Regional Anaesthesia, in particular spinal anaesthesia, has been used to provide surgical anaesthesia since the discovery of the local anaesthetic properties of cocaine in the 1880s by Karl Koller and popularized by practitioners such as William Halsted (USA) and Gustav Bier (Germany). General anaesthesia in the early part of the 20th century was associated with turbulent induction, secretions, vomiting and prolonged sedation. Thus surgical anaesthesia under regional anaesthesia was seen as a viable option until the arrival of better anaesthetic agents and shorter acting neuromuscular blocking drugs in the 2nd half of the twentieth century.

Increases in our understanding of pain physiology, the establishment of pain clinics for the management of chronic non-cancer/ cancer pain saw an increase in the use of regional anaesthesia starting from the 1960s onwards. New technology with the introduction of catheters, radio-frequency lesioning techniques, the use of ultrasound to established blocks helped in the resurgence of regional anaesthesia both for surgery and pain management. Newer local anaesthetic agents and opioids, increased interest in outcomes of these techniques has brought in a new era in regional anaesthesia and pain medicine.

This presentation will focus on the various developments that have taken place in this region, (Asia-Pacific, which includes Asia / Australasia, both in the areas of pain medicine and regional anaesthesia over the last two decades.

SYMPOSIUM 1

Training and Credentialing

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

IMPROVING THE TRAINING PROGRAMMES IN ANESTHESIOLOGY IN THE 21ST CENTURY

Maria Minerva P Calimag

Improving the Training Programmes in Anesthesiology requires a long hard look at the realities of the 21st Century and a curriculum redesign that will promote multiliteracies aided by educational technology. The basic tenets of scholarly investigation into the basic science of pharmacology, physiology, biochemistry, anatomy, medicine and surgery, as well as the clinical tenets that emphasize patient safety still remains, but the tools that have been developed to train our residents and fellows in anesthesiology have definitely taken a major leap. The Web 2.0 has taken interactivity and content syndication in anesthesia education to a level that promotes thinking, learning and sharing to a different level. Trends in medical education have shifted from a teacher-centered approach to learner- centered and team-centered approaches. The curriculum has taken a flip, dubbed as the "inverted" curriculum, medical education and anesthesiology training now emphasize self-learning of concepts using higher order thinking skills aided by technology. Anesthesiologists have pioneered the use of high-fidelity simulation to enhance training in anesthesia and simulation has permeated anesthesia training programmes. Web sites such as OpenAnesthesia.org (<http://www.openanesthesia.org/>), the Virtual Anesthesia Machine at the University of Florida (<http://vam.anest.ufl.edu>) and the Stanford Anesthesia Informatics and Media Lab (<http://aim.stanford.edu>) endeavor to develop new technologies for medical education and provide trainees with computer-based simulations, medical apps, interactive textbooks of anesthesiology, podcast interviews with authors and experts, and video seminars, all of which are continuously updated. Even the YouTube serve as a major repository for teaching anesthesiology skills in airway management, in placements of arterial and venous catheters, in hemodynamic monitoring, and in performing peripheral nerve blocks. Assessment strategies have also changed to ones that promote the use of analytic and holistic rubrics in grading various dimensions of authentic tasks in directly-observed examinations of cognitive, affective and procedural skills. Amidst all these changes however, let us not forget that the cornerstone of anesthesia practice is one that is centered on compassion and in building trust relationships with our patient through effective patient-physician communication and this can only be achieved if we teach our trainees to develop life-long, reflective learning through meaningful mentoring relationships.

SYMPOSIUM 1

Training and Credentialing

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

TEACHING AND CREDENTIALING IN REGIONAL ANESTHESIA

S Ganapathy

Teaching regional anesthesia occurs at various levels of medical education. The residency programs usually designate 1-2 months of rotation in regional anesthesia. The didactic sessions usually occur as a set of 10-14 lectures on core principles of regional anesthesia associated with resident presentation on topics of current relevance for 1 hour supervised by the faculty. Introduction of a day in the anatomy lab greatly facilitates comprehension of anatomic basis for ultrasound guided regional blocks. The educator may be able to orient the resident on the basics of ultrasonography, Neurostimulation and the principles of machine and image optimization and acquisition. A pre and post-test provides information on knowledge transfer. While resident training mainly involves simple blocks of the upper and lower limb, neuraxial techniques are taught all through the basic anesthesia training.

The training at the fellowship level involves developing proficiency in advanced blocks such as lumbar plexus and sciatic, neuraxial, continuous catheter blocks as well as ambulatory regional analgesia. Many techniques are taught under the umbrella of research. Involving specific faculty to mentor each candidate is crucial for nurturing research as well as publication.

Fellows are involved with resident teaching after the initial 6 months of training to refine their teaching skills. Once a week problem based learning alternating with journal club allows the fellows to keep current with literature. Presentation at grand rounds, annual meetings and participation at workshops are useful to review topics and fine tune presentation skills.

Credentialing involves keeping a log of the blocks done with periodic review to optimize exposure. While the ESRA has gone the route of written as well as practical examination along with documented case logs, ASRA still has not confirmed such a route for certification. The basic number of blocks recognized as needed for proficiency is preset but may not determine clinical competence in all areas. This competency assessment often falls on the senior staff supervising the clinical rotation of the fellow.

SYMPOSIUM 1

Training and Credentialing

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

PAIN MEDICINE TRAINING

Kavita Bhojwani

I will be addressing the Pain Medicine Training programme that we have in Malaysia. The Ministry of Health programme is called the Fellowship programme. This is over a period of 3 years inclusive of a minimum of 9 months overseas.

The hospitals where trainees can be posted for their pain attachment, besides, the Selayang hospital include the Raja Perempuan Zainab II hospital, Kota Bharu (6mths), Sultan Ismail hospital, Pandan Johor (6mths) and Raja Permaisuri Bainun hospital, Ipoh (1 yr). The number of chronic pain patients seen in these hospitals are at least more than 100/year. So the trainees see a wide variety and number of cases. They are able to perform procedures both in the clinic as well as in the ORs. Trainees keep a log book and are encouraged to present the latest journal articles, topics & case discussions which are held regularly. They also learn acupuncture for both acute and chronic pain. Trainees also see cancer pain patients and can do a palliative care attachment in Hospital Selayang, if necessary.

The Ministry of Health offers scholarships for training overseas for 9 months. Trainees, with input from the pain specialists, can choose where to go. Australia, Canada, Thailand and India are some of the countries where trainees have gone.

On completing their 2 years, they return to their own hospital and are supervised by a Pain specialist for a year. They then have an exit exam and on being successful in this, are gazetted as Pain specialists.

SYMPOSIUM 2

Psychological and Non-Pharmacological Approaches in Pain Management

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

ASSESSING THE ROLE OF PSYCHOLOGICAL FACTORS IN CHRONIC PAIN PATIENTS

Zubaidah Jamil Osman

There has been a growing recognition that pain is a complex perceptual experience influenced by a wide range of psychosocial factors, including emotions, social and environmental context, sociocultural background, the meaning of pain to the person, and beliefs, attitudes, and expectations, as well as biological factors. Chronic pain i.e pain that persists for months and years, will influence all aspects of a person's functioning: emotional, interpersonal, avocational, and physical. Consequently, successfully treating chronic pain patients requires attention not only to the organic basis of the symptoms but also to the range of factors that modulate nociception and moderate the pain experience and related disability. Unlike the unidimensional biomedical perspective, which focuses on etiological and pathophysiological explanations for chronic pain, or even psychogenic pain, which suggests pain as physical manifestations of psychological difficulties, a biopsychosocial view provides an integrated model that incorporates purely mechanical and physiological processes as well as psychological and social contextual variables that may cause and perpetuate chronic pain. The failure to recognise these psychosocial factors in assessing chronic pain patients may have a negative impact on patients as the management might not be taking into consideration those factors that have been contributing to the patients' suffering and further disability. This session will further discuss the importance of conducting a comprehensive assessment on the patients to enhance understanding of their condition in order to assist them to improve their mood, disability and quality of life despite the pain.

SYMPOSIUM 3

Updates in Obstetric Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

ANTITHROMBOTICS AND REGIONAL ANESTHESIA

Yoo-Kuen Chan

Mortality following obstetric anaesthesia/analgesia has decreased dramatically over the last 2 decades. This has been due to a global switch from general anaesthesia (GA) to regional anaesthesia (RA). Regional anaesthesia however has its setback too and this is particularly so if the parturient is on antithrombotic agents.

Many parturients are likely to be on these agents for a variety of reasons. Making a sensible plan for these patients is not easy. Randomized controlled studies provide very little evidence on the subject for this category of patients. Minimal evidences do come from case reports, case series and extrapolations of studies done on a non-pregnant population.

The solution lies in making a cost benefit weighing of the continued use of RA versus the switch to GA for the particular patient. The other consideration is to weigh the consequences of the discontinuation of the antithrombotic agents to create a safe window for the RA versus the continued use of the agent. The former places the parturient at risk of thrombo-embolism whilst the latter is likely to give rise to paraplegia. It is important to have a clear idea of the anti-thrombotic state of the patient and understand the various factors that interplay to put the parturient at risk of a spinal hematoma. Minimizing this risk is part of the strategy.

The existing guidelines do provide support for this planning process. Due consideration should be given to address the needs not only of the parturient but the fetus as well. Whilst most planning highlights the issue of choice of anaesthesia, considerations for safety lies not only in intra-operative plans but also due focus on the post operative period. Monitoring for evidences of a developing spinal hematoma must be done with vigilance as early evacuation when it does arise can still provide a good salvageable outcome.

In the horizon, Idarubicin used as an antithrombotic agent can be rapidly and easily reversed with Avidin to provide a safe window for regional anaesthesia. This may dramatically change the landscape for regional anaesthesia in parturients in the future.

SYMPOSIUM 2

Psychological and Non-Pharmacological Approaches in Pain Management

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

EARLY RETURN TO WORK AFTER INJURY

B E Cole

Early return to work after injury is considered to be a predictor of successful management of post-injury pain. Treatment goals for injured workers vary depending upon the stakeholder questioned. Psychosocial factors, as well as physiological findings, contribute to the success and long-term outcome of efforts to return injured workers to duty. Several variables are known to predict return to work, and advice given during the acute phase of injury may increase the likelihood of such return to work. Use of modified job duties, workplace adaptations, providing workplace-linked care, improved job satisfaction, pre-morbid general health status, being the family bread winner, overcoming fear-avoidance, addressing impaired sleep, correcting irritability and bad temper, setting proper expectations, overcoming catastrophizing, and addressing interferences in activities of daily living lead to better outcomes for the return of injured workers to their jobs.

SYMPOSIUM 3

Updates in Obstetric Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

ULTRASOUND GUIDED BLOCKS FOR THE OBSTETRIC ANAESTHETIST

Wendy Teoh

Established ultrasound (US) guided blocks that are pertinent to obstetric anaesthetists are US guided spinals, epidurals and TAP blocks. Newer applications include ultrasonographic identification of the cricothyroid membrane. This lecture will cover practical aspects of how to perform these 3 sonographic examinations.

Ultrasound guided neuraxial blocks: Conventionally, epidurals are inserted after back palpation and with the loss of resistance to air or saline, which are essentially blind techniques. The changing demographics of parturients (increasing obesity and advanced maternal age with potentially more degenerative spine changes) make epidural insertion more challenging. We found that ultrasound guidance significantly facilitated CSE placement in obese parturients with decreased morbidity (puncture attempts and spinal spaces attempted) and reduced the overall time of CSE placement.¹⁻² We utilise a low frequency (2-5 MHz) ultrasound probe to image the spine, and use 2 acoustic windows: the longitudinal paramedian approach (Carvalho's "saw tooth"³ or Teoh's "pork ribs" picture) and the transverse approach ("flying bat" picture). Scanning is performed initially in the paramedian longitudinal plane starting from the natal cleft, to identify the upper end of the sacrum (L5-S1 interspace), and to count up the intervertebral levels. In the transverse view, the intervertebral space is visualized as an acoustic window containing the vertebral body, dural sac, and ligamentum flavum-dura mater unit. Using the built-in caliper, we determine the depth to reach the epidural space from the skin to the inner surface of the ligamentum flavum-dura mater unit.

Transversus Abdominus Plane (TAP) is a neurofascial plane in between the internal oblique and the transversus abdominis muscles, where T6-T12, L1 lie innervating the skin, muscles, and parietal peritoneum of the anterior abdominal wall. In patients undergoing cesarean delivery under general anaesthesia, bilateral TAP blocks with 20ml 0.5% levobupivacaine are a useful adjunct to the obstetric anaesthetist's armamentarium in providing post-cesarean analgesia, reducing 24hr PCA morphine consumption with higher maternal satisfaction.⁴

Imaging of the Airway & Identification of the Cricothyroid membrane (CM): The cricothyroid membrane (CM) has a crucial role in airway management both as the access port for local anaesthetics and for emergency oxygenation and cricothyroidotomy. Failed intubation rates in the obstetric population are reported to be 1 in 300, eight times more prevalent than the general surgical population. Furthermore, increasing obesity rates, short necks and big breasts of a parturient, and concomitant thyroid abnormalities /goitres commonly found in the pregnant population can increase the difficulty of inspection and palpation of the cricothyroid membrane. As cesarean deliveries under general anaesthesia remain prevalent⁵, there is a role for airway imaging and sonographic localization of the CM, to be done early, before problems arise. With the CM marked, it would then be easily accessible in case a surgical emergency airway becomes necessary.⁶

SYMPOSIUM 3

Updates in Obstetric Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

ISSUES WITH LOW DOSE SPINAL ANAESTHESIA FOR CAESAREAN SECTION

Susilo Chandra

Contemporary anesthesia texts advocate the use of 12 mg hyperbaric bupivacaine for subarachnoid block for cesarean delivery. But we can find that maternal hypotension occurs 60 - 94% of such dose. Fluids preloading and prophylactic use of ephedrine not consistently prevent maternal hypotension. Maternal hypotension frequently results in nausea and vomiting.

Factors traditionally assumed to be of greatest importance in determining the spread of local anesthetics in subarachnoid block include the baricity of local anesthetics solution, the dose of anesthetics chosen, the volume of injectate and patient position following injection. Hypotension is primarily caused by decreased efferent sympathetic outflow. The decrease in sympathetic efferent activity after spinal anesthesia is related to the dose of bupivacaine.

Opioids combination with local anesthetics solution give synergistic effect and give potentiate sensory anesthesia without prolonging recovery from spinal anesthesia.

So, it maybe possible to achieve spinal anesthesia with less hypotension by using a reduced dose of local anesthetic in combination with opioid. Administration fentanyl intrathecally as lipophilic opioid is an established methods for intraoperative anesthesia and supplement post operative. The usual dose we use intrathecally is 10 - 25 mcg. The spread of fentanyl after administration into CSF is movement from CSF into opioid receptors or other nonspecific binding site in the spinal cord and rostral migration via CSF to supraspinal side.

Fentanyl is more readily eliminated from CSF and rapid onset of action so analgesia occurs within 5 - 10 minutes.

SYMPOSIUM 4

Basic Science: Review and Clinical Application

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

PHARMACOLOGY OF ADJUVANTS IN PAIN MANAGEMENT

Wan Azzlan Wan Ismail

Adjuvant analgesics (co-analgesics) are medications whose primary indication is the management of a medical condition with secondary effects of analgesia. Many of these medications are currently used to enhance analgesia under specific circumstances. Conventional analgesics have limited efficacy in the management of neuropathic pain. An adjuvant analgesic has a primary non-pain indication, but which may be analgesic in certain circumstances, and many of these have established a role in the pharmacological treatment of neuropathic pain. Antidepressants, anticonvulsants, local anesthetics, topical agents, steroids, bisphosphonates, and calcitonin are all adjuvants which have been shown to be effective in the management of certain pain syndromes.

The number-needed-to-treat (NNT) is an indirect statistical measure that can be used to compare relative efficacy of different adjuvant analgesics. There is currently insufficient evidence to suggest that any one adjuvant analgesic has absolute advantages over another. Analgesic efficacy, tolerability, safety/ toxicity, drug interactions, ease of use, and cost-effectiveness are essential factors that guide the selection of an adjuvant analgesic. However, cost-effectiveness data are absent for the vast majority of these drugs.

The proper use of adjuvant drugs is one of the keys to success in effective pain management. Pharmacological treatments should be used as part of a multimodal therapeutic programme for the management of neuropathic pain. Ideally, adjuvant analgesics will be initiated at lower dosages and escalated as tolerated until efficacy or adverse effects are encountered.

SYMPOSIUM 4

Basic Science: Review and Clinical Application

Congress Day 2 | 20th June 2013, Thursday (Morning Session)

PROGRESSION FROM ACUTE TO CHRONIC PAIN: CAUSES AND PREVENTION

Stephan A. Schug, MD(Cgn), FANZCA, FFPANZCA

Acute pain is often the precursor to chronic pain and the transition is a continuum; patients with chronic pain describe surgery or trauma as the initiating incident in a large number of cases. Similarly, persistent postsurgical pain is a common complication after many operations.

It is assumed that in particular nerve injury leads to the development of chronic pain. Peripheral and central sensitization processes are the pathophysiological mechanisms. Other risk factors for the development of chronic pain are severe unrelieved postoperative/posttraumatic pain, female gender, younger age, genetic predisposition and a number of psychosocial factors: depression, psychological vulnerability, stress, catastrophizing and hypervigilance.

Current research focuses on identifying patients at risk by assessing response to experimental pain or strength of inhibitory controls with variable success rates. Attempts are also made to identify preventive strategies. Current data suggest that a tissue sparing surgical approach with attempts to minimize nerve injury, techniques of regional anaesthesia and analgesia, use of medications that reduce central sensitisation or simple provision of good acute analgesia might be helpful here.

Overall, the relevance of transition from acute to chronic pain is widely underestimated; attempts to reduce this transition could have significant effects on the quality of life of patients, but also on costs for the health care system.

SYMPOSIUM 4

Basic Science: Review and Clinical Application

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

IMMUNOMODULATORS IN PAIN AND SEPSIS

Marzida Mansor

Immunotherapy is defined as the treatment of disease by inducing, enhancing, or suppressing an immune response. The active agents of immunotherapy are collectively called immunomodulators. They are a diverse array of recombinant, synthetic and natural preparations, often cytokines. Some of these substances, are already licensed for use in patients. Others are currently being investigated extensively in clinical and preclinical studies. Immunomodulatory regimens offer an attractive approach as they often have fewer side effects than existing drugs. Recently, there have been many studies looking at the use of immunomodulators from natural product in the treatment of pain and sepsis in animal model. Natural product like Honey for example, exerts anti-inflammatory and antioxidant activities and is thought to have potent effects in reducing infections and healing wounds.

Kassim M, et al. investigated the effects of honey and its methanol and ethyl acetate extracts on inflammation in animal models. Rats' paws were induced with carrageenan in the non-immune inflammatory and nociceptive model, and lipopolysaccharide (LPS) in the immune inflammatory model. Honey and its extracts were able to inhibit edema and pain in inflammatory tissues as well as showing potent inhibitory activities against NO and PGE2 in both models. The decrease in edema and pain correlates with the inhibition of NO and PGE2. Phenolic compounds have been implicated in the inhibitory activities. Honey therefore, is potentially useful in the treatment of inflammatory conditions (1)

Another active component of honey, caffeic acid phenethyl ester (CAPE), also exhibits antioxidant, anti-mitogenic, anti-carcinogenic, anti-inflammatory, and immunomodulatory activities. CAPE inhibited peroxynitrite synthesis in vitro and vivo. Peroxynitrite is a short-lived oxidant species that is a potent inducer of cell death and tissue injury. Inhibition of its formation or its decomposition has been shown to be of benefit in vascular diseases, inflammation, pain and neurodegeneration. Treatment with honey in animal model showed protective effects on organs through the improvement of organ blood parameters, reduced infiltration of neutrophils, and decreased myeloperoxidase activity. Suggesting, honey may have a therapeutic effect in protecting organs during inflammatory diseases (2).

SYMPOSIUM 5

Pain Management in Specific Conditions

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

REGIONAL ANAESTHESIA FROM THE SURGEON'S PERSPECTIVE

Christopher Pearce

Regional anaesthesia is not only good for the patient, it is good for the surgeon too as it increases patient satisfaction and may go some way to reducing hospital stay and the complications associated with opioid analgesia.

This lecture will explore the experience of regional anaesthesia from a surgeon's perspective with a specific focus on regional anaesthesia around the foot and ankle. Issues such as surgeon versus anaesthetist administered blocks, indwelling catheters, ultrasound and blocks performed before or after general anaesthesia will be discussed in an evidence based manner where possible.

SYMPOSIUM 5

Pain Management in Specific Conditions

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

THE USE OF REGIONAL TECHNIQUES IN UNCOMMON CONDITIONS - THE HEAD AND NECK BLOCK

Ling Kwong Ung

The least explored area in regional anaesthesia (RA) practice, perhaps, is the head and neck block.

Here I would like to share with you a few cases of head and neck surgery that had been done safely under RA with or without light sedation.

1. Superficial Cervical Plexus Block (SCPB)

We used SCPB to manage 3 adult patients who presented for drainage of dental abscesses. All 3 had difficult airways related to severe trismus. The first 2 patients, whose abscesses involved both the submandibular and submasseteric spaces, were managed with combined SCPB and auriculotemporal nerve block. In a third patient, a SCPB alone was sufficient because the abscess was confined to the submandibular region. The blocks were successful in all 3 cases.

We also used SCPB and dexmedetomidine to anaesthetize two children with anterior mediastinal mass who underwent lymph node biopsy and venous port insertion.

Besides, we also used bilateral SCPB for parathyroidectomy in patients with ESRF on long term haemodialysis.

2. Scalp Surgery under RA

Two cases of scalp skin cancer underwent wide excision surgery was successfully done under combined bilateral supra orbital and supratrochlear nerves, greater occipital and lesser occipital nerves blocks.

3. Burr Hole Surgery Under RA

4 cases of burr hole surgery for drainage of chronic subdural haematoma had been successfully done under RA. For the frontal burr hole, supratrochlear and supraorbital nerves block was given. For parietal burr hole surgery, combined supraorbital nerve, greater occipital and lesser occipital nerves and auriculotemporal nerves block were given.

4. Facial Surgery Under RA

A case of basal cell carcinoma of the left frontal-temporal region for wide excision surgery was successfully done under combined zygomaticotemporal and zygomaticofacial nerves, supraorbital and supratrochlear nerves, and auriculotemporal nerves blocks.

Discussion

Most of the head and neck surgical patients will not choose to be operated under RA, however, in high risk cases, regional anaesthesia can be a safe option, provided, the surgery is minor, not too extensive, short surgical time and confined to superficial tissue only. Most of the above cases are high risk patient. We selected the cases carefully and provided light sedation to the patients to alleviate their anxiety.

SYMPOSIUM 5

Pain Management in Specific Conditions

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

ALTERNATE REGIONAL ANESTHESIA TECHNIQUES FOR ABDOMINAL SURGERY

S Ganapathy

Currently thoracic epidural analgesia (TEA) is considered the gold standard for managing pain after abdominal surgery. While TEA provides the best analgesia, it is also associated with many undesirable adverse events such as hypotension, low urine output, failure, pruritus and the much dreaded neuraxial hematoma. Thus some patients such as the ones on anticoagulants or who are coagulopathic may not be able to receive TEA. Currently there are four regional techniques that can be used in such a situation.

Although original reports on transversus abdominis plane block resulted in very restricted segmental block, use of 4 catheters in the 4 quadrants using elastomeric devices for infusion provides excellent analgesia combined with intravenous patient controlled analgesia. The catheters can be sited with the help of ultrasonography. While this can provide good analgesia for laparotomy with vertical midline incisions, subcostal (Chevron) incisions pose a challenge.

Use of bilateral continuous thoracic paravertebral block provides good analgesia but requires periodic bolusing through the catheter. Like TAPB, PVB has to be combined with intravenous PCA for adequate pain control. There are no randomized studies documenting the efficacy and safety of bilateral PVB.

Rectus sheath block either initiated by surgeon at the end of surgery or by the anesthesiologist seems to be a viable alternative but randomized studies are lacking.

Wound and preperitoneal infusions of local anesthetics can provide good analgesia but often can be problematic in the presence of severe scarring of the abdominal wall. All these techniques lower narcotic requirements but do not completely eliminate narcotic requirement. The main luxury is that all these techniques can be used in a coagulopathic/anticoagulated patient.

SYMPOSIUM 6

Sedation

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

ENSURING OPTIMUM SEDATION DURING REGIONAL ANAESTHESIA AND PAIN INTERVENTION

Michael G Irwin

Optimum sedation is that which produces a relaxed, comfortable and compliant patient. Sedation and analgesia should generally be considered as fairly distinct entities. While certain analgesics such as opioids can produce some sedation, most sedative drugs are not analgesic and administering them to a patient in pain will lead to disinhibition and poor compliance. Choice of drugs, therefore, will depend on the circumstances. In certain situations sedation alone will suffice and propofol is a good choice considering its titratability and rapid, clear headed recovery and antiemetic effects. It generally needs to be given by infusion (TCI is a good choice) and, like other sedatives has synergistic effects with opioids on respiratory depression and airway tone. Benzodiazepines were relatively popular before propofol and are often still used by non-anesthesiologists. They have less cardiovascular depressant effects than propofol but even midazolam is comparatively difficult to titrate and has a prolonged recovery. Amnesia is common with benzodiazepines but this not a useful component of sedation and many patients do not like it.

Dexmedetomidine, an agent with high alpha-2 selectivity compared to clonidine, has been the subject of numerous clinical studies in the past decade. It was developed for and is currently marketed as an agent for sedation of adults in the intensive care setting. This is not specifically limited to the intensive care unit, as operating theatres and other areas of intense medical supervision would obviously come under this category. It has a number of unique pharmacodynamic properties which make it useful- analgesia without respiratory depression and a significant reduction in stress. Attributed benefits are both direct, such as sympatholysis, and indirect from its sedative and analgesic effects. It is particularly useful because of its non-gabaminergic sedation mediated via the locus ceruleus which facilitates easy arousal and less cognitive dysfunction. Compared to midazolam in ICU where it is often compared, dexmedetomidine is similarly effective for sedation, but shortens the time to extubation, is associated with less delirium, and less tachycardia and hypertension.

Similar drugs can be used in children, although many are technically "off label". Sedation settings should be appropriately equipped with full resuscitation facilities, oxygen supply and monitoring as stipulated in various national guidelines. A clear record of drug administration, response and physiological parameters is mandatory.

SYMPOSIUM 6

Sedation

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

COMPLICATIONS OF SEDATION

Y K Chan

Over the years there has been more demand for sedation to be administered in situations that give rise to discomfort especially where the patient is not able to cope with it. These include endoscopies for adults either normal or challenged ones, and most invasive investigations for the pediatric patient. Most of these administrations are done not solely by anesthesiologists but by non- anesthesiologists as well.

The complications are mainly in the respiratory and cardiovascular system and include loss of airway control, respiratory hypoventilation and life threatening cardiovascular events. Several factors account for the occurrence of these complications. The extremes of age and the obese are more likely to suffer complications compared to the normal population. The training of the provider probably also has a bearing although this would be difficult to prove as the numbers needed would be large. The depth of sedation has been shown to have an interesting relationship with the risk of complications.

In order to reduce the rate of complications, proper pre procedural evaluation of the patient is of utmost importance to estimate the risk. Ensuring that the care of the sedated patient is done under the same stringent measure one does with an anesthetized patient is a strategy the hospital administrators must adopt. They have to ensure the availability of correctly trained providers, correctly equipped facilities and adequate monitoring arrangements.

Providers whether anesthesiologists or non anesthesiologists must be trained well in order to ensure safety in the field. Providers must learn the art of titration as sedation requirements shows great patient variability and they must also be trained in cardiopulmonary resuscitation maneuvers. Early recognition of onset of complications and strategies to get good control before they become life threatening may have to be the maxim providers have to work by. Providers could be taught to do this by positively recognizing the stage of sedation the patient is in during the whole event. Post procedural monitoring should also be stringently enforced as the period of sedation can vary amongst individuals and therefore the risk of complications.

Sedation to the non initiated may seemingly appear innocuous but to those in the know, it is loaded with possible life threats. These if not properly and timely reversed can cost patients their lives.

SYMPOSIUM 7

Pharmacology

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

ADDITIVES IN PERIPHERAL NERVE BLOCKS

Mafeitzeral Mamat

Perineural catheters for post operative analgesia are limited by institutional practice. The majority of peripheral nerve block anaesthetists still perform single short blocks. The usage of additives to local anaesthetics to prolong the duration of block has long been described. The common agents used are adrenaline, dexamethasone, sodium bicarbonate, midazolam, buprenorphine, tramadol, clonidine and dexmedetomidine. The knowledge of the pharmacological interaction between the additives and long acting local anaesthetics is important in determining the safest & effective pain management option for the patient.

SYMPOSIUM 6

Sedation

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

ANAESTHETIC DEPTH MONITORING DURING SEDATION

Thara Tritrakarn

Sedation is an important part of successful local and regional anesthesia. It relieves fear, anxiety and provides additional analgesia, comfort and patient satisfaction. Anyhow, over sedation leads to loss of consciousness, respiratory depression, hypoxemia and risk of cardiac arrest and death.

Monitoring by anesthesiologist or other personnel who has been trained in advance airway management is essential in the procedure that require deep sedation or the use of strong hypnotic or intravenous anesthetics. Observer rating is most commonly used to monitor depth of sedation during local or regional anesthesia. Five levels of sedation are awake, light sleep, moderate, deep sedation and unconscious. Bis monitoring was shown to have good correlation with the observer rating scale but has limited clinical use especially in outside of the operating room setting. Delay or inappropriate or failure to response to hypoxia has been reported to be the major cause of morbidity, brain damage or death in sedation procedures outside operating room. Monitoring of vital signs especially pulse oxymeter are even more important than the level of sedation.

SYMPOSIUM 7

Pharmacology

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

TRANSDERMAL PAIN MEDICATION

B E Cole

Transdermal medications have been used throughout antiquity. Modern practitioners have many transdermal options for controlling pain, including alpha-adrenergic modulators, anesthetics, anti-inflammatories, antidepressants, and opioid analgesics. Buprenorphine and fentanyl transdermal formulations give significant pain relief for 7 and 3 days, respectively. Transdermal therapies offer several unique advantages that will be discussed; a recent head-to-head comparison study will be described; and advice will be offered for the role of this approach to pain management based upon the mechanism of pain generation and maintenance.

SYMPOSIUM 8

Orthopaedic Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

CONTINUOUS PERIPHERAL NERVE BLOCKS

Shahridan Fathil

Postoperative analgesia is generally limited to less than 24 h after single-injection peripheral nerve blocks (PNB).

Continuous peripheral nerve blocks (CPNB) are applicable to a wide range of surgical procedures particularly major joint replacements. It can be used as the sole anaesthesia technique or intraoperative analgesia with the added benefit of prolonging the postoperative analgesic duration with the appropriate local anesthetic infusion. It provides superior analgesia compared to opioid-based analgesia, allows for more extended analgesia than single injection PNB and allows for site-specific analgesia without the hemodynamic changes and urinary retention associated with neuraxial block i.e. epidural analgesia.

CPNB can be performed with nerve stimulation and/or ultrasound guidance. The 3 documented ultrasound guided techniques are namely nerve in short axis, needle in-plane; nerve in long axis, needle out-of-plane and nerve in long axis, needle in-plane. Performance of CPNB is technically more challenging than single-shot PNB.

SYMPOSIUM 8

Orthopaedic Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

THE IDEAL ANALGESIA FOR MAJOR KNEE SURGERY

S J Fowler

Total knee arthroplasty (TKA) is a common procedure and small improvements in perioperative management can have a significant impact on outcome. Evidence-based implementation of various components forms the foundation of an Enhanced Recovery After Surgery (ERAS) or fast-track program.

TKA is associated with severe early postoperative pain. Effective analgesia allows earlier mobilisation, fewer immobility-related complications, better patient satisfaction and a shorter time to discharge. Peripheral nerve blockade (PNB) and high volume local anaesthetic infiltration (LIA) provide superior analgesia and improved early physiotherapy outcomes when compared to systemic opioids. These techniques have also largely replaced epidural analgesia for TKA because they provide equivalent analgesia with fewer side effects. This patient population is also prone to serious neuraxial complications following epidural catheterisation.

Although there is debate about exactly which technique is most efficacious, PNB has established itself as the analgesic "gold standard" after TKA. But with the trend towards early ambulation (often on the day of surgery), motor weakness associated with femoral block is of concern. Since its introduction 5-10 years ago, the local infiltration analgesia (LIA) technique has rapidly become popular in our region. LIA has a reputation among surgeons as a simple, safe and convenient method which provides excellent analgesia after TKA without motor block. In this presentation, the evidence for LIA compared to established and emerging PNB techniques will be discussed along with the role of enhanced recovery programs and important themes for future investigation.

SYMPOSIUM 8

Orthopaedic Anaesthesia

Congress Day 2 | 20th June 2013, Thursday (Afternoon Session)

UPPER LIMB BLOCKS – TIPS FOR SUCCESS

Penafraancia Catangui Cano

The upper limb is supplied by nerves of the brachial plexus. The brachial plexus is formed by the anterior primary rami of C5-T1. In some individuals there may also be contributions from the C4 and T2 nerve roots. The plexus supplies motor innervation to all the muscles of the upper limb. It also supplies cutaneous innervation to the upper limb with the exception of the area of the axilla (upper inner arm), which is supplied by the intercostobrachial nerve (T2). It is possible to block the brachial plexus at various levels as it leaves the intervertebral foramina and traverses towards the periphery. All of these blocks can be successfully performed with either nerve stimulation or with ultrasound guided techniques.

The interscalene approach is suitable for surgeries of the shoulder and upper arm. It blocks the plexus close to the nerve roots at about the level of the cricoid cartilage. It penetrates at a lower concentration the inferior trunk belonging to C8-T1 dermatome, rarely reaching the roots of T1. This may help explain why there is sparing of the lower root resulting in poor block of the C8-T1 area particularly the ulnar nerve. This does not make it a suitable brachial plexus block for surgeries in the forearm and the hand. It is possible using ultrasound to identify the phrenic nerve on the surface of the anterior scalene muscle. This close anatomical relationship explains the high incidence of ipsilateral phrenic nerve block which can be of clinical significance in patients with lung disease. Likewise, it can also cause Horner's syndrome and hoarseness due to the proximity of the plexus at this level to the recurrent laryngeal nerve and the cervical sympathetic ganglia.

The Supraclavicular block has seen resurgence in popularity since the introduction of the ultrasound. This approach is performed where the brachial plexus is presented most compactly at the proximal division or trunk level. The supraclavicular area offers excellent imaging conditions because of its superficial location thus making it easier to block. It can provide complete anesthesia of the limb below the shoulder with the single injection into the "corner pocket" as proposed by Chan et al. Recent studies however show that a single injection at the pocket may result in partial block failure in the inferior trunk making it unsuitable for forearm and hand surgeries. Side effects and complications include diaphragmatic hemiparesis, Horner's syndrome and the probability of pneumothorax.

The infraclavicular approach is indicated for distal arm, elbow and hand surgeries. The block is performed at the level of the cords which are compactly arranged around the subclavian artery. A complete and rapid onset of nerve block is achieved when the local anaesthetic is injected posterolateral to the artery thus producing a U-shaped spread of local anesthetic spread.

The axillary approach is the most widely used, studied and modified approach to the brachial plexus. Two anatomic factors are thought to affect the spread of the local anesthetic and the success rate such as the various arrangement of the nerves around the axillary artery and the presence of a tube like sheath that contains a septa.

With the several variations in the organization of the nerves surrounding the artery, circumferential spread of the local anesthetic will provide excellent surgical anesthesia for procedures on the hand and elbow. It is critical to block separately the musculocutaneous nerve as it is some distance away from the other branches. Otherwise, there will be sparing of the skin over the lateral surface of the forearm including the flexor muscles of the arm.

The axillary sheath is a multicompartiment structure formed by a septa that limits the circumferential spread of the local anesthetics. From these findings, it was concluded that a successful AXB depends upon multiple small injections of local anesthetic in the four terminal nerves. Recent studies however showed that a single injection technique is sufficient for a complete block and multiple injections are unnecessary because there are connections between the compartments.

The mid-humeral approach blocks the individual nerves more distally when the individual branches have begun to course away from the artery. It is indicated for elbow and hand surgery. On the other hand, blocks at the elbow may be utilized as the primary anesthetic for procedures on the hand and may also be used as rescue blocks. This latter block is easy as the nerves can be visualized superficially through the ultrasound.

PLENARY 2

Congress Day 3 | 21st June 2013, Friday (Morning Session)

REGIONAL ANAESTHESIA – EXPANDING THE HORIZONS

Manoj K Karmakar

Regional anesthesia has undergone tremendous changes in the last 5-6 years. This has been made possible due to the introduction of ultrasound. Today peripheral nerve blocks are being performed more objectively and there is evidence that peripheral nerve blocks that are performed using ultrasound, when compared with peripheral nerve stimulation, take less time to perform, require fewer needle passes, require less local anaesthetic dosage, has a faster onset, produce superior quality of sensory blockade, last longer in duration, is less likely to fail, and also reduces inadvertent vascular puncture. Therefore the ultrasound machine is gradually becoming an integral part of the armamentarium of an anaesthesiologist and an increasing number of peripheral nerve blocks are being performed with ultrasound assistance or real-time ultrasound guidance. Spinal sonography is also possible and is used either as a pre-puncture diagnostic (assessment) tool or for real-time assistance or guidance of the needle during the procedure. A pre-puncture ultrasound examination allows one to accurately determine the interspace for needle insertion which is useful in patients in whom anatomical landmarks are difficult to palpate (obese) or have abnormal anatomy (scoliosis or post laminectomy surgery). It also allows the operator to accurately predict the depth to the epidural space and determine the optimal angle for needle insertion. When an ultrasound examination is performed before the epidural puncture it improves the success rate of epidural access on the first attempt, reduces the number of puncture attempts and the need to puncture multiple levels, and also improves patient comfort during the procedure. When used for obstetric epidural anaesthesia it has been shown to improve the quality of analgesia, reduce side effects and improve patient satisfaction. There are also data showing that a pre-puncture ultrasound examination improves the learning curve in obstetric epidural anesthesia.

Also the focus of ultrasound guided regional anesthesia seems to have changed from just wanting to locate a peripheral nerve and inject the local anesthetic adjacent to the nerve (perineural), to wanting to identify specific anatomical (fascial) planes in relation to the nerve. This is has resulted in the current controversy in the literature as to what constitutes extraneural vs. an intraneural injection. There are also published data that all intraneural injections may not lead to long term electrophysiological or neurological deficit. Some of the recent research also indicates that high definition and 3D ultrasound is improving or understanding peripheral nerve blockade and opening up new avenues for drug deposition during peripheral nerve blocks. Other recent developments that are of interest to regional anesthesia include quantitative ultrasonography for measurement of echointensity and echo-texture of peripheral nerve, use of pulse Doppler ultrasound to quantify the hemodynamic changes after peripheral nerve blocks and fusion imaging. Some of these recent developments and their application in regional anesthesia will be highlighted during this presentation.

PLENARY 3

Congress Day 3 | 21st June 2013, Friday (Morning Session)

OPIOIDS AND CHRONIC PAIN: THE PENDULUM KEEPS SWINGING

Srinivasa N Raja

The medicinal use of opioids possibly dates as far back as the 5th millennium BC. Opioid receptors at supraspinal, spinal and peripheral sites can mediate antinociceptive effects. While the beneficial effects of opioids for acute and cancer pains have been widely accepted, the role of opioids in the treatment of chronic non-cancer pain has been a topic of considerable debate, reverberating throughout medical, judicial, health-policy and patient-advocate circles. Physicians' concerns about the use of opioids for pain other than that resulting from cancer include side effects such as constipation, nausea, vomiting, respiratory depression and cognitive impairment. Other concerns related to chronic opioid use are tolerance to the opioid effect, the risk of addiction, and lack of long-term efficacy.

The belief that nociceptive pain responds to opioids, while neuropathic pain is resistant to opioids, stems from the report by Arner and Meyerson (1988). These investigators compared the effectiveness of infusions of opioid and placebo in a mixed group of forty eight patients with neuropathic, nociceptive and idiopathic pain. Only two of twelve patients with a neuropathic pain component responded positively to the opioid infusion test, compared to all of the 15 subjects with nociceptive pain. This report has been controversial and criticized for an inherent selection bias in the study design (neuropathic pain patients were being treated with narcotics analgesics in moderately high doses prior to study) and for its small sample size.

More recent clinical studies suggest that neuropathic pain is not resistant to opioids; however, the drug doses required to attenuate neuropathic pain may be higher than that required to relieve nociceptive pain. A number of controlled trials published during the last five years have provided evidence for a beneficial effect of oral opioids in chronic neuropathic pain. In a crossover trial, the effects on pain of twice daily controlled release oxycodone treatment (10-60 mg/day) were studied in 50 patients with postherpetic neuralgia (Watson and Babul 1998). A significant decrease in overall pain intensity and pain relief was observed in the oxycodone treatment period as compared to the placebo period. Fifty eight percent of patients experienced at least moderate pain relief with oxycodone as compared to 18% with placebo. A similar decrease in pain and greater pain relief compared to placebo was observed in a multi-center, randomized, placebo-controlled trial in patients with distal symmetric diabetic neuropathy, treated with the weak opioid agonist tramadol (Harati et al. 1998). Raja et al. (2002), compared the change in pain intensity and pain relief with opioids and tricyclic antidepressants in patients with postherpetic neuralgia. They observed similar reductions in pain intensity with both drugs, but patients reported greater satisfaction with the opioid therapy as compared to the therapy with tricyclic antidepressants (50% vs. 34%). There are, however, considerable gaps in the literature concerning the long-term effectiveness of opioids for non-cancer patients with chronic pain.

In summary, several studies have demonstrated that oral therapy with opioids can result in a reduction in neuropathic pain intensity. Studies also indicate that therapy with opioids can be associated with side effects, and the risk-benefit ratio needs to be evaluated carefully. Physicians need to balance the needs of patients and the burdens enacted by federal regulatory agencies, without ignoring the alarming trend in prescription opioid diversion and abuse. The appropriate approach to this dilemma is to adopt a middle way- akin to the teachings of Eastern philosophers - between the extremes of overindulgence and unnecessary deprivation.

SYMPOSIUM 9

Management of Chronic Pain: Cancer & Non-Cancer Pain

Congress Day 3 | 21st June 2013, Friday (Morning Session)

POSTHERPETIC NEURALGIA: ONE DISEASE BUT MANY FACES

Srinivasa N Raja

The varicella-zoster virus (VZV), is a member of the herpes virus family. Infection with VZV causes two distinct diseases: chicken pox and zoster. Chicken pox occurs after a primary infection with the VZV. The virus subsequently resides in a latent form in dorsal root and cranial nerve ganglia. Herpes zoster (HZ, also known as shingles) results from reactivation of the virus from a dormant sensory ganglion years later. Hope-Simpson hypothesized that viral latency is maintained by immunocompetence and that this immunocompetence could be boosted by periodic subclinical reactivations and exposures to exogenous virus. However, at times when immunocompetence falls below a critical threshold, such as with aging, the virus can be reactivated.

The pain associated with a HZ attack has generally been classified into three phases: acute, subacute, and chronic or PHN. The exact point at which one phase ends and the next phase begins is a topic of debate. Generally, the first phase, acute HZ pain, is closely associated with a HZ attack and occurs within the first 30 days after rash onset. The pain that occurs with acute HZ has been commonly described as a continuous, burning or throbbing pain, and sharp. The second phase, subacute herpetic neuralgia, is typified by pain that persists beyond the acute phase. The third phase, chronic or PHN, is characterized by pain that persists for 90 to 120 days or more after rash onset.

Postherpetic neuralgia (PHN) is the most common neurologic complication of HZ. The pain associated with PHN can continue for months or years. PHN pain has three main features. Patients describe a constant, steady, burning pain; electric shock-like pains; and skin that is often very sensitive or painful. The physical examination often reveals pain to summing touch stimuli such as skin stroking (dynamic mechanical allodynia) and excessive pain from pinprick (hyperalgesia) or cold stimuli over areas wider than the single ganglion usually thought to be the site of the eruption and pathology. PHN may result in physical inactivity, decreased social involvement, insomnia, chronic fatigue, and depression.

After the initial stage of HZ eruption, inflammation is present in the DRG that progresses to loss of neurons as well as scarring of the dorsal horn centrally as well as in the peripheral nerve. Thus, PHN pain may result from aberrant activity of the remaining peripheral sensitized nociceptors, deafferentation, central reorganization or possibly combination of these processes. Based on its neural mechanisms for pain, PHN has been classified into subtypes: the irritable nociceptor group, which include patients who display hyperalgesia; the deafferentation group, which includes patients who suffer from persistent pain in a region of sensory loss (anesthesia dolorosa); and the central reorganization group, in which patients have mechanical allodynia.

Despite this specific knowledge regarding potential mechanisms, a good mechanism-based treatment continues to elude us. Differing pharmacodynamics of the various drugs used to treat PHN and the limitations of monotherapy provide a rationale for using combinations of drugs. This strategy may also limit the adverse effects of the drugs by enabling the use of lower doses.

SYMPOSIUM 9

Management of Chronic Pain: Cancer & Non-Cancer Pain

Congress Day 3 | 21st June 2013, Friday (Morning Session)

MULTIMODAL HOLISTIC CANCER PAIN MANAGEMENT

Li Ching Fan Carina

Cancer Pain management is always challenging yet very honorable and rewarding job. It is very important to have a Total person holistic approach with a Total person assessment with a detail history of the disease course itself (with or without metastasis) starting from the diagnosis, operations and different interventions with Radiotherapy, chemotherapy including the choice of agent. One has to go thorough the details of the previous investigations (blood, tumor markers, organ functions, Images (CT X ray, PET-CT, MRI, to delineate all the possible metastasis sites or any chance of co-morbidity with infection, sepsis, osteoporosis, etc)

The Pain can be acute or chronic. Acute Conditions can be presented as severe pain but can be treatable such as bone metastasis with fracture and related instability or new organ dysfunctions such as pleural effusion, ascities, bone fracture or crack and intestinal obstruction. On the other hand, the chronic pain can be degenerative or not related to the disease spread or treatment associated.

One has to bear in mind that even in cancer patient with metastasis; they can have long survival nowadays. Hence we has to rule out any acute treatable conditions before plan for more palliative approach with more aggressive pain interventional Neurolytic procedure, intrathecal pump, catheter technique or with intravenous opioids or sedation as hospice care.

Detail disease course with education of use of different analgesic, expected side effects, plan of management with expected disease course with different palliative therapies for disease with pros and cons, especially Psychological support to patient and family members is of same importance. The ultimate aim is to allow better quality of life with better sleep, nutrition and social family interactions for the unexpected days of life in Cancer patient. A good communications with other disciplines and parent team is very important to help patient and their family member to consolidate a plan for their pain management at their different stage of cancer therapy.

SYMPOSIUM 9

Management of Chronic Pain: Cancer & Non-Cancer Pain

Congress Day 3 | 21st June 2013, Friday (Morning Session)

CANCER PAIN GUIDELINES

Alex Yeo

Cancer is a major source of morbidity and mortality, being the leading cause of death in Singapore. One of the aspects of cancer morbidity is associated with pain. The two most common cause of cancer pain are the cancer itself and the treatments that they received to treat cancer. The probable cause includes the nature of the disease where by a growing tumor causing pressure on one of the body's organs, bones, and nerves and also obstruction of blood vessels. As cancer pain is categorized as chronic or severe pain, it has a profound effect on the patient physically, psychologically, and socially. As such, biopsychosocial aspects must be well evaluated in each case. Cancer pain represents unnecessary suffering in patients but with effective management of pain according to guidelines can dramatically improve the patient's quality of life during this period of time. Cancer pain can be controlled in the majority of the patients through relatively simple means as long as guidance and protocols is provided on evaluating cancer pain and the various options for treating it.

Accurate assessment of pain is of paramount importance in effective management of pain. An overall assessment form detailed history and descriptions of pain, previous treatment and responses to drugs, a physical examination and psychosocial assessment. This information allows us to choose the suitable analgesia for persistent cancer pain where it should be administered on a round the-clock basis or breakthrough doses to prevent recurrence of pain. Multimodal analgesia such as NSAIDs and opioids and adjuvant drugs may be added in certain painful conditions.

Professionals who manage cancer-related pain should be aware that interventional techniques are available for pain relief. Although non-invasive therapies are recommended and always precedes invasive treatments, in many cases, minimally invasive treatments may be useful. These may provide alternative long-term pain relief for patients when their pain is not well controlled by simpler methods i.e. drugs. As non-invasive approach should always precedes invasive therapy, it is recommended to consider the risk, suitable support systems, level of expertise and cost in situations where more definitive treatment is anticipated.

Education of pain management for families and patients are crucial before commencing treatment for pain management. Acquiring knowledge of identifying cancer-related pain and its management gain the sense of control in pain for patients and control in management for professionals. Physical therapies and psychosocial support can be used concurrently with pharmacological and other treatments.

Adequate pain management may potentially improve survival. A holistic multidisciplinary multimodal approach with some of the latest modalities will be discussed.

SYMPOSIUM 10

Anaesthesia for the High-Risk Patient

Congress Day 3 | 21st June 2013, Friday (Morning Session)

MANAGEMENT OF A SUPER-MORBIDLY OBESE PART URIENT REQUIRING CAESAREAN DELIVERY

Michael Paech

'Super obesity' in the W.H.O. classification III is a BMI of at least 50.

Anaesthetists are rightly concerned about dealing with morbidly obese women, who are over-represented in triennial mortality reports and maternal morbidity data. Increased rates of co-morbid disease occur, as do higher rates of intrapartum obstetric complications and critical illness in pregnancy.

An antenatal assessment provides an opportunity to optimise medical management; investigate unexplored issues; plan the caesarean and obtain consent. Multidisciplinary case conferencing is helpful in complex patients and care plans should include determining the optimal location for surgery, occupational health and safety issues. The diagnostic difficulties posed in detection of critical illness are noteworthy. Airway evaluation and management planning is mandatory, as is appropriate equipment. Urgent general anaesthesia poses by far the greatest risk to the patient so should be avoided! Early epidural analgesia during labour and regional anaesthesia for operative delivery are recommended but pose technical difficulties (more difficult insertion, unintentional dural puncture, epidural catheter dislodgement and block failures). The technique for elective caesarean should be individualised but I highly recommend combined spinal-epidural and possibly strategies to maximise the duration of spinal anaesthesia and a dual interspace approach (low thoracic epidural, then low lumbar spinal).

Other intraoperative challenges are adequate venous access; haemodynamic monitoring (arterial cannulation is recommended); and safe positioning. If general anaesthesia is necessary, 'ramping' positioning and thorough preoxygenation are essential. Postoperative considerations include good respiratory and general care, often in a high-dependency unit; appropriate heparin dose prophylaxis; and non-sedative analgesic regimens.

SYMPOSIUM 10

Anaesthesia for the High-Risk Patient

Congress Day 3 | 21st June 2013, Friday (Morning Session)

THE HYPERTENSIVE PARTURIENT

Grace Anne B Herbosa

Hypertensive disorders remain a major cause of maternal and perinatal morbidity and mortality worldwide. Interventions to prevent hypertensive disorders in pregnancy including pre-eclampsia in the general population have been disappointing, and the mainstay of treatment involves close antenatal supervision and timely delivery to prevent deterioration and subsequent morbidity and mortality. Anesthesiologists will be involved when these high-risk parturients deliver, and we are an important part of the team caring for critically ill obstetric patients.

As to etiology, a gene encoding an anti-angiogenic protein (sFlt1) is overactive in preeclamptic placentas producing endothelial dysfunction. A systematic review on use of elevated sFlt-1 and reduced placental growth factor (PlGF - a pro-angiogenic protein) to predict preeclampsia concluded that third-trimester increases in sFlt-1 combined with decreases in placental growth factor levels are associated with severe preeclampsia. The promise of apheresis to remove circulating sFlt-1 has reduced proteinuria and stabilized blood pressure without adverse effects on mother and with evidence of fetal growth.

Debatable Areas in the Management of the Patient with Preeclampsia include

- Invasive monitoring?
- Anti-hypertensive of choice?
- Is magnesium sulfate superior to other anti-seizure medications?
- Fluid administration?
- Platelet counts - how low can we go for neuraxial blocks?
- Safety of spinal anesthesia for cesarean section in severe preeclampsia?
- Pressor to treat hypotension? Alpha agonists? Ephedrine?

Practical Pointers

- Invasive monitoring is rarely necessary except for extreme circumstances.
- Intravenous labetalol or hydralazine are first-line treatments for hypertension.
Calcium channel blockers such as nifedipine cause a rapid smooth fall in blood pressure while increasing renal perfusion and urine output. However, calcium channel blockers cause uterine relaxation, making induction of labor more difficult and potentially causing atony and hemorrhage after delivery.
- The goal for management of hypertension is to keep maternal pressure close to her baseline to sustain uteroplacental perfusion, but < 160 mmHg systolic to prevent maternal cerebrovascular complications.
- Use platelet count trends and your clinical judgment. There is no absolute platelet count to use as a cut-off for use of neuraxial blocks.
- Spinal anesthesia for cesarean delivery is safe.
- Limit fluid preload and treat hypotension aggressively with alpha-agonist medications.

Normalize low blood pressure with phenylephrine in preference to ephedrine.

More importantly, participate actively as part of the perioperative team when caring for high risk obstetric patients.

SYMPOSIUM 10

Anaesthesia for the High-Risk Patient

Congress Day 3 | 21st June 2013, Friday (Morning Session)

ANAESTHESIA FOR THE LIVER-IMPAIRED PATIENT

Sushila Sivasubramaniam

Liver disease can vary in severity from chronic liver disease, advanced liver disease to end-stage liver disease (ESLD) with life-threatening, multi-organ, multi-system failure. An increasing number of liver-impaired patients require surgery. Reasons for this development are an aging population, better long-term survival of patients with liver cirrhosis, and continuously improving outcomes after surgery, surgical techniques as well as intensive care management. As a result, anaesthetists are increasingly confronted with patients with impaired liver disease scheduled for non-transplant surgery. Surgical stress, particularly laparotomy, in patients with liver disease carries high mortality rate. More recent studies suggest an improvement: overall peri-operative 30-day mortality was reported as 11.6%; peri-operative complication rate remains at the level of 30%. Factors associated with peri-operative complications and mortality include male gender, the presence of ascites, diagnosis of cirrhosis, an elevated creatinine concentration, chronic obstructive pulmonary disease, peri-operative infection, upper gastrointestinal bleeding, and presence of intraoperative hypotension. The anaesthetic and operative risks are not only related to the severity of the liver dysfunction but the disease itself displays an array of associated organ dysfunction. Factors influencing peri-operative management include those related to failure of synthetic and metabolic function of the liver, redistribution of cardiac output, diminished hepatic blood flow and portal hypertension. These derangements lead to impairment of the pulmonary, cardiac, neurological, hematological, gastrointestinal, and renal systems, and to alterations in pharmacokinetics. A good understanding of the pathophysiology of liver dysfunction is vital for preoperative evaluation and assessment of operative risk.

Liver-impaired patients must be assessed for specifically associated organ dysfunction. A thorough medical history accompanied by a detailed physical examination with appropriate blood investigations are essential to detect possible complications. Based on the history, examination and blood investigation, further appropriate blood tests and functional testing as well as applying a risk score can optimise the peri-operative anaesthetic management. The risk scores other than the ASA would include, in particular to these patients, are the Child-Turcotte-Pugh (CTP) and the model of end stage liver disease (MELD). The MELD has been adopted for the purpose of liver transplant allocation. The anaesthetic management of liver-impaired patients should take into consideration the decrease ability of the liver to metabolise drugs, the increase susceptibility to narcotics and a substantial change in pharmacokinetics of drugs. Propofol is a good alternative for sedation and induction of anesthesia. With respect to neuromuscular blocking agents, atracurium and cis-atracurium can be recommended, since its elimination is independent of organ function. Most opioids undergo hepatic metabolism. Alfentanil, morphine, and oxycodone display prolonged half-lives. The administration of fentanyl or sufentanil as a single dose and continuous application of remifentanyl seems well tolerated. Historically, isoflurane was recommended for impaired liver function. However, this was based on studies comparing it with enflurane and halothane. The use of any one of the modern volatile agents appears comparable until further data is available. Whether any of these agents offer some degree of liver protection is debatable. Regional anesthesia is valuable for postoperative pain management. The principles of anaesthetic management are as ever: Protect airway, Establish good vascular access, Volume replacement, Check and correct clotting.

In conclusion, optimal anesthetic management of liver impaired-patients remains a challenge. An exact determination of liver function as well as the assessment of the possible effects on other organs is essential. The application of the CTP and MELD scores facilitates the evaluation of the severity of liver dysfunction. At present and with respect to intraoperative management, propofol or modern volatile anesthetics seem to be the best choice to maintain anesthesia. Fentanyl, sufentanil, and remifentanyl as opioids as well as atracurium and cis-atracurium as a neuromuscular blocking agent can be recommended. Regional anesthesia may also be successfully applied.

SYMPOSIUM 11

Airway Management

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

SUPRAGLOTTIC AIRWAYS

Edwin Seet

The prototypical laryngeal mask airway was constructed and introduced by its architect, Dr Archie Brain, in the early 1980s. Three decades later, Anaesthesiologists all-over-the-world are faced with proliferations in excess of 30 different supraglottic airway devices. Many of these now form an integral foundation of routine clinical practice.

Supraglottic airway insertion is easy for novices to learn and atraumatic; making its use recommended during airway maintenance for general anaesthesia and rescue airway management in the pre-hospital setting. The use of supraglottic airways have been explicitly incorporated into difficult airway algorithms - as a conduit for tracheal intubation with an endotracheal tube, and where face mask ventilation is unsatisfactory in a patient who was unable to be intubated.

This lecture explores the variety, safety, efficacy, and utility of supraglottic airway devices in modern day anaesthesia practice.

SYMPOSIUM 11

Airway Management

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

VIDEOLARYNGOSCOPY: THE EVIDENCE

Wendy Teoh

Successful intubation with the conventional Macintosh laryngoscope requires alignment of the oral, pharyngeal and tracheal axes to provide a direct line of sight to the vocal cords. Videolaryngoscopes such as the C-MAC (Karl Storz), Glidescope, Pentax AirwayScope, McGrath MAC and Series 5, Venner AP Advance and Airtraq have a camera embedded in the distal third of their blade, and image transmitted to a screen. They provide glottic visualization without the need to align the 3 axes, offering a widened viewing angle, allowing users a "look around the corner", which is ideal to aid intubation in the anterior / Grade 3-4 larynx.

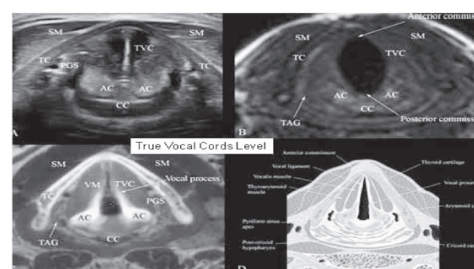
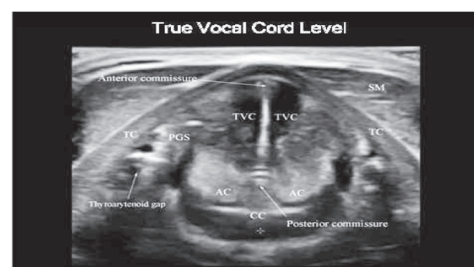
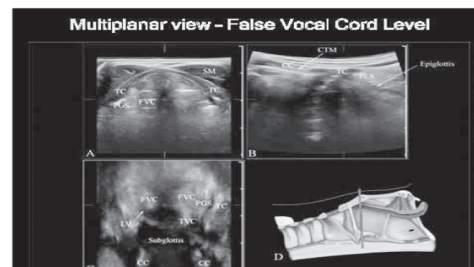
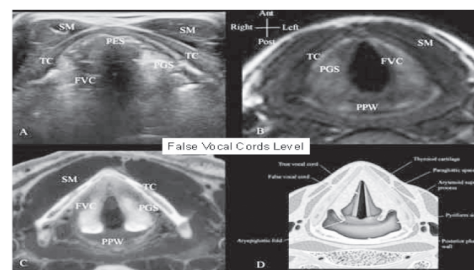
Numerous publications confirm that videolaryngoscopy offers improved views of the vocal cords, improving Cormack and Lehane laryngoscopy by one to two grades in difficult airways, culminating in the incorporation of Videolaryngoscopy into the newly revised ASA 2013 Difficult Airway Algorithm. This lecture will cover the characteristics of various videolaryngoscopes, and practical user tips, and the evidence for videolaryngoscopy use in predicted difficult airways, awake intubations, patients with limited cervical spine, after failed direct intubations, and give the user practical pearls on how to use videolaryngoscopy optimally in clinical practice, how to document when intubating with a videolaryngoscope, and how to predict failure of videolaryngoscopy. Last but not least, a better glottic view does not equate automatically with easier passage of the endotracheal tube. Device- specific videolaryngoscopy experience & proficiency is needed to learn the subtle manipulations to deliver the tracheal tube successfully to the vocal cords. Different VL devices with different blade geometries and angulations may perform differently in the hands of novices compared to regular videolaryngoscope users, but the learning curve is not difficult and within grasp of every anaesthetist within 20 intubations.

SYMPOSIUM 11

Airway Management

ULTRASOUND IMAGING OF THE AIRWAY

Manoj K Karmakar



WORKSHOP 4

Effective Presentation Skills

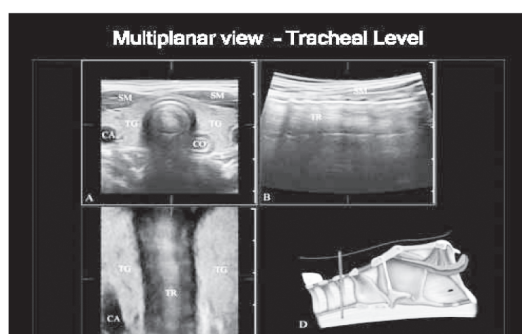
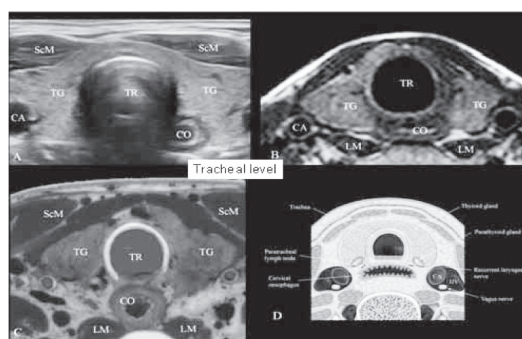
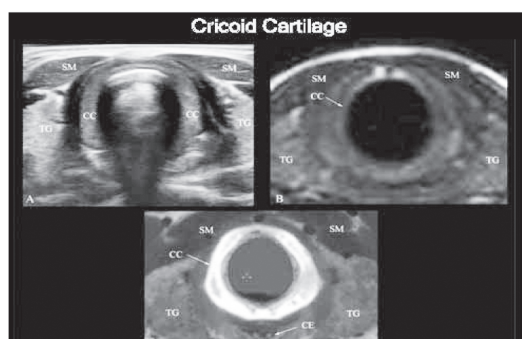
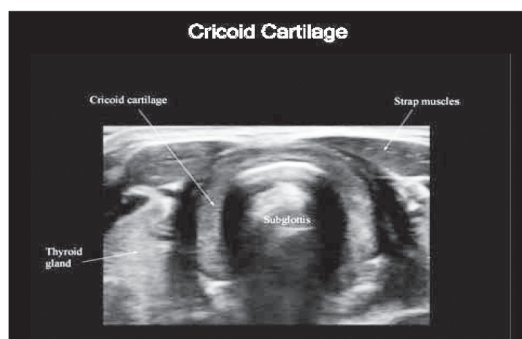
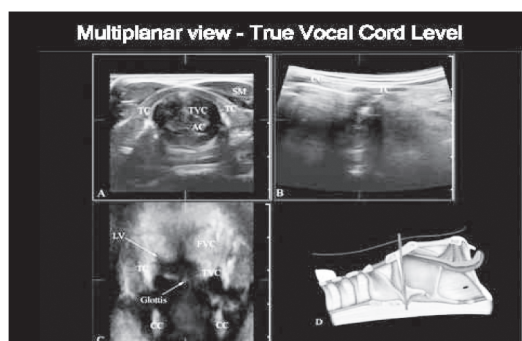
Congress Day 3 | 21st June 2013, Friday (Morning Session)

EFFECTIVE PRESENTATION SKILLS

Yoo Kuen Chan, Edwin Seet

It is common knowledge that people's number one fear is public speaking. Yet, effective communication skills are an Art & Science that can be learned and mastered. An inscription found in a 3,000 year-old Egyptian Tomb read "Make thyself a craftsman in speech, for thereby thou shalt gain the upper hand."

In this workshop, facilitators will introduce the importance of effective presentation and consider some of the best orators of history. The Science of effective presentation will be explored from knowing your audience, knowing your media, to knowing your subject matter. As this is a workshop, there will be ample hands-on time for discussion and an opportunity to hone the Art of effective presentation, i.e. knowing yourselves.



SYMPOSIUM 12

Interventional Pain Medicine

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

INTERVENTION IN MYOFASCIAL PAIN SYNDROMES

Li Ching Fan Carina

Chronic Musculoskeletal pain management requires a Total Person Multidisciplinary and Multimodal approach. In the lecture several case scenarios will be discuss how to assess common Myofascial Pain Syndrome with total person assessment and formulate a management plan with different interventional procedures . The scenario will illustrate the choice of drugs for Mixed Pain Syndrome with Functional pain Syndrome such as Fibromyalgia, Musculoskeletal Somatic pain (Peripheral) with Somatic Myofascial Pain or Referred pain pattern with Neuropathic Radicular Pain and higher central sensitization (Pain Memory) . Importance of a proper pain assessment with Total person approach with Social history, Pain chart, Pain Nature and Pattern: Static versus Dynamic pain with aggravating and relieving factors will be discussed.

Chronic "musculoskeletal" pain conditions, so-called because pain is appreciated in "musculoskeletal" structures, acquire that pseudo-diagnostic label because our biomedical taxonomy is based on structural pathology.

The clinical challenge is to identify the mechanism of pain production and the possible anatomical origin of nociception, rather than finding a local "symptoms".

This conceptual shift - that most examples of chronic "musculoskeletal" pain are attributable to altered central nociceptive and/or perceptual function rather than reflecting active peripheral pathology. The primary goals of chronic Myofascial pain treatment are to rule out red flags and to come up with differentials. Newer diagnostic tools of Ultrasound images allowing use of Doppler function with real time visualization of inflammatory signals, muscles or fascia pathology, calcification and tendonopathy . This allow a more accurate pathological guide for planning for different therapy including different physical modality with physiotherapy such as massage, US, IFT or shockwave or more invasive diagnostic and therapeutic blocks with different choice of agent, namely local anesthetic , Botox , Normal saline, dextrose and platelet rich plasma will be discussed.

The role of a Pain doctor is allowing pain sufferers to have a vision of their own problem. To set a action plan within a time frame, with pharmaceutical and psychological intervention with lifestyle prescription, combined with interventional pain procedure. To ensure better compliance of rehabilitation program, a award system is encouraged to facilitate the build in synergistic inhibitory regulatory effects of serotonin, endorphin and dopaminergic system. This is very important for us to reframe the chronic pain sufferers their view on chronic pain by having more positive reinforcement and encouragement in a form of cognitive behavioural therapy Different interventions, either with psychosocial approach with CBT or interventional procedures aim to optimize pain relief and treat pain- related co-morbid conditions, hence improving functions and quality of life.

Options of Multidisciplinary Management for MSK pain

1. Pharmacotherapy - Choice of analgesics and adjuvant Psychotherapy and Psychosocial assessment
2. Pain rehabilitation program (Physiotherapy/Occupational therapy)
 - Passive physical therapy and Active CORES muscles strengthening and coordination exercise
 - Life pacing, Postural adjustment, Goal setting, Pain Coping skills
3. Interventional pain techniques
4. Surgical options and assessment (RED FLAG)
5. Multidisciplinary Pain CBT Program (Group therapy)

Establish A Systematic Pain Assessment

1. Location of pain
2. Effect of pain on function and activities of daily living (ie. work, activities, sleep etc.)
3. Level of pain at rest and during activity
4. Medication usage/dosage
 - P - Provoking or Relieving factors
 - Q - Quality of pain (terms to describe the pain-aching, throbbing, shooting, ID pain tools, etc.)
 - R - Radiation of pain (Site, Location)
 - S - Severity of pain (pain intensity NRS 1-10 scale, SF36, QOL tools)

SYMPOSIUM 12

Interventional Pain Medicine

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

PERCUTANEOUS EPIDURAL ADHESION LYSIS FOR THE TREATMENT OF LUMBAR RADICULAR PAIN

Dong Eon Moon

Chronic lower back or radiating leg pain from a lumbosacral herniated intervertebral disc (L-HIVD) is a common condition. Chronic lower back or leg pain was found to occur not only in response to mechanical stimuli, but also to chemical irritation around the nerve root sheath, gray rami communicans and sinuvertebral nerve. Generally, fluoroscopic-guided epidural injections have been used to treat radicular pain or radiculopathy. Transforaminal epidural injections have produced favorable results for managing lumbosacral radicular pain. One study showed that among patients undergoing transforaminal or caudal epidural injection, only one third obtained more than 2 months of pain relief. This was because the epidural space in these cases was restricted by perineural or epidural adhesions/fibrotic tissues, and the injectate frequently failed to spread effectively into the ventral epidural space. Percutaneous epidural neuroplasty (PEN) is a minimally invasive therapy in which a catheter is placed directly into the herniated disc or scar tissue compromising the nerve root. It has potential as a useful treatment method for patients with chronic pain that is refractory to conservative treatments. The rationale for PEN is that chronic pain is mainly caused by perineural fibrosis and that PEN has the ability to eliminate the deleterious effects of adhesion, which can physically prevent the direct application of drugs around the nerves. As a result, PEN ensures the delivery of high concentrations of injected drugs to the target areas. PEN has produced clinical benefits in patients who have failed to respond to conservative treatment, including fluoroscopy-guided epidural injections. According to a comparative study between PEN and caudal steroid injection in post lumbar surgery syndrome, PEN obtained significantly better clinical efficacy than caudal injection. Epidural injection is more often performed than PEN since epidural injection is a simpler and less expensive procedure. However, PEN is considered for the patient who is refractory to epidural injection.

SYMPOSIUM 14

Day Surgery

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

REGIONAL ANESTHESIA IN DAY CARE SURGERY

S Ganapathy

With the current economic trend more and more patients are getting surgeries done as an out-patient. Pain management is crucial to effect early discharge and to reduce the incidence of chronic post surgical pain. Regional anesthesia is well suited to provide this quality of analgesia.

There is also need to reduce nausea and vomiting as well as excessive sedation that often comes with the use of narcotics that delay discharge and result in readmissions to hospital.

Surgeries that have short duration of severe pain such as arthroscopic surgery may be tackled with single-shot blocks. If severe pain is expected to last longer than 24 hours, one may use continuous catheter blocks with disposable elastomeric pumps to provide ongoing infusion at home. One needs to establish a process for monitoring these patients as well as organizing the removal of block catheters. Many patients or care-givers are capable of this once educated prior to discharge.

It is important to give written and verbal instructions regarding the care of the insensate limb as well as the use of multimodal analgesics in order to cover transitional pain and breakthrough pain.

Additives such as dexamethazone and dexmedetomidine may prolong sensory analgesia to extend the duration of analgesia throughout the night. The blocks for upper limb surgeries include interscalene, supraclavicular, infraclavicular and axillary brachial plexus blocks.

Blocks for the lower limb surgeries include ankle, femoral, and popliteal sciatic blocks, the last two being particularly amenable to continuous catheter technique. Patient falls and injury to insensate foot can be a problem and requires careful patient selection and education. Use of adductor canal block may be associated with less motor blockade.

Use of single-shot TAPB may be useful following hernia repairs. Often mastectomies are sent home the same day with the help of ultrasound guided paravertebral blocks.

SYMPOSIUM 12

Interventional Pain Medicine

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

INTERVENTIONAL MANAGEMENT OF TRIGEMINAL NEURALGIA

Hari Hara Dash

Trigeminal Neuralgia (TN) is the most common form of cranial neuralgia. The pain of TN, commonly known as "Tic douloureux", has fascinated the clinicians for more than four centuries. The pathophysiology of pain has not only intrigued the neuroscientist but, the management of this painful condition still remains a great challenge for the pain physician¹. Management: Medical, surgical, gamma knife and percutaneous procedures.

Anticonvulsants: Carbamazepine is the first line of treatment and it is effective in 80% of patients. Step up regimen is followed with maximum dose not exceeding 1600mg/day. Combination of carbamazepine and phenytoin may be helpful. Baclofen, gabapentin and pregabalin are also used. If the medical treatment fails or patient develops severe reaction, then other modalities are used.

Surgery: Microvascular decompression (MVD) is very effective in providing long term pain relief². However morbidity and mortality is a concern.

Radio surgery: Gamma rays are projected with absolute precision to the ganglion which helps in destroying the pain fibers.

Percutaneous Procedure: Radiofrequency rhizolysis developed by Sweet and Wepsic provides long term relief. Microcompression of the trigeminal ganglion helps in destroying pain fibers thereby alleviating the pain.

Percutaneous Neurolytic Blocks: In 1914, Hartel reported extraoral technique for cannulating the foramen ovale and delivering alcohol into the ganglion. The major complications are dense hypoesthesia and corneal hypoesthesia leading to keratitis.

Percutaneous Retrogasserian Glycerol Rhizolysis (PRGR): The discovery by Hakanson that injection of anhydrous glycerol into the trigeminal cistern in patients with TN produced lasting pain relief with little sensory loss represented a major therapeutic procedure.^{3,4}

Anatomy: Trigeminal ganglion (Gasserian) is a crescent shaped which resides on the petrous bone above the foramen ovale. It is partly contained within a reflection of dura mater (Meckle's cave) covering the posterior two thirds of the ganglion and bathing it in CSF.

Technique of the Trigeminal ganglion block: A disposable spinal needle 22 gauge 10 cm long is placed in the trigeminal cistern through the foramen ovale by Hartels technique. The position of the needle can be verified by fluoroscopy. Once the needle is in proper position then remove the stellate and look for any egress of CSF. Success of PRGR may depend on the egress of CSF prior to administration of anhydrous glycerol. Allow the patient to sit up with head in flexed position and inject 0.3 ml freshly prepared 2 anhydrous glycerol with the help of an insulin syringe. During injection fix the syringe very tightly to the needle. Then the patient is allowed to sit with head in slight flexed position for one hour.

Radio Frequency Ablation vs. Anhydrous Glycerol Rhizolysis: Recently, we have compared the usefulness and the duration of pain relief following radio frequency ablation and anhydrous glycerol rhizolysis and observed, radio frequency ablation provides little better result than anhydrous glycerol rhizolysis⁵. Long term follow-up results have shown that 40 to 50% of the patients remained pain free for more than 5 years.

SYMPOSIUM 15

Anaesthesia for Neurosurgery

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

ANAESTHESIA AND THE AGING BRAIN

Lim Wee Leong

Elderly neurosurgical patients present with special challenges to the anaesthetist. Many of these patients have multiple co-morbid diseases and are required to undergo prolonged high risk intra-cranial procedures which can temporarily worsen their neurological status due to the surgical insult or due to other perioperative causes. The age factor itself carries morbidity risk factors that often makes them a group of patients that the average anaesthetist would rather avoid managing or to demand excessive pre-operative work-up before he is willing to administer the anaesthetic. Recent studies appear to indicate that this may not be true. The elderly neurosurgical should be approached in a confident manner and can be expected to have a reasonably good perioperative outcome if we can appreciate the physiological changes in the elderly and apply care when administering the anaesthetics.

The Lecture Covers

1. Neuro-physiological changes in the aging patient
2. Pharmacokinetic alterations in elderly patients
3. Principles of anaesthesia for the elderly neurosurgical patient

SYMPOSIUM 15

Anaesthesia for Neurosurgery

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

ANESTHETIC CONSIDERATIONS IN PATIENTS UNDERGOING NEUROENDOSCOPIC PROCEDURES

Hari Hara Dash

In recent years, endoscopic techniques have been applied successfully to the field of neurosurgery for various intracranial and spinal lesions. It is gaining popularity primarily due to improvement in the optics and advances in technology resulting in the development of better, miniature and flexible instruments and because of its minimally invasive nature. Neuroendoscopy allows direct visual access of the lesion giving high quality images with minimal invasion to neural tissues. An endoscope is advanced into the deep brain structures through a burr hole to perform various diagnostic and therapeutic procedures like endoscopic third ventriculostomy, fenestration of cysts, intraventricular and periventricular tumor biopsies and retrieval and drainage of chronic subdural hematomas.

Due to less invasive nature of the endoscopic surgeries compared to the traditional neurosurgical techniques, the incidence and rate of perioperative complications are expected to be low,² resulting into quicker recovery thereby reducing the hospital stay and cost of medical care.

Indications

Neuroendoscopic procedures are carried out for various conditions and in patient population ranging from pediatrics to adults. The common indications for which these procedures are carried out are as follows -

1. Hydrocephalus
2. Cysts - colloid, arachnoid
3. Hematomas and brain abscess
4. Pituitary tumors
5. Periventricular tumors
6. Craniosynostosis
7. Cerebral aneurysms
8. Acoustic neuroma
9. Arteriovenous malformations
10. Deep brain stimulation for Parkinson's disease
11. Spinal diseases - syringomyelia, disk herniations, tumors

Anesthetic Considerations

The anesthetic considerations for neuroendoscopic procedures are same as for any other neurosurgical procedure. Issues relating to pediatric population have to be considered as children include major group undergoing neuroendoscopy for conditions such as, hydrocephalus due to aqueductal stenosis commonly seen in neonates and infants, craniosynostosis and brain abscesses. Problems during general anesthesia in pediatrics, such as, large head, difficult intravenous access, co-existing medical conditions and medications, susceptibility to anesthetic agents and maintenance of fluid balance and normothermia, have to be considered during neuroendoscopy. In order to overcome the challenges the goals for conduct of safe anesthesia for neuroendoscopy have been set.

Goals of Anesthetic Management

Goals of anesthetic management are to -

1. Keep the patient immobile
2. Ensure safe and rapid emergence for prompt neurologic assessment
3. Minimize postoperative complications
4. Facilitate intraoperative neurophysiologic monitoring techniques, and,
5. Collaborate in the management of intracranial pressure.

Preoperative Concerns

These patients may present with signs and symptoms of raised intracranial pressure, such as, nausea, vomiting, electrolyte disturbances, inadequate hydration and altered neurologic state. Premedication with sedatives should be cautiously given and better avoided in patients with depressed consciousness. Fluid status of the patients should be maintained prior to administration of anesthesia.

Intraoperative Concerns

The major concern during the intraoperative period is of immobility of these patients. Continuous irrigation of the ventricles is likely to increase the intracranial pressure and produce hemodynamic instability. Therefore it is advisable to allow continuous drainage of irrigating fluid to prevent collection inside the cranium. As the surgical incision is small and only a burr-hole, there is minimal postoperative pain concern in these patients. Delayed arousal is also a concern and so use of opioids and muscle relaxants should be judicious. Therefore the use of short-acting and ultra-short acting opioids is advisable.

Postoperative Concerns

These procedures are also prone to host of complications such as infection, hemorrhage, subdural hygroma, subdural hematoma, epidural hematoma, pneumocephalus and increased intracranial pressure.^{7,8} At the same time this being different and relatively new technique other complications associated with the use of endoscope and irrigation fluid like rise in intracranial pressure due to rapid run or inadequate egression of irrigation fluid, dilution and electrolyte abnormalities, injury to the basilar artery which lies beneath the third ventricular floor and injury to

structures such as the fornix, hypothalamus, or cranial nerves may occur. Few studies in the anesthesia literature have discussed perioperative problems in patients undergoing neuroendoscopic surgeries.

Neuroendoscopic procedures are associated with a number of minor and potentially major intraoperative as well as post operative complications. Hypothermia is a possibility if too large a quantity of irrigation fluid at room temperature is used. Ganjoo, et al. studied 260 patients undergoing neuroendoscopic procedures over a period of six years and reported various cardiovascular changes like tachycardia, bradycardia, hypertension and hypotension. These hemodynamic changes probably reflect the change in the intracranial pressures which occurred with the use of irrigation fluid to improve visibility as reported by various authors. Bradycardia along with hypertension (described as Cushing reflex) is the clear sign of raised intracranial pressure. Prabhakar, et al. have also demonstrated hemodynamic changes and increase in ICP with concurrent fall in cerebral perfusion pressures during valsalva maneuver in patients undergoing neuroendoscopic procedures. Using invasive blood pressure monitoring is helpful in detecting transient episodes of arterial hypertension or hypotension. Massive intraoperative bleeding in the ventricular system due to damage to the ependymal vessels or the basilar artery lying beneath the floor of the third ventricle¹² has been reported by different authors. It is a major complication that may necessitate urgent craniotomy to prevent any catastrophe. Handler, et al. has implicated the rapid and forceful irrigation to be the cause of cardiac arrest in his patient either due to the direct distortion of hypothalamic nuclei or secondary to the increase in intraventricular pressure by irrigation fluid and recommended regulating the speed of irrigation to less than 10ml/min. Another potentially fatal complication which has been reported in the literature is the air embolism. Fabregas, et al. has reported 4% incidence in his series either during the craniotomy or while withdrawing the endoscope out of the burr hole. Incidence of delayed arousal as high as 15% has been reported by Fabregas et al. which they suggested may reflect some degree of neurological impairment. Fever which was the most common postoperative event in our study in probably the result of aseptic irritation of the ependyma or manipulation of the hypothalamus, as suggested by Sainte-Rose, et al. Because of the variation in chemistry between the irrigation fluid and CSF, toxic reaction have been reported which manifest as fever, headache, chemical meningitis and increase CSF cell count. Transient change in the ionic composition of CSF by the irrigation fluid, producing a direct stimulus over the respiratory centers located in the brain stem has been suggested as the possible cause for respiratory complications such as hyperventilation.² Injury to brain structures or cranial nerves in the region may result in various postoperative complications. Diabetes insipidus and electrolyte imbalance (hyponatraemia, hypernatraemia, hyperkalemia) may result from the damage to hypothalamus and various nerve palsies may result from injury to the cranial nerves or their nuclei. Other rare complications reported by different authors as case reports such as pneumocephalus, subdural hygroma, postoperative hydrocephalus, restlessness and confusion.

In our experience in 223 patients who underwent neuroendoscopic procedures for various indications over a period of last three and half years at our institution, we observed hypothermia and cardiovascular complications commonly during the intraoperative period while postoperatively fever, tachycardia, nausea and vomiting were frequent [unpublished data]. Potentially fatal complications like intraoperative hemorrhage, air embolism etc. was rare. Most of the complications were transient and often self limiting.

In conclusion, endoscopic procedures are considered minimally invasive and associated with less morbidity and mortality. However, at times life-threatening complications may occur and one should be aware of them.

SYMPOSIUM 15

Anaesthesia for Neurosurgery

Congress Day 3 | 21st June 2013, Friday (Afternoon Session)

PAIN MANAGEMENT IN THE NEUROSURGICAL PATIENT

Vanitha Sivanaser

Current evidence suggest that pain following craniotomy warrants aggressive attention. Despite the relative high incidence of acute and chronic pain, in practice we find that pain is often understated and under recognized in the neurosurgical patient. This fact is resonated in the multiple surveys that have addressed the analgesic practices in patients undergoing craniotomies.

Most studies show that pain after craniotomy is typically managed with acetaminophen or intramuscular codeine. This practice has to be reviewed and revised as the intensity of acute pain often predicts the development of chronic pain. In recent years, there is acknowledgment that incidence of chronic pain after craniotomy is high.

This presentation will evaluate and summarize the evidence base analgesic therapy following craniotomy. Attention to specific available and routinely used drugs in patients undergoing craniotomies such as codeine, tramadol, morphine, local anaesthesia nerve blocks will be highlighted in this presentation.

PLENARY 4

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

ASSESSING RISKS AND BENEFITS IN CHRONIC PAIN

Andrew Moore

Chronic pain, inadequately treated, destroys lives. Quality of life is much reduced, but adequate treatment to relieve the pain returns quality of life to population norms.

It is given that there will be some risks of therapy. The problem is knowing them all, their nature, their effect and impact, and their frequency. A simplification is that risks can generally be divided into one of two sorts:

1. Those that are common (1%-30% of patients affected), mild or moderate, and reversible by stopping treatment. Typically with drug treatments for chronic pain these might be dry mouth, dizziness, or nausea.
2. Those that are rare (affecting often fewer than 1 patient in 1,000), serious, and irreversible, like gastrointestinal bleeding with NSAIDs, or Stevens- Johnson's syndrome with some antiepileptics.

Patients want large reduction in pain (by 50% or more, or no worse than mild pain), and improvements in sleep, fatigue, depression, and loss of function. With good pain relief these other symptoms also improve. But only a minority of patients benefit with any one drug; the rest have little pain relief, if any. With this unequal distribution of benefit we find that:

- o Most patients will achieve levels of pain relief that are trivial, or be unable to continue with medication because of intolerable adverse events. They should have no concomitant benefits in other areas and little or no increased quality of life. They should stop treatment, and have no risk.
- o Patients whose expectations for pain relief are met are defined as being able to continue with medication despite common adverse events. They also obtain large benefit in a range of other areas, including sleep, mood, vitality, functioning, ability to work, and overall quality of life. They have great immediate benefit to balance against rare but serious harm.

SYMPOSIUM 16

Safety and Quality in Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

SAFETY IN REGIONAL ANAESTHESIA

S J Fowler

The safety of regional anaesthesia remains a topical issue. Careful preoperative assessment and sound technique along with trained assistance, monitoring and resuscitation facilities (including lipid emulsion therapy) are vital. Knowledge of risk factors and patterns of complications in relation to a particular technique (eg. interscalene block) is also important. Fortunately, regional anesthesiologists have established an excellent record of audit and quality assurance and a number of large studies have been published in the last 10 years which describe the pattern and prevalence these injuries.

No single figure can be quoted for rate of permanent neurological damage following centroneuraxial blockade because the risk varies up to 100-fold depending on the patient profile. Neurological complications are much more common among patients receiving an epidural with other risk factors such as older age, female sex, degenerative spinal disorders and anticoagulant treatment. In contrast, the overall rate of severe neurological sequelae from spinal anaesthesia is relatively constant between all patient subgroups.

Permanent neuropathy, local anaesthetic toxicity and infective complications may all occur following peripheral nerve blockade (PNB). Studies have not demonstrated a reduction in neurological complications utilizing ultrasound-guided techniques although the incidence of inadvertent vascular puncture is likely to be lower than with blind techniques. The use of nerve stimulation and pressure monitoring in an awake or lightly sedated patient are suggested although the evidence that these aids definitively improve safety remains elusive.

Data from closed-claims projects, morbidity reports from different regions as well as evidence-based guidelines will be summarised in this presentation.

PLENARY 5

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

OBSTETRIC ANAESTHESIA AND ANALGESIA: WHAT'S NEW?

Michael Paech

My objective is to cover a range of subjects in an attempt to update you with recent information about patient outcomes, newer techniques and practice trends.

Data from the latest UK triennial mortality report and the National Audit Project on complications of regional anaesthesia will be detailed. Remifentanyl patient controlled intravenous analgesia is established as a 'next best' to epidural analgesia in labour, but critical maternal respiratory incidents mandate good governance and monitoring. The latest epidural controversy is whether it influences initiation or cessation of breastfeeding. The advantages of combined spinal-epidural analgesia are well established, as is patient-controlled epidural analgesia, with computer-integrated techniques in development. Ultrasound of the neuraxis can be useful and pharmacogenetic research provides the prospect of individual analgesic management.

Caesarean delivery issues relate to increasing population obesity and obstetric haemorrhage. The principles of in-utero resuscitation; optimising epidural blocks and 'rapid-sequence spinal anaesthesia' reduce the risks of GA. Management of regional-induced maternal hypotension is best with prophylactic vasopressors (phenylephrine or metaraminol). The efficacy of low dose oxytocin and the adverse effects of conventional doses has been studied. For GA, propofol is widely accepted but rocuronium much less so, despite sugammadex. Ultrasound-guided transversus abdominis plane block is popular if systemic opioid analgesia is used.

There is considerable interest in the place of supraglottic airways in the fasted pregnant woman; point-of-care echocardiography in critically ill pregnant women; and point-of-care whole blood coagulation assessment during massive haemorrhage. Research into the possible effects of anaesthetic drugs on fetal brain development continues.

SYMPOSIUM 16

Safety and Quality in Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

REDUCING COMPLICATIONS OF CENTRAL LINES

David Baines

Central venous access in children can be difficult, time-consuming, expensive and has associated morbidity and even mortality. Access to the central veins can be either via a central route or via peripheral veins. The latter has been accepted as a better alternative with fewer complications, however it is not clear that this is in fact the case. Mechanical complications are usually associated with the insertion, and might perhaps be minimized using real-time ultrasound and x-rays, but may occur late. Cardiac perforation or perforation into the pleural space can occur late as well as early and can result in mortality. The correct site for positioning of the tip of the catheter remains open to debate and there is good evidence that especially peripherally inserted line tips can move substantially with arm and body movement, potentially resulting in perforation and/or arrhythmias. Thrombus formation is common and management strategies will be reviewed. Infectious complications can be improved with careful sterile insertion techniques, the use of tunneled lines, possibly the use of antibiotic impregnated catheters, appropriate post-insertion care and management and early removal at the completion of therapy. Reducing any complication presupposes that we have good data on which to base quality improvements and to date this has been lacking in many centers. At CHW we have recently introduced an on-line form to collect information about insertion and removal of central lines. Processes are in place to make sure all lines are entered into the database.

ULTRASOUND GUIDED CENTRAL NEURAXIAL BLOCKS IN NEONATES AND YOUNG INFANTS

Manoj Kumar Karmakar

Since the early 1980's spinal ultrasonography (SUS) has been used as a diagnostic screening tool in neonates and infants suspected of spinal dysraphism (imperfect fusion of the midline neural and bony structures), and for detecting spinal tumors, vascular malformation and trauma. Today it is considered the first line screening test for spinal dysraphism with a diagnostic sensitivity comparable to MRI. Spinal ultrasound is possible in neonates and infants because the incomplete ossification of the predominantly cartilaginous posterior spinal elements creates an acoustic window that allows the transmission of the ultrasound beam. The overall visibility of neuraxial structures decreases with age. Neuraxial structures are best visualized in neonates and young infants below 3 months of age after which progressive ossification of the posterior spinal elements make detailed sonographic evaluation of the spine difficult beyond 6 months of age unless the child has a persistent posterior spinal defect. Recent reports have demonstrated that neuraxial structures can still be visualized in older children, although their details are limited. The overall visibility of neuraxial structures also decreases as one progresses up the spine with the best visibility in the sacral level followed by the lumbar and then in the thoracic level.

Use of ultrasound during central neuraxial blocks in children may offer several advantages. Ultrasound imaging is non-invasive, safe, simple to use and does not involve exposure to radiation. It allows the target neuraxial and neighboring structures to be directly visualized during block placement, which is particularly advantageous when performing these blocks in anaesthetized children, in children with difficult or variant anatomy and in the obese child. A preview scan prior to the needle puncture also helps to decide on the best possible site and maximum safe depth for needle insertion, allows real-time guidance of the epidural or spinal needle and visualize the spread of the injected local anaesthetic within the epidural space in real-time. The latter is considered an objective sign of correct epidural needle placement and has been used successfully during caudal epidural injection. Ultrasound imaging has also been used to assist lumbar epidural catheter placement as a two operator technique whereby an assistant performs the ultrasound scan via the paramedian axis while the operator perform a traditional technique of epidural catheter placement using loss-of-resistance via the midline. Entry of the Tuohy needle into the epidural space is confirmed sonographically as an anterior displacement of the posterior dura and widening of the posterior epidural space. There are currently no data describing the use of ultrasound for thoracic epidural catheter placement in children. The author and his group have been evaluating the use of ultrasound in conjunction with epidural stimulation for thoracic epidural catheter placement via the caudal route in neonates and young infants. Preliminary data from this study will be presented during this presentation. Currently published data comparing ultrasound with conventional methods of performing central neuraxial blocks in children are still limited. When used for central neuraxial blocks it offers technical advantages, reduces the incidence of bony contact, facilitates faster epidural catheter placement and one is also able to visualize the spread of the local anaesthetic within the epidural space in real-time. Currently there are no data showing that ultrasound improves the success rate or reduces complications such as dural puncture during epidural catheter placement in children.

Today the use of US for regional anaesthesia in children is still in its infancy and the evidence to support its use is sparse. Learning US guided nerve block techniques takes time and patience. The state of the art of regional anaesthesia demands a high degree of manual dexterity and hand-eye coordination particularly in the young children, and an ability to conceptualize two-dimensional information into a three-dimensional image. In addition, in order to produce good quality US images, the anesthesiologist must also possess a sound knowledge of anatomy, the physical principles of US and musculoskeletal imaging. Therefore someone wanting to perform USGRA procedures should start by learning the basics of US and US guided interventions by attending a course or workshop. Initial experience of musculoskeletal

scanning can also be acquired in volunteers, and US guided interventional skills can be practiced using an ultrasound phantom. Once the basic skills are attained it is best to start by performing superficial peripheral nerve block procedures under supervision before attempting more deeper blocks which can be technically demanding even for an experienced operator. Fortunately, data from adults suggests that the learning curve is steep and most anesthesiologists are able to acquire the required skills very quickly probably due to their inherent good hand-eye coordination and ability to think in three dimensions. It is preferable to perfect these techniques in adults or older children before performing them in young children. US guided central neuraxial blocks, other than single-shot caudal epidural injections, demand a high degree of skill and dexterity and should only be performed by anaesthesiologist's experienced in USGRA. The author envisions that it is only a matter of time and as more anesthesiologists who care for children embrace this technology and acquire the skills necessary to perform USGRA, ultrasound guidance will be the standard of care in pediatric regional anesthesia in the near future. In this presentation, the author will discuss the basics of spinal sonography and its applications for central neuraxial blocks in children. Various aspects of education and training in ultrasound guided regional anaesthesia, and who should be performing ultrasound guided interventions in young children will be discussed in a separate lecture.

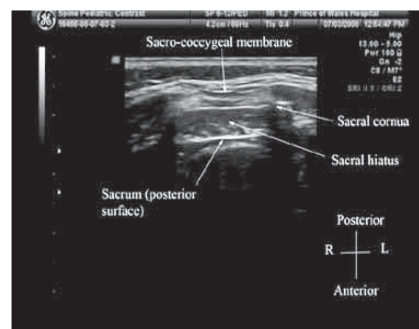


Figure 1.0. Transverse sonogram of the sacral hiatus in a young infant.

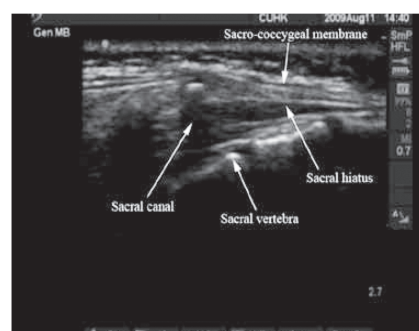


Figure 2.0. Sagittal sonogram of the sacrum with the sacral hiatus in a young infant.

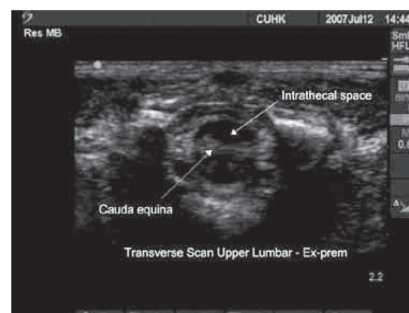


Figure 3.0. Transverse sonogram of the lumbar spine in a young infant.

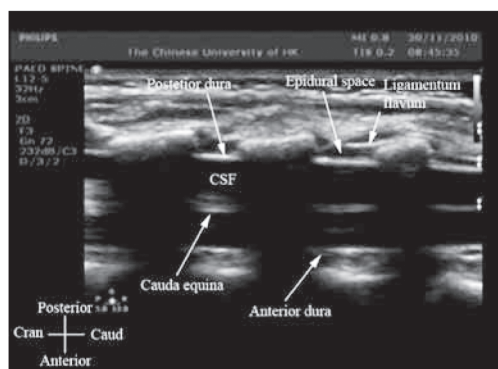


Figure 4.0. Paramedian oblique sagittal sonogram of the lumbar spine in a neonate.

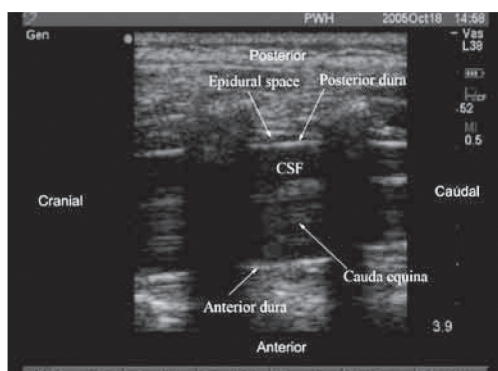


Figure 5.0. Paramedian oblique sagittal sonogram of the lumbar spine in a young infant.

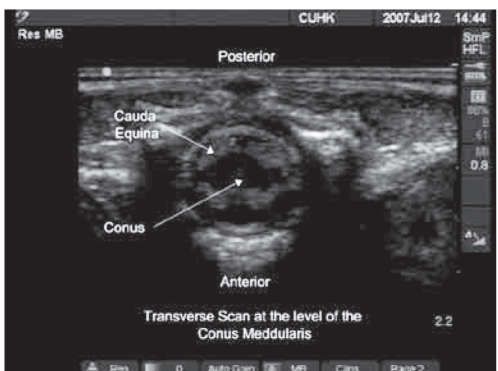


Figure 6.0. Transverse sonogram of the lower thoracic spine in a young infant. Note the conus medullaris.

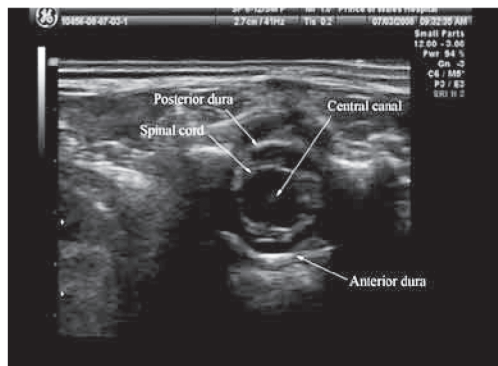


Figure 7.0. Transverse sonogram of the mid-thoracic spine in a young infant. Note the conus medullaris.

SYMPOSIUM 17

Paediatric Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

VENTILATORY STRATEGIES IN CHILDREN

Shahani Jagdish Menghraj

Ventilating a child or newborn in the perioperative course during anesthesia requires a good basic understanding of respiratory system mechanics which include pressure-volume relationship of the respiratory system, concepts of its time constants and cardiopulmonary physiology. Careful attention has to be paid to avoid damaging the lungs by potentially injurious mechanical ventilation. The ventilator settings have to be optimized for lung protection and for minimizing potential hemodynamic side effects of positive pressure ventilation. A thorough understanding of respiratory mechanics, patient-ventilator interactions, intrapulmonary gas exchange mechanisms and cardiopulmonary interactions under physiologic and pathophysiologic conditions is therefore required when providing mechanical ventilation to neonates and children under anesthesia.

This presentation will address many of these aspects and highlight the essentials to be known when ventilating the child in perioperative period.

SYMPOSIUM 17

Paediatric Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

PAIN MANAGEMENT IN THE CRITICALLY ILL PEDIATRIC PATIENT

Jocelyn C. Que

Despite the increased understanding of the neurophysiology of pain in pediatric patients, there are still wide variations in pain management practices across neonatal and pediatric intensive care units with variable outcomes. Fundamental to effective pain management is the ability to assess pain in a variety of high-risk infants and critically ill children. This patient population is at risk of inadequate pain control from age-related and co-morbid factors affecting decisions for pain management. This presentation will highlight the importance of pain assessment and the different pain assessment tools that may be utilized in the critically ill pediatric patient. Interventions to manage acute procedural pain in high-risk patients will also be addressed.

Upon Completion of this Lecture, the Participant will be Able to

1. Describe the biochemical, biobehavioral, and physiologic consequences of pain and stress that infants and children experience in the critical care setting.
2. Describe developmentally appropriate strategies and tools for assessing pain in infants and children
3. Identify changes that a child who is a former premature infant may exhibit in regards to pain management and behavior that may impact care in subsequent hospitalizations
4. Discuss briefly the various pharmacological and nonpharmacological interventions to mitigate pain and stress in the critically ill pediatric patient

SYMPOSIUM 17

Outcomes in Pain Conditions

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

OUTCOMES OF POORLY TREATED CHRONIC PAIN

Mary Suma Cardoso

Evidence from around the world, including a recent Cochrane review, has shown that cognitive behavioural therapy (CBT) is effective in improving mood, catastrophic thinking, level of disability and pain in patients with chronic pain.

In Malaysia CBT is applied to chronic pain patients either on an individual basis or in groups. CBT-based pain management programs (PMP) have been conducted for patients with chronic pain since 2002, with a heterogeneous population with chronic pain of varying duration, type and site.

The PMP is a two week intensive group program and includes patient education, exercise and cognitive therapy. Examples of education topics are the differences between acute and chronic pain; pain and tissue damage; diet, exercise and posture; the effects of long term pain medication; comparison of different treatment modalities for pain; sleep hygiene, etc. Patients are also trained in skills like relaxation, planning, goal-setting, pacing, problem solving, communication, anger management. Cognitive therapy focuses on monitoring thoughts, recognising unhelpful thoughts and challenging them to more helpful thoughts which then improve patients' mood and ability to cope with the pain. Patients are asked to practice these skills during the program by setting goals for themselves and doing regular exercise and relaxation as well as practising thought management, and group discussions around the patients' own experiences make the sessions more meaningful for the patients.

Patients fill out self-administered questionnaires before and after the PMP, and at 1,3,6 and 12 months follow up. The questionnaires measure pain levels, disability, mood, self-confidence and catastrophising, and mean scores for the groups showed significant gains in all measures (including pain) which were maintained at 1 year follow up. These results are similar to those reported from similar interventions in Europe and North America and indicate the principles of PMP can be accepted and successfully applied in an Asian population.

SYMPOSIUM 18

Outcomes in Pain Conditions

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

OUTCOMES OF POORLY TREATED CHRONIC PAIN

Andrew Moore

Chronic pain is distressing for patients and a burden on healthcare systems and society. Patients with chronic pain use almost three times more healthcare resources, and are much less likely to be able to work, than those without chronic pain. Recent research demonstrates different aspects of the negative impact of chronic pain and the positive impact of successful treatment.

Chronic pain has a weighted average prevalence in adults of 20%; 7% have neuropathic pain, and 7% have severe pain. Chronic pain impeded activities of daily living, work and work efficiency, and reduced quality and quantity of life. Effective pain therapy (pain intensity reduction of at least 50%) resulted in consistent improvements in fatigue, sleep, depression, quality of life, and work.

Strenuous efforts should be put into obtaining good levels of pain relief for people in chronic pain, including the opportunity for multiple drug switching, using reliable, validated, and relatively easily applied patient-centred outcomes. Detailed, thoughtful, and informed decision analytic policy modelling would help understand the key elements in organisational change or service reengineering to plan the optimum pain management strategy to maximise pain relief and its stream of benefits against budgetary and other constraints. This paper contains the information on which such models can be based.

SYMPOSIUM 18

Outcomes in Pain Conditions

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

EVIDENCE FOR INTERVENTION IN CHRONIC PAIN

M Perumal

Research evidence serves as a basis for healthcare policy makers in their population based decision on access and funding of new and existing therapies¹. Policy recommendation is based on outcome of 2 level assessment, 1) systemic review of literatures and "level of evidence" for treatment which is assessed according to epidemiological principles and 2) grading of policy recommendation. Although evidence based medicine is concerning to do no harm, to do one's best for one's patient and eliminate waste, still exists serious epistemological limits². In the field of Interventional Pain Medicine, two evidence guidelines are available, i.e 1) The American Society of Interventional Pain Physician (ASSIP) Interventional Pain Management (IPM)³ and 2) World Institute of Pain⁴. These guidelines are limited by paucity of literature, lack of updates and conflicts in preparation of systemic reviews. There are problems and pitfalls in randomized clinical trials. Studies can be underpowered. The ethical aspect and necessity of placebo use has to be justified. Additional issues are concerning comparator and blinding and the question of imposing hierarchy of research design on interventional pain techniques⁵. Therefore, a well formed pain diagnosis and management strategy is the basis for interventional techniques success ratio⁴.

SYMPOSIUM 19

Cardiothoracic Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

PERIOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHY

Suhaini Bin Kadiman

Perioperative Trans Esophageal Echocardiography (TEE) has become an integral, if not defining, aspect of the discipline and practice of cardiothoracic anesthesia. Worldwide this is reflected by the increasing numbers of cardiac surgery programs in which this diagnostic and monitoring capability is part of the anesthetic management of cardiac surgery patients. In addition, echocardiography training and education is demanded by residents and fellows and viewed as an important component of their postgraduate training in cardiac anesthesia. Perioperative TEE provides a more definitive quality of care for our patients and offers the cardiothoracic anesthesiologist greater involvement in perioperative decision making as well as increased interdisciplinary interaction in patient care, advancing in the new technologies and research. It challenges the anesthesiologist to combine the skills of critical care specialist and diagnostic echocardiographer in the most crucial of circumstances.

The first reported use of echocardiography in the operating room was in 1971 by Side and Gosling¹ who utilized transesophageal continuous-wave (CW) Doppler to demonstrate thoracic aortic flow. Epicardial M mode was subsequently reported by Johnson et al.² in 1972 to show the success of an open mitral commissurotomy. Since then TEE has developed tremendously. The phenomenal potential for clinical application was recognized by Topol et al.³ and is now used in all centers performing cardiac surgery to identify previously unidentified cardiac lesions, to ensure the success of valve repair and revascularization procedures, and to reduce perioperative complications. The physician involved in the perioperative TEE evaluation should possess an understanding of the pathophysiology of the various etiologies of cardiothoracic diseases and the associated anomalies. In addition to determining the severity of the abnormality and dysfunction, it is also necessary to provide an assessment of the mechanism of the underlying pathologic process. To accomplish this, multiple views and methods of assessment are used so that the final diagnosis is based on multiple images or Doppler assessment modalities. Although the surgical team may be able to visualize anatomically the abnormality, the perioperative TEE provides a real-time assessment of the pathophysiology of the abnormality and dysfunction.

SYMPOSIUM 19

Cardiothoracic Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

ANAESTHESIA FOR THE CHILD WITH CONGENITAL HEART DISEASE FOR NON-CARDIAC SURGERY

David Baines

More and more patients with corrected or palliated congenital heart disease (CHD) are surviving and presenting for anaesthesia and surgery. There is increased risk of perioperative mortality for these patients.

Safe management of the child (or indeed adult) with CHD relies on:

- An understanding of the (patho)physiology
- Careful evaluation of the patient's current status
- An understanding of the pharmacological impact of anaesthesia
- Appropriate endocarditis prophylaxis
- Suitable post-operative monitoring and care

The exercise tolerance in older children (ie toddlers and above) is a good indication of their tolerance for anaesthesia. Assessment of the non-walker can be a little more difficult, although ability to feed without becoming breathless and appropriate weight gain etc are good signs. There are more single-ventricle repairs being undertaken and survival continues to improve. The implications of the single-ventricle circulation need to be well understood. Certain high-risk conditions will be addressed in this lecture.

SYMPOSIUM 20

Debate: TIVA is Better than Volatile Anaesthesia

Congress Day 4 | 22nd June 2013, Saturday (Morning Session)

DEBATE: TOTAL INTRAVENOUS ANAESTHESIA IS BETTER THAN VOLATILE ANAESTHESIA

Lim Thiam-Aun

Total Intravenous Anaesthesia (TIVA) refers to the administration of anaesthesia using intravenous agents, supplemented by oral and / or parenteral medication in the perioperative period.

Why use TIVA?

1. To avoid the inhalational route
2. To avoid the adverse effects of inhalational anaesthetics
3. There is some evidence of an increased likelihood of Alzheimer's Disease after inhalational anaesthetics.
4. Most of all - the patients feel better!

TIVA Matches Up to Inhalational Anaesthesia in Almost all Aspects:

1. Both has fast onset-offset drugs
2. Both have efficient delivery devices - TCI pump vs. vaporizer
3. State of CNS depression by both can be estimated using the processed EEG
4. Both require a vigilant anaesthetist to monitor the patient!

The Future is Brighter for TIVA

1. Closed loop systems being developed using TIVA
2. TIVA potentially damages the environment less!

Poster Presentations

PP 01	The Anatomical Dimension Of Thoracic Spinal Canal In Adults With Magnetic Resonance Imaging Jin Huh, Duk Kyung Kim	21A
PP 02	Improving Postoperative Handover Practice In The Recovery Room Main Operation Theatre University Of Malaya Medical Centre Mohd. Rohaizad Zamri, Loh Pui San	21A
PP 03	Does The Administration Of Perioperative Intravenous Ketamine Reduces The Incidence Of Chronic Post Surgical Pain Syndrome In Patients Undergoing Appendicectomy In Hospital Melaka? H Wahidin, SS Jayan, L Buyamin, NZ Mohd Zain, N Yacob, VY Chang	21A
PP 04	The Effectiveness Of Acupressure Wristbands In Preventing Postoperative Nausea And Vomiting In Laparoscopic Gynaecological Surgery Sri Rahayu Mohamed Lokman, Muhammad Maaya, Nurlia Yahya, Wan Rahiza Wan Mat, Nadia Md Nor, Raha Abdul Rahman	21A
PP 05	The Experience Of Awareness Under Anaesthesia Kavita Bhojwani, Wee Leong Lim, Imran Osman, Mun Tsong Hui, Joshua Ryan, Wyman Seet, Mariana Bte Mohamad Ali	22A
PP 06	Vomit No More: Acupressure Treatment For Prevention Of Postoperative Nausea And Vomiting Kavita B, Azlina M, Praveena S, Shyamala K, Shubashini T, Deepa LD, Subashini M, LH Chia, David L	22A
PP 07	Effectiveness Of P6 Electrical Acustimulation In Preventing Postoperative Nausea And Vomiting Following Laparoscopic Surgery AH Yeoh, Norsidah AM, Jahizah H, Shuraya S, Raha AR, Wan Rahiza WM	22A
PP 08	Predictors Of Critical Incidents In Paediatric Anaesthesia: Data From University Malaya Medical Centre S. Aznida AB Karim, Il Shariffuddin, L. Chan, Chia PW, Chinna K	22A
PP 09	The Effects Of Sterofundin Versus Ringer's Lactate On Acid-Base And Electrolyte Status In Paediatric Patients Undergoing Major Surgery: A Double Blind Randomised Control Trial Il Shariffuddin, Padma Priya Bathumana Appan, Adeline CSM, L. Chan	23A
PP 10	Comparison Of C-Mac® And Macintosh Laryngoscopy In Patients With Cervical Spine Immobilisation MA Shahir Hamid, CY Liu, JSM Ooi	23A
PP 11	Dexmedetomidine Sedation For Transesophageal Echocardiography During Percutaneous Atrial Septal Defect Closure (Case Report) Yong-Han Kim, Seong Rok Kim, Jae Wook Jung, Sang Yoon Jeon	23A
PP 12	Onset Time Of Brachial Plexus Block Using Local Anesthetic Diluted With 0.9% Saline Vs 5% Dextrose H.J. Lim, M. Shahnaz Hasan, K. Chinna	23A
PP 13	A Short Review On Post Anaesthetic Techniques For Total Knee Replacement (TKR) Surgery Rohayu Othman, G. Awisul-Islah, L.T Wen	24A

PP 14	Incidence And Characteristics For Conversion Of Regional Anaesthesia To General Anaesthesia In Caesarean Section At Kk Women's And Children's Hospital : A Retrospective Audit Dintan NA, Sng BL, Ithnin F	24A
PP 15	Development Of A Questionnaire For Measuring Parental Satisfaction Following Paediatric Anaesthesia : A Servqual Approach YY Phang, Noorjahan HM Hashim, L Chan	24A
PP 16	Usage Of Cell Saver In Trauma Patients Nirawanti MS, Ahmad Suhaimi A	24A
PP 17	Antinociceptive Interaction Between Intrathecally Administered Morphine And Bacrofen In Rats Tomoki Nishiyama, Masaki Sekiguchi	25A
PP 18	Prevalence Of Anxiety And Depression Among Patients With Chronic Non Cancer Pain At Pain Management Clinic In Penang Hospital - A Retrospective Analysis Usha Rajah	25A
PP 19	Petrous Meningioma Presenting With Trigeminal Neuralgia – A Case Report Dr Seet Sok Noi	25A
PP 20	Comparison Of The Effects Of Remifentanyl Infusion Versus Propofol Infusion For Sedation During In-Vitro Fertilization Procedure Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B	25A
PP 21	Paracervical Block For Pain Control In First Trimester Incomplete Abortion Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B	26A
PP 22	Comparison Total Intravenous Anesthesia Versus Combined Local And Paracervical Anesthesia During Hysteroscopy Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B	26A
PP 23	Sedoanalgesia With The Combination Of Ketamine And Propofol During Operative Colonoscopy: Effectiveness Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Aurilio C, Pace M.C, Passavanti M.B	26A
PP 24	The Early Pressure Support Ventilation Prevents The Ventilator Induced Diaphragmatic Dysfunction Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Aurilio C, Pace M.C, Passavanti M.B	26A
PP 25	Skin Ulcers: Care Management Of Pain Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Aurilio C, Pace M.C, Passavanti M.B	27A
PP 26	Percutaneous Thoracic 2 And 3 Radiofrequency Sympathectomy For Complex Regional Pain Syndrome Secondary To Brachial Plexus Injury Chen Chee Kean, Phui Vui Eng, Nizar Abd Jalil, Alex Yeo Sow Nam	27A

PP 27	Perioperative Pain Management, Are We Doing It Right? An Audit On Perioperative Analgesics Use Mee Yee Tang, Shu Ching Teo, Mat Ariffin Saman, Norzalina Esa	27A
PP 28	Comparison Between Patient-Controlled Epidural Analgesia And Continuous Epidural Infusion For Pain Relief After Gynaecological Surgery Suhaila Nanyan, Nurlia Yahya, Azmil Farid Zabir, Melvin Kandasamy, Muhammad Maaya, Nadia Md Nor	27A
PP 29	Pain Management Practices In Craniotomy Patient Peter Chee Seong Tan, Vanitha Sivanaser, Jahizah Hassan	28A
PP 30	Nystagmus Following Intrathecal Morphine Administration During An Emergency Cesarean Section: A Case Report Aida Mastura Mohd Shah, Zarina Mahmood, Norliza Mohd Nor	28A
PP 31	A Comparison Of Airway Complications In Smokers Administered Desflurane Versus Sevoflurane Through Prosealtm Laryngeal Mask Airway Cheah Pike Kuan, Raha Abdul Rahman, Wan Rahiza Wan Mat, Nadia Md Nor, Muhammad Maaya	28A
PP 32	Tracheal Intubation Using Remifentanil 2µg/Kg Or 3µg/Kg With Propofol Without Neuromuscular Blocking Agents KCM Goh, LW Luah, J Hassan, CY Lee	28A
PP 33	Optimum Dose Of Remifentanil For Intubation With The Clarus Videoscopetm System Without Muscle Relaxan SY Foo, Lucy Chan, M. Shahnaz Hasan	29A
PP 34	Epidural Analgesia In Parturient With Infective Pleural And Pericardial Effusion Asmah Z, Mat Ariffin S, Norzalina E	29A
PP 35	PCA Remifentanil For Labour Analgesia: 4 Case Report Mohd Rohisham Zainal Abidin, Norliza Mohd Nor, Jamnah Abd Majid	29A
PP 36	Ultrasound Guided Paravertebral Block: A Study Of Three Cases Hou Yee Lai, Cheng Wei Soo, Carolyn Yim, Ramani Vijayan	29A
PP 37	Patient Satisfaction In Day Care Surgery And Anaesthesia Adelyn HS Guo, Nurafza Ahmad Hisham, Kavita Bhojwani, Usha Nair	30A
PP 38	Comparison Of I-Gel™ And LMA-Supreme™ With Respect To Ease Of Insertion, Sealing Airway Pressure And Postoperative Throat Complaints MZ Abdullah, A Izaham, R Abdul Rahman, N A. Manap, A Dan	30A
PP 39	A Preliminary Audit To Determine If The Who Surgical Safety Checklist Is Implemented Effectively MF Yeoh	30A
PP 40	Epidural Ropivacaine/Fentanyl Versus Epidural Pethidine For Gynaecological Procedures - Is One Superior To The Other? Abigail AL Choong, Nita Salina Abdullah, Maria HS Lee, Sumitra Pathmanathan, Subrahmayam Balan	30A
PP 41	Epidural Analgesia Enhanced Wound Healing In A Patient With Cutaneous Polyarteritis Nodosa With Infected Ulcers Ng KS, Cardoso MS, Voo SYM, Ridzwan R, Abdullah S	31A

PP 42	Thoracic Epidural Analgesia Provides Better Pain Control Post Hepatobiliary Surgery: A Retrospective Cohort Analysis In Malaysia's Primary Liver Centre Mazlila MAS, Ahmad Afifi MA, Mary SC, Ng KS	31A
PP 43	Ultrasound Guided Intrathecal Anaesthesia: Does Scanning Help? Sherif A. Abdelhamid, Madgy A. Mansour	31A
PP 44	Intrathecal Dexmedetomidine: Useful Or Not? Sherif A.Abelhamid, Mohamed H. El-lakany	31A
PP 45	A Retrospective Review Of Effectiveness Of Base Excess And Serum Lactate As Prognostic Indicators For Patients Admitted To Intensive Care Unit Tze Ling Ng, Prof YK Chan	32A
PP 46	Comparing The Success Rate Of Radial Artery Cannulation Under Ultrasound Guidance And Palpation Technique In Adults SuwimonTangwiwat, MD, Walaiporn Pankla, MD, Pranee Rushatamukayanunt, MD, Saipin Muangman, MD, PathomHalilamien, MD, PichayaWaitayawinyu, MD, Anchala Jirakulsawat, RN	32A
PP 47	Peripheral Nerve Blocks For Surgeries Of Lower Limbs - 6 Years' Experience FZ Mat Isa, CW Yeo, EK Lee, HK Lee,Z Yahaya, AZ Mohd Salleh, R Mat, Jahaya, R Noor Ali	32A
PP 48	A Series Of Audit Cycles Evaluating The Display Of Anaesthetic Emergency Guidelines In Areas Where Anaesthesia Is Commonly Provided MF Yeoh, N Jain	32A
PP 49	Comparison Of Ultrasound-Guided Tranversus Abdominus Plane Ang Yiau Kian	33A
PP 50	Immediate Release Oxycodone (Oxynorm) Vs Tramadol For Post Operative Pain In Patients Undergoing Total Knee Replacement (TKR) ; A Preliminary Randomized Controlled Double Blind Trial Jayaram J, Mansor M, Rasiah R, Abbas A	33A
PP 51	Post-Operative Pain Experience Amongst Health Care Personnel IG Awisul, AN Sakthi, Lily Ng, KM Rajesh	33A
PP 52	Double-Injection Perivascular Ultrasound-Guided Axillary Brachial Plexus Block According To Needle Positioning: A Comparison Of Two Methods: 12- Versus 6-O'Clock Position Of The Axillary Artery Youn Jin Kim, Soo-young Cho, Dong Yeon Kim	33A
PP 53	Preemptive Ultrasound Guided Ilioinguinal Compared To Transversus Abdominal Plane Block Before Pediatric Inguinal Hernia Repair Ben Saad Moncef	34A
PP 54	Ultrasound - Guided Rectus Sheath Block For Paraumbilical Hernia Repair Ben Saad Moncef	34A
PP 55	Comparison Of Glidescope Ranger And C-Mac D-Blade Videolaryngoscopes For Tracheal Intubation In Elective Surgery Patients Farah Fatmawati CW, Rhendra Hardy MZ, Norsaliza Ikma MY, Mohd Nikman A, Nik Abdullah NM	34A
PP 56	Ultrasound-Guided Pulsed Radiofrequency Treatment For Severe Brachial Pain In A Patient With Neurogenic Thoracic Outlet Syndrome: A Case Report Jin Young Lee, Woo Seok Sim, Min Seok Oh	35A

- | | | |
|--------------|--|-----|
| PP 57 | Ultrasound-Guided Pulsed Radiofrequency Treatment For The Intractable Neoplastic Brachial Plexopathy Pain: A Case Report
Jin Young Lee, Woo Seok Sim, Min Seok Oh | 35A |
| PP 58 | Lumbar Sympathetic Block For Abdominal Pain By Renal Vein Spasm In A Patient With Nutcracker Syndrome: A Case Report
Jin Young Lee, Woo Seok Sim, Won Kyo Kim, Min Seok Oh | 35A |

PP01

THE ANATOMICAL DIMENSION OF THORACIC SPINAL CANAL IN ADULTS WITH MAGNETIC RESONANCE IMAGING

Jin Huh, Duk Kyung Kim

Background: It is important to understand the anatomy of spinal canal to prevent the needle-related neurologic injury to the spinal cord during thoracic epidural anesthesia.

Methods: We retrospectively investigated T2 weighted spine magnetic resonance images of total 346 patients. The distance from the dura mater to the spinal cord (DTC) at all thoracic segments and dimensions on various approaching angles by 'U', 'L' and 'M' lines, meaning upper border, lower border of interspinous space, and blind approach respectively, at 3 different thoracic vertebral levels (T1/2, T5/6, T10/11) were examined.

Results: Vertical DTC is the greatest at T5/6 intervertebral level and the lowest at T11/12 level ($P < 0.001$). Vertical DTC correlates with height ($P < 0.05$) and with age ($P < 0.001$). Among three lines, the distance from skin to dura mater (STD) and DTC are the longest on 'L' line at T1/2 and T5/6 intervertebral levels. At T10/11 level, the distances are the greatest on 'U' line. The angle between 'U' line and 'L' line is the biggest at T1/2 level, getting narrower from upper to middle and negative in T10/11 intervertebral level.

Conclusion: There are differences of DTCs between thoracic intervertebral levels. Among three lines, dimensions implying margin of safety are the longest on 'L' line at T1/2 and T5/6 levels but the greatest on 'U' line at T10/11. The clinician should take these differences representing the margin of safety into consideration.

PP03

DOES THE ADMINISTRATION OF PERIOPERATIVE INTRAVENOUS KETAMINE REDUCES THE INCIDENCE OF CHRONIC POST SURGICAL PAIN SYNDROME IN PATIENTS UNDERGOING APPENDICECTOMY IN HOSPITAL MELAKA?

H Wahidin, SS Jayan, L Buyamin, NZ Mohd Zain, N Yacob, VY Chang

Objective: To study the effect of perioperative intravenous (IV) ketamine in reducing the incidence of chronic post surgical pain syndrome in patients undergoing appendicectomy in Hospital Melaka.

Methods: A randomized controlled trial was conducted over 2 years. All patients between ages of 16 - 35 years old were included. Patients with hypertension and bradycardia, hypersensitivity to ketamine, history of previous abdominal surgery, glaucoma, psychiatric problems, perforated appendix and those with a body mass index (BMI) of more than 30 were excluded. Patients were randomized to receive IV ketamine 0.5ml (mg)/kg bolus preincision, vs. placebo in the operating theatre after induction by general anaesthesia. This was followed by IV ketamine vs. placebo infusion at 0.1ml (mg)/kg/hr for one hour intraoperatively. Post operatively both groups were given similar analgesics. They were discharged with analgesics for another 5 days and reviewed in the Pain Clinic at 6 and 12 months later. Pain scores and side effects were determined using questionnaire.

Result: Data was analyzed using comparison of mean pain score (Standard Deviation) between ketamine and control group at 6 and 12 months later. Overall analysis shows that mean pain score is 0.09 (0.32) in ketamine group compared to 0.17 (0.60) in control group with mean difference (95% confidence interval) of 0.08 (-0.09, 0.25). The p value is 0.354.

Conclusion: There was no significant difference between ketamine and control group at both 6 and 12 months post operatively. However, those in ketamine group shows lower mean pain score for chronic pain compared with control group.

PP02

IMPROVING POSTOPERATIVE HANDOVER PRACTICE IN THE RECOVERY ROOM MAIN OPERATION THEATRE UNIVERSITY OF MALAYA MEDICAL CENTRE

Mohd. Rohaizad Zamri, Loh Pui San

Background: The failure of effective communication is a recurring theme in patient safety, especially in clinical handover. It is proven that improvement in communication leads to significant reduction in morbidity and mortality in surgical patients.

Objective: The objective of this study is to formulate an intervention mean to improve handover process for post- operative patients in Recovery Room, Main Operation Theatre UMMC.

Method: An experimental-intervention case-control study of 140 cases each before and after intervention were selected using cross sectional systematic sampling during a ten month period. Posters displayed in recovery area and lecture sessions were held as means of intervention. The same questionnaire was used to evaluate handover practice for pre- and post-intervention samples. Analysis was done to compare the two phases to evaluate adherence to protocol, efficacy of explanation and lectures, cross-tabulation done to associate with change in post-operative complication incident rate.

Results: Demographic comparison between the two phases shows similarities in terms of age distribution and duration of surgery (p value>0.05), but varied in terms of co-morbidities, ASA classification, disciplines and participants of handover (p value <0.05). Significant improvement seen clinically and statistically (p value>0.05) in almost all aspects highlighted in the handover protocol introduced. A drop in post-operative recovery room complication rate was reported (p value = 0.0003) after intervention.

Conclusion: Standard protocol introduced for handover in recovery room showed good comprehension and adherence by staff after a short learning period and demonstrated significant association with reduction in complication rate in recovery room.

PP04

THE EFFECTIVENESS OF ACUPRESSURE WRISTBANDS IN PREVENTING POSTOPERATIVE NAUSEA AND VOMITING IN LAPAROSCOPIC GYNAECOLOGICAL SURGERY

Sri Rahayu Mohamed Lokman, Muhammad Maaya, Nurlia Yahya, Wan Rahiza Wan Mat, Nadia Md Nor, Raha Abdul Rahman

Background: The use of acupressure wristbands applied on the P6 (Nei-Guan) acupuncture meridian point in Traditional Chinese Medicine practice has been shown to be beneficial as part of the multi-modal approach of alleviating postoperative nausea and vomiting (PONV). We investigated whether the use of acupressure wristbands could reduce the risk of developing PONV following laparoscopic gynaecological surgery.

Methods: This was a prospective, randomised, double blinded clinical study. A total of 110 patients, aged between 18 and 55 years with ASA physical status I or II were recruited and randomised into two groups. The acupressure wristbands were applied in both groups thirty minutes before induction. In Group A, the wristbands were positioned correctly on the P6 point, whereas in Group B the wristbands were placed incorrectly, 1 cm away from the P6 point. Both groups also received intravenous (IV) dexamethasone 8mg following endotracheal intubation. The presence of PONV was assessed at 1, 4 and 24 hours postoperatively.

Results: In the recovery room, 25.5% patients in Group A and 40.7% patients in Group B experienced PONV. At four hours postoperatively, one patient in Group B had PONV, compared to none in Group A. No PONV was reported at 24 hours. Overall, the odds ratio (OR) of developing PONV with the acupressure wristbands was 1.35 with a 95% confidence interval (CI) of 0.97 - 1.87.

Conclusion: The application of acupressure wristbands on the P6 (Nei-Guan) point did not significantly reduce the risk of PONV following laparoscopic gynaecological surgery.

PP05

THE EXPERIENCE OF AWARENESS UNDER ANAESTHESIA

Kavita Bhojwani, Wee Leong Lim, Imran Osman, Mun Tsong Hui, Joshua Ryan, Wyman Seet, Mariana Bte Mohamad Ali

Objective: To describe the experience of awareness under general anaesthesia among patients in the national audit conducted in 31 Ministry Of Health hospitals.

Methods: We present the collective experience of 14 patients from a multicentered national audit conducted in selected MOH hospitals who have suffered accidental awareness under anaesthesia. These patients were identified by research staff through a standardized structured interview originally described by Brice et al.

Results: The results reveal a disturbing symptomatology with all modalities of sensation experienced intra operatively. 57% of these patients reported auditory perceptions, 36% pain, 28% inability to move and breathe and 21% complained of the sensation of an endotracheal tube.

Conclusion: Considering that awareness under anaesthesia is a difficult endpoint to study and the exact mechanism of its development still lacking, isolated incidents may continue to occur despite our best efforts and adherence to accepted monitoring standards. Detailed documentation of clinical signs and events during anaesthesia and effective communication with our patients in the perioperative period will, at best, prevent the psychological sequelae and its medico legal implications from occurring.

PP07

EFFECTIVENESS OF P6 ELECTRICAL ACUSTIMULATION IN PREVENTING POSTOPERATIVE NAUSEA AND VOMITING FOLLOWING LAPAROSCOPIC SURGERY

AH Yeoh, Norsidah AM, Jahizah H, Shuraya S, Raha AR, Wan Rahiza WM

Introduction: Improvements of perioperative management may have some effect in the overall reduction of postoperative nausea and vomiting (PONV).

Objective: This prospective randomised study was done to investigate the effect of P6 electrical acustimulation in patients with risk of PONV following laparoscopic surgery.

Methods: Eighty patients, age 18 years and above, ASA I or II, scheduled for laparoscopic surgery with at least one of these risks; non-smokers, female gender, had PONV/motion sickness and postoperative use of opioids were recruited. Randomly patients were allocated either to receive active or sham electrical acustimulation. Both groups were given IV dexamethasone 4 mg prior to intravenous propofol 1.5-2.5 mg/kg, fentanyl 1 g/kg and rocuronium 0.6 mg-1mg/kg. They had sevoflurane MAC 0.8-1.2 in oxygen:air with FiO2 of 0.4-0.6. Morphine 0.05 - 0.1 mg/kg was given as intraoperative analgesia. At the end of surgery, Reletex™ electrical acustimulation was applied to the P6 acupoint, and set at grade 3 strength (active group); or inactivated with electrodes covered with silicone (sham group). It was worn for 24 hours following surgery. PONV and pain score were recorded.

Results: Patients' demographic characteristics, duration of surgery and factors likely to influence PONV were not significantly different between the sham and active groups. Incidence of PONV was significantly lower in the active group (32% vs 68%) 24 hours postoperatively ($p = 0.033$). Pain scores and requirement of rescue antiemetics were comparable 24 hours postoperatively.

Conclusion: Patients that received P6 electrical acustimulation had lower incidence of PONV 24 hours post laparoscopic surgery.

PP06

VOMIT NO MORE: ACUPRESSURE TREATMENT FOR PREVENTION OF POSTOPERATIVE NAUSEA AND VOMITING

Kavita B, Azlina M, Praveena S, Shyamala K, Shubashini T, Deepa LD, Subashini M, LH Chia, David L

Objective: To determine the efficacy of acupressure in preventing and reducing postoperative nausea and vomiting (PONV) and also its cost effectiveness.

Methods: 50 patients age 19-59 years old ASA 1-2 undergoing laparoscopic surgical and gynaecological procedures were divided into 2 groups - A (acupressure) and B (sham acupressure). The acupressure wristband was applied on the P6 acupoint Neiguan for the patients in group A, while patients in group B had the wristband applied elsewhere. The acupressure wristband was applied 20 minutes prior to induction of anaesthesia and removed in recovery bay 30 minutes later. Patients were asked about incidence of PONV thrice - in recovery bay, 2 hours and 24 hours post-operation. Incidence was classified as no PONV, presence of nausea, and presence of vomiting. Severity of vomiting was categorized as none, mild (1-2 episodes), moderate (3-5 episodes) or severe (6 and more episodes). Requirement of anti-emetic over 24 hours was also recorded.

Results: At the recovery bay, there was a significant reduction of PONV in group A compared to group B (18% vs 52%), with one episode of moderate vomiting experienced by the group B patient. After discharge from recovery bay, only group B patients experienced PONV (0% vs 19%).

Conclusion: The acupressure wristband helps in preventing PONV and its encouraging response suggests it may be used as a non-invasive, effective and cheap method. However, further studies with larger numbers are required.

PP08

PREDICTORS OF CRITICAL INCIDENTS IN PAEDIATRIC ANAESTHESIA: DATA FROM UNIVERSITY MALAYA MEDICAL CENTRE

S. Aznida AB Karim, Il Shariffuddin, L. Chan, Chia PW, Chinna K

Introduction: Many risk factors have been associated with paediatric anaesthesia related critical incidents. Objectives of this study were to identify the independent predictors for these critical incidents and the most frequent critical incidents.

Methodology: This was a prospective observational study based on audit done among paediatric patients who received anaesthesia from March 2011 to May 2012 in a single tertiary centre, University Malaya Medical Centre. Data from 2029 patients were collected with a 91.7% capture rate. Multinomial logistic regression analysis and stepwise regression were used to determine which risk factors are the independent predictors for overall or specific outcomes.

Results: There are three risk factors identified as independent predictors for critical incidents. They are; (odds ratio [95% confidence interval]: URTI, 3.37 [1.53-7.39]; $P < 0.002$); age less than 1 year, (2.64 [1.84-3.77]; $P < 0.001$); and medical illness: more than 1, (3.07 [1.83-5.15]; $P < 0.001$). Respiratory has the highest frequency of critical incidents at 3.4% of 2029 cases done. Obese children are 4.68 times more than non-obese children to encounter with respiratory incident, (4.68 [1.35-16.17] $P < 0.02$). Children with URTI have 5 times likelihood of getting at least 1 respiratory incident compared to those who do not have URTI, (5.20 [2.11-12.80] $P < 0.001$).

Conclusion: This study has identified three significant predictors for overall critical incidents and two predictors for respiratory critical incidents. The identification of critical incidents and its predictors can be used for possible prevention of critical incidents in the future.

PP09

THE EFFECTS OF STEROFUNDIN VERSUS RINGER'S LACTATE ON ACID-BASE AND ELECTROLYTE STATUS IN PAEDIATRIC PATIENTS UNDERGOING MAJOR SURGERY: A DOUBLE BLIND RANDOMISED CONTROL TRIAL

Il Shariffuddin, Padma Priya Bathumana Appan, Adeline CSM, L. Chan
Introduction: Managing fluid in the perioperative period of paediatric patients is challenging, as children, with their relatively immature organ systems, are less able to cope with inappropriate water and electrolyte administration. Newer balanced plasma-like intravenous fluids were developed to address this need.

Objective: To evaluate the effects of sterofundin as the main crystalloid in major paediatric surgery in comparison to ringer's lactate. Primary outcome was pH changes from baseline. Secondary outcomes included changes in base deficit, serum electrolytes, lactate levels and haemodynamic parameters from baseline.

Methodology: We conducted a double blind randomized controlled trial of 25 children undergoing major paediatric surgery in UMMC. Twenty five children were randomized into two groups, 13 in sterofundin (S) and 12 in ringer's lactate (RL). Acid-base status, electrolyte balance and haemodynamic variables were recorded at baseline and repeated every hour until the end of surgery.

Results: The demographic data in both groups were comparable. Improvement in pH from baseline until the end of surgery was small but statistically significant in both groups. In (S) group, pH changes from baseline to end of surgery [mean (sd)]: [7.389(0.05) to 7.355(0.04)] with $p=0.013$. In (RL) group, pH changes from [7.397(0.04) to 7.356 (0.09)] with $p=0.05$. Other parameters measured showed significant but transient changes in both groups. Total volume per weight (mls/kg) infused in RL group was [mean (sd)] 38.89 mls (17.95) and group S was 40.12 mls (22.48).

Conclusion: The use of sterofundin is comparable to ringer's lactate among ASA 1-III paediatric patients undergoing major surgery.

PP11

DEXMETOMIDINE SEDATION FOR TRANSESOPHAGEAL ECHOCARDIOGRAPHY DURING PERCUTANEOUS ATRIAL SEPTAL DEFECT CLOSURE (CASE REPORT)

Yong-Han Kim, Seong Rok Kim, Jae Wook Jung, Sang Yoon Jeon

Introduction: Percutaneous closure of atrial septal defect(ASD) has advanced over the past 30 years. Intracardiac or transesophageal echocardiography is indispensable for appropriate positioning and residual shunting of septal occluder device. We report a case of percutaneous ASD closure under dexmedetomidine sedation using transesophageal echocardiography(TEE) without intubation.

Case: A 23-year-old woman (156.4 cm, 50.6 kg) had chest discomfort and dyspnea on exercise. She was diagnosed as ASD sized 1.0cm by transthoracic echocardiography(TTE). Percutaneous ASD closure was planned via femoral vein using intracardiac echocardiography(ICE) under local anesthesia. After puncture of femoral vein, ICE had some trouble. The cardiologist requested deep sedation to anesthesiologist urgently for TEE with patient's consent. The anesthesiologist monitored electrocardiography, non-invasive blood pressure, pulse oximetry and bispectral index. Dexmedetomidine 1 µg/kg was infused for 10 minutes, and followed by 0.2 µg/kg of maintenance. The procedure was performed by using both fluoroscopy and TEE. The size of ASD was measured by size balloon after pass of guide-wire that was confirmed with TEE. Amplatzer septal occluder(12mm) was positioned in optimal location, and residual shunting was not visible by TEE. ASD closure was completed with spontaneous breathing and no complication.

Case conclusion: Dexmedetomidine provides sedation and minimal respiratory depression. Dexmedetomidine sedation is proper method for TEE in percutaneous ASD closure.

PP10

COMPARISON OF C-MAC® AND MACINTOSH LARYNGOSCOPY IN PATIENTS WITH CERVICAL SPINE IMMOBILISATION

MA Shahir Hamid, CY Liu, JSM Ooi

Introduction: Securing the airway with tracheal intubation in a patient with cervical spine injury using manual inline stabilisation (MILS) has always been a challenge. MILS ensures a neutral alignment and motionless spine during the intubation process but it causes worse laryngoscopy view upon direct laryngoscopy and possible delay in orotracheal intubation. The C-MAC® (Karl Storz, Tuttlingen, Germany) is a new portable video-laryngoscope with original Macintosh blade shape offering approximately 80° angle of view.

Methods: This prospective, randomized, single blind study was carried out to compare tracheal intubation using the C-MAC® and Macintosh laryngoscope in patients with manual inline neck immobilization. Ninety consented patients, without features of difficult airway, who required general anaesthesia and tracheal intubation were recruited. These patients were intubated with either the C-MAC® [Group 1 (n=45)] or the Macintosh laryngoscope [Group 2 (n=45)] by one single investigator experienced in the use of both devices. Cormack Lehane score, time to intubate, intubation attempts, optimization maneuvers, complications and hemodynamic changes were recorded over a period of 5 minutes.

Results: We found that the C-MAC® laryngoscope performed significantly better with lower Cormack Lehane grades, shorter time to intubate (32.7 ± 6.8 vs. 38.8 ± 8.9 seconds, $p=0.001$) and needed less optimization maneuvers. There were no significant differences detected in the intubation attempts, complications or hemodynamic status of the patients with either device.

Conclusion: We concluded that using the CMAC® laryngoscope was superior to the Macintosh laryngoscope for patients requiring intubation when manual inline neck stabilization was applied.

PP12

ONSET TIME OF BRACHIAL PLEXUS BLOCK USING LOCAL ANESTHETIC DILUTED WITH 0.9% SALINE VS 5% DEXTROSE

H.J. Lim, M. Shahnaz Hasan, K. Chinna

Objective: Ascertaining the onset time for complete analgesia and motor blockade for ultrasound guided supraclavicular brachial plexus block with ropivacaine diluted with D5% or NS.

Methods: Patients coming in for elective or emergency surgery of the hand, forearm and elbow were evaluated for eligibility to be enrolled into the study. They were then randomly assigned to either the normal saline (NS) or dextrose 5% (D5%) group. Ultrasound-guided supraclavicular block was performed using 0.5% ropivacaine by diluting 0.75% ropivacaine with either NS or D5%. Evaluation of sensory and motor blockade was then carried out, the end points being complete analgesia or up till 60 minutes after end of LA injection. Duration of sensory block was also assessed. Patients were followed-up on post-operative day (POD) 1 and again between POD 7-10 and were evaluated for the presence of any side effects and complications.

Results: 25 patients in each group were analysed. Mean time for onset of analgesia for the NS group was 45.2 ± 13.9 minutes while mean time for the D5% group was 37.6 ± 12.9 minutes. The p value of the test was 0.051. The effect size was 0.567 which was moderate to large. There were no clinically significant side effects or complications from the block in all patients.

Conclusions: There is a clinically significant decrease in onset time of analgesia when D5% was used as a diluent instead of NS for ultrasound guided supraclavicular brachial plexus blockade.

PP13

A SHORT REVIEW ON POST ANAESTHETIC TECHNIQUES FOR TOTAL KNEE REPLACEMENT(TKR) SURGERY

Rohayu Othman, G. Awisul-Islah, L.T Wen

Objective: To review side effects and complications of Total Knee Replacement Surgery (TKR) done under general anaesthesia(GA) or regional anaesthesia(RA) and to review degree of pain experienced by patients and overall to compare .

Methodology: A 6 months cross sectional prospective review was done on 37 patients who undergone Total Knee Replacement Surgery in Hospital Kuala Lumpur. Patients will receive either GA or RA as decided by anaesthetist in charge. No standard regimen of anaesthesia was given as this review is aiming to assess the effectiveness of the current practise. In recovery area, all patients will be reviewed by a dedicated anaesthetic medical officer. Few side effects and complications such as pain score at rest and during movement, motor block and numbness at operated site, any hematoma on operated site and also any hemodynamic instability in recovery area were observed. Due to lack of human resources, only less than 20% patients were able to have another follow up in ward, hence the data were not analyzed.

Results: From total of 37 patients undergone Total Knee Replacement (TKR) Surgery, 43.2% (16 patients) were given GA and the rest were given RA. 81% (30 patients) were female and the rest were male patients. There were 2 incidences of pain score more than 5/10 in GA group in recovery area and only 1 incidence of pain score more than 5/10 in RA group; however P value was not significant. Motor block and numbness at operated site were higher in R.A group but both P values were not significant. Hemodynamic instability in recovery also a little bit higher in RA group but statistically was not significant. There was no incidence of hematoma at operated sites was observe in all cases.

Conclusion: Both GA and RA for Total Knee Replacement (TKR) surgery didn't show any significant advantages over one another. Hence anaesthetist decision on type of anaesthesia for TKR surgery is still the final say.

PP15

DEVELOPMENT OF A QUESTIONNAIRE FOR MEASURING PARENTAL SATISFACTION FOLLOWING PAEDIATRIC ANAESTHESIA : A SERVQUAL APPROACH

YY Phang, Noorjahan HM Hashim, L Chan

Background: Surgery in children differs in many ways from that in the general population. They do not have the same ability to express their needs as adults do; thus, measures of treatment satisfaction in paediatric surgery must consider both the parents' and the children's experiences of surgery and care. A survey of parental satisfaction provides valuable information for improvement of performance and service quality of paediatric healthcare facilities in UMMC. This study attempts to develop and construct a reliable interpretable questionnaires based on SERVQUAL dimensions. This questionnaire can be utilised as a tool to evaluate the level of parental satisfaction following paediatric anaesthesia for their children in University Malaya Medical Centre in future, and, to identify factors or dimension influencing parental satisfaction.

Method: SERVQUAL is a standardized and reliable instrument that identifies five different dimensions of service quality and validates those dimensions in different service situations including hospital setting. Construction of pilot questionnaire was based on five SERVQUAL dimensions which consist of tangibles, reliability, responsiveness, assurance and empathy; and then followed by pretest and pilot study of the questionnaires on 44 parents (24 from in patient and 20 from day care).

Result: Both groups of parents show highest satisfaction level in the "empathy" dimension. Parents of children in day surgery/ daycare are more satisfied compared to in patient.

Conclusion: The results showed that the parental satisfaction SERVQUAL scale is a reliable questionnaire for the use of subsequent larger survey on parental satisfaction following paediatric anaesthesia.

PP14

INCIDENCE AND CHARACTERISTICS FOR CONVERSION OF REGIONAL ANAESTHESIA TO GENERAL ANAESTHESIA IN CAESAREAN SECTION AT KK WOMEN'S AND CHILDREN'S HOSPITAL : A RETROSPECTIVE AUDIT

Dintan NA, Sng BL, Ithnin F

Background: The use of general anaesthesia for Caesarean section has declined with regional anaesthesia being the predominant mode of anaesthesia. However, conversion to general anaesthesia is necessary when there is regional anaesthesia failure and may need to be performed emergently for obstetric indications.

Methods: A retrospective audit at KKH was performed to investigate the incidence of conversion from regional anaesthesia to general anaesthesia for Caesarean sections from January 2007 to December 2011 that occurred in our institution. Anaesthesia records were reviewed for the incidence and characteristics for the need for conversion.

Results: There were 18,000 Caesarean sections where regional anaesthesia was given in 90.2% of elective and 88.3% of emergency cases. There were 123 women with conversion from regional anaesthesia to general anaesthesia. The incidence of conversion was 0.002% for elective and 0.01% for emergency Caesarean section. Most of the conversions occurred before delivery in 111 (90.2%) women. 108 (87.8%) were emergency Caesarean sections. In emergency CS, 74 out of 108 (68.5%) women had an existing epidural catheter that failed to be extended for epidural anaesthesia in which 70 women had a slipped out epidural catheter diagnosed when the catheter was removed.

Conclusions: This audit showed that the incidence of conversion of RA to GA is low at our centre. However, majority occurred with emergency Caesarean section with failure in extending epidural analgesia in labour for anaesthesia. Hence, greater emphasis should be placed on identification of epidural catheters likely to be not functioning.

PP16

USAGE OF CELL SAVER IN TRAUMA PATIENTS

Nirawanti MS, Ahmad Suhaimi A

Numerous approaches have been used to reduce transfusion of allogeneic blood including iron supplementation, erythropoietin, acute normovolemic hemodilution, pre-operative autologous donation, various hemoglobin-based blood substitutes and the use of cell salvage systems. The use of intra-operative cell salvage and autologous blood transfusion has become an important method of blood conservation. The main aim of autologous transfusion is to reduce the need for allogeneic blood transfusion and its associated complications. Cell salvage has been demonstrated to be safe and effective at reducing allogeneic blood transfusion requirements in adult elective surgery with stronger evidence in cardiac and orthopedic surgery.

Case Scenario: A 33 year old male presented to the A&E following an alleged fall on a metal road sustaining intra-abdominal and chest injury. He was in hypovolemic shock with an initial Hb of 5g/dL. His blood group was A negative. An urgent laparotomy found segment 6 and 7 liver lacerations with Right Hepatic Vein and Inferior Vena Cava injuries. He lost more than 6L of blood. Due to shortage of blood, he was transfused with A positive blood in total of 10 pints with 2 cycles of DIVC. A second re-laparotomy was performed 7 hours later for re-abdominal packing and the cell saver was used intra-operatively. Only 2 pints of autologous blood was given together with 1 cycle of DIVC regime. The third laparotomy was performed a day later and finally extubated on Day 6 postoperatively. He made an uneventful recovery and was discharged from the hospital 2 weeks later.

Conclusion: Cell salvage offers the medical community a safe, resource-saving and relatively inexpensive method to avoid allogeneic red cell transfusion.

PP17

ANTINOCICEPTIVE INTERACTION BETWEEN INTRATHECALLY ADMINISTERED MORPHINE AND BACLOFEN IN RATS

Tomoki Nishiyama, Masaki Sekiguchi

Background: Morphine and γ -aminobutyric acidB (GABA_B) agonist, baclofen have antinociceptive effects in the spinal cord. The present study investigated the interaction between intrathecally administered morphine and baclofen in two different nociceptive models in rats expecting synergistic effects.

Methods: Sprague-Dawley rats with lumbar intrathecal catheters were tested for their thermal tail withdrawal response using the tail flick test and for their paw flinches by formalin injection after intrathecal different doses of baclofen administration. The 50 % effective dose (ED₅₀) was calculated. The ED₅₀s of morphine in each test were derived from our previous study. The combination of each 1/2, 1/4, 1/8, or 1/16 ED₅₀ was administered. The interaction was tested by an isobolographic analysis. Eight rats were used in each dose group.

Results: ED₅₀ values are shown as mean and 95% confidence interval (in parenthesis). The ED₅₀ of the combination was significantly lower than the ED₅₀ of each single agent in both the tail flick test and the formalin test.

	Tail flick	Formalin phase 1	Formalin phase 2
Morphine (μg)	1.4(1.1-1.9)	7.1(5.5-9.0)	3.7(2.5-5.3)
Baclofen (μg)	0.32(0.25-0.40)	0.0062(0.001-0.0337)	0.0126(0.0021-0.076)
Morphine in combination (μg)	0.019(0.0065-0.0546)	0.024(0.0051-0.112)	0.056(0.020-0.156)
Baclofen in combination (μg)	0.004(0.0014-0.0116)	0.000084(0.000018-0.0004)	0.00019(0.000069-0.00055)

Conclusion: Intrathecal morphine and baclofen had synergistic antinociceptive effects on thermal induced acute nociception and inflammatory induced acute and facilitated nociception.

PP19

PETROUS MENINGIOMA PRESENTING WITH TRIGEMINAL NEURALGIA-A CASE REPORT

Dr Seet Sok Noi

Trigeminal neuralgia (TGN) is a very debilitating disease with rate of occurrence of 4 per 100,000 population. It is characterized by sudden attack of facial pain that occurs paroxysmally in the distribution of Trigeminal nerve (V5). Etiology is mainly idiopathic. However, TGN may be due to intracranial tumour. Trigeminal neuralgia caused by posterior cranial fossa tumours, not involving the cerebellopontine angle cisterns are very rare. We present a case of petrous meningioma who complaint of facial pain and was initially diagnosed as TGN. Meningioma was discovered when CT brain was done. We discuss the important of and indications for brain imaging in patients presenting with facial pain.

PP18

PREVALENCE OF ANXIETY AND DEPRESSION AMONG PATIENTS WITH CHRONIC NON CANCER PAIN AT PAIN MANAGEMENT CLINIC IN PENANG HOSPITAL - A RETROSPECTIVE ANALYSIS

Usha Rajah

Background: Patients with chronic non cancer pain often have anxiety and depression related symptoms.

Objective: To retrospectively analyze the presence of anxiety and depression among patients with chronic non cancer pain at the Pain Management Clinic.

Methods: Pain was assessed by using the Numerical Rating Score (NRS). Anxiety and depression symptoms were assessed by using the Hospital Anxiety and Depression Scale (HADS).

Results: One hundred patients were enrolled in this study. Most of them were between the age of 41-50 (40%) and 60% were females. With the use of HADS, 74% had anxiety and 65% had depression symptoms as seen in other similar studies. About 46% of patients had severe pain on their first visit and at the end of 6 months, it reduced to 38%. Indians made up the majority among the ethnic groups (52%). The average duration of pain among these patients were at least a year (76%). The pain was reported to be continuous in 52% and the rest had intermittent pain. Sleep was disturbed in 65%.

Conclusion: This study demonstrated that patients with chronic pain have high levels of depressive and anxiety symptoms and confirms that further interventions are required in order to achieve an overall reduction in pain.

PP20

COMPARISON OF THE EFFECTS OF REMIFENTANIL INFUSION VERSUS PROPOFOL INFUSION FOR SEDATION DURING IN-VITRO FERTILIZATION PROCEDURE

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B

Background: Propofol and remifentanyl are indicated for anesthesia provision in day case operations due to their rapid onset of action and short duration.

Objectives: The aim of this prospective and randomized study was to compare the sedation level with remifentanyl versus propofol for in vitro fertilization procedure. Primary objective were to compare fertilization rate, cleavage rate, pregnancy rate and embryo quality. Secondary objective was to evaluate the tolerability through the incidence of side effects.

Methods: After approval of the Ethics Committee and after obtaining written informed consent, in this study enrolled 86 ASA I-II patients, 18-40 years of age that underwent a in vitro fertilization procedure. These patients were randomized into two groups. Group R1 received 0.15 μg/kg/min infusion dose remifentanyl while Group R2 received iv propofol 2 mg/kg. Side effects, fertilization rate, cleavage rate, pregnancy rate and embryo quality were compared.

Results: 84 patients completed the study: 39 were randomized in the group R1 and 45 were randomized in the group R2. Two patients are outputs from the study for the excessive sedation. There were no differences between the groups in terms of fertilization, cleavage, pregnancy rates and prognosis of pregnancies ($p > 0.05$). 73 of 84 patients reported side effects; these were characteristic of the drugs used. Both groups reported good patient satisfaction levels ($p = 0.31$).

Conclusions: Sedation with remifentanyl compared with sedation with propofol provided equally effective and safe anesthesia during in-vitro fertilization procedure.

PP21

PARACERVICAL BLOCK FOR PAIN CONTROL IN FIRST TRIMESTER INCOMPLETE ABORTION

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B

Background: Paracervical block is painful and potentially noxious for woman undergoing manual vacuum aspiration for an incomplete abortion.

Objective: Estimate the effect of paracervical block and the effect of gestational age on patient pain perception.

Methods: This is a clinical trials of patient undergoing abortion. The sample size was based on a clinical difference of 1.5 points in the level of pain measured with VAS. Women who were at 12 weeks of gestation or less with and incomplete abortion were eligible to participate. They were stratified with gestational age: early: <8 weeks; late: 8-10 weeks. They were premedicated with lorazepam 2mg and atropine 0.5mg/kg, and randomly assigned to receive either the standard treatment of care (manual vacuum aspiration for uterine evacuation with psychological support but no paracervical block) or manual vacuum aspiration treatment with psychological support and paracervical block using 20ml 1.0% Lidocaine. Intraoperative pain as reported by the women and as documented by an external observer was measured.

Results: Full enrollment occurred (n=120). Demographics did not differ between two groups. Paracervical block administration was painful (55mm vs 30mm without block; $p<0.001$) but decreased aspiration pain (63mm vs 89mm without block; $p<0.001$). These results were consistent for both gestational age strata, however paracervical block benefit was greater at an earlier gestation. The manual vacuum aspiration technique and the paracervical block were not accompanied by complications.

Conclusions: Although paracervical block was painful, it reduces first trimester abortion pain regardless of gestational age.

PP23

SEDOANALGESIA WITH THE COMBINATION OF KETAMINE AND PROPOFOL DURING OPERATIVE COLONOSCOPY: EFFECTIVENESS

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Aurilio C, Pace M.C, Passavanti M.B

Background: Operative colonoscopy is a common uncomfortable and painful procedure, we designed a prospective observational study on the combination of propofol and ketamine as sedation and analgesia technique.

Objectives: To evaluate the perioperative effectiveness of this combination, the discharge implications, the patient's and endoscopist's level of satisfaction

Methods: Under routine monitoring (ECG, SpO₂, HR, BP) we administered intravenous boluses of 0,80 mg/kg/hr of ketamine and 1,75 mg/kg/hr of propofol and a normal saline infusion. We reported VAS, side effects, success of the endoscopies, PADS scores at discharge, time of discharge.

Results: We enrolled 93 patients, 5 patients were excluded due to uncontrolled arterial hypertension, maior depression, and hyperthyroidism. Our study group was 88(43M,45F) ASA I-III patients, median age: 58 ; median weight: 75. All endoscopies were completed, mean VAS: 2,75. Infrequent elevations of 15% of HR and BP, no facial mask ventilation use. We didn't note post-operative nausea and vomit or hypotension, two patients presented hallucinations and nystagmus at the end of the procedure, that regressed spontaneously without drug treatment in 20 minutes. Mean PADS score was 9,3 ; mean discharge time was 105 minutes.

Conclusions: This spontaneous breathing regimen with a good cardiovascular stabilization is effective and safe . Adverse events were transient and mild. Patients and endoscopists considered acceptable to use it in the future.

PP22

COMPARISON TOTAL INTRAVENOUS ANESTHESIA VERSUS COMBINED LOCAL AND PARACERVICAL ANESTHESIA DURING HYSTEROSCOPY

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Di Rienzo A, Aurilio C, Pace M.C, Passavanti M.B

Background: In order to alleviate the pain, various methods of systemic analgesia and local anesthesia have been advanced.

Objectives The aim of this randomized study was to compare the amount of pain using total intravenous anesthesia or combined local and paracervical anesthesia during hysteroscopy.

Methods: After approval of the Ethics Committee and after obtaining written informed consent, in this study enrolled 91 ASA I-II patients, 18-40 years of age that underwent to hysteroscopic. These patients were randomized into two groups. In the TIVA Group, anaesthesia was induced with remifentanyl infusion starting at 0.5µg/kg/min and a bolus of propofol 2-2.5mg/kg followed by propofol infusion at 5mg/kg/h while in the Combined Anesthesia Group patients received an injection of 2ml of 0.5% bupivacaine hydrochloride into the anterior wall of the cervix and paracervical anesthesia was administered by injecting bupivacaine into the lateral vaginal fornix bilaterally. Pain was assessed at 10, 30 and 60 minutes postoperatively on VAS scale.

Results: 85 patients completed the study: 42 were randomized in the TIVA Group and 43 were randomized in the Combined Anesthesia Group. The pain scores in the TIVA Group were significantly higher than in the Combined Anesthesia Group during the procedure and at 10 minutes and 30 minutes after the procedure ($p<0.05$). However, there was no significant difference between the groups in the pain scores at 60 minutes after the procedure ($p=0.6$).

Conclusions: Combined local and paracervical anesthesia is suggested for hysteroscopy in day surgery.

PP24

THE EARLY PRESSURE SUPPORT VENTILATION PREVENTS THE VENTILATOR INDUCED DIAPHRAGMATIC DYSFUNCTION

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi R.P, De Marco G.P, Pasquariello M.R, Aurilio C, Pace M.C, Passavanti M.B

Background: Several research studies revealed that prolonger Controlled Mechanical Ventilation (CMV) induces muscular atrophy and also changes the contractile properties of diaphragm. The Ventilator Induced Diaphragmatic Dysfunction (VIDD) is one of the main causes of weaning failure in the patients.

Objective: The main objective of this study is to demonstrate that the early use of Early Pressure Support Ventilation (PSV) can prevent the VIDD.

Methods: This study compared two groups of patients, initially treated with CMV and then with PSV at different time. Specifically, the first group switched to PSV after a period>24hours and the second one after a period<24hours.

Results: The patients who switched on PSV before 24hours of CMV showed a significant improvement in the prognosis in terms of necessity of intubation (2,8% in the group CMV<24hours compared to the 15% of the group CMV>24hours, $p<0,5$), recovery time in intensive care unit (96 ± 18 hours in the group CMV<24hours compared to 120 ± 24 hours of the group CMV 24hours, $p<0,5$) and overall recovery time in hospital (10 ± 3 days in the group CMV<24hours compared to 15 ± 2 d of the group CMV>24hours, $p<0,5$).

Conclusions: The results provided here are just preliminary data because of the limited number of the patients and the study is still ongoing.

PP25

SKIN ULCERS: CARE MANAGEMENT OF PAIN

Coviello A, Bernardo A, Ferrante M, Gritti F, Colella U, Giordano G, Di Bello C, Peluso F, La Vedova M, Filardi RP, De Marco GP, Pasquariello MR, Aurilio C, Pace MC, Passavanti MB

Background: Pain is a common symptom in patients with skin ulcers. Objective Our observational-perspective study aimed at evaluating the Tapentadol + Pregabalin efficacy and tolerability in patients with mixed nociceptive chronic and neuropathic pain.

Methods: Prior written consent and approval of the local ethics committee, in 2012 we recruited 30 patients (18 M, 12 F), 55 - 79 years old, with severe chronic pain (NRS \geq 7) from mixed, vasculitic, diabetes and post-traumatic ulcers. At the first enrollment visit (T0), patients were randomized into two groups: TP (100mg Tapentadol 2 times/day + 300mg Pregabalin) and PP (300mg/day Pregabalin + Placebo) of 15 members each, homogeneous for age and ethnic group. Phone checks were performed every 3 days with ambulatory monitoring (T1) at 15, 30 (T2), 60 (T3), 90 (T4), 135 (T5) and 180 days (T6), where the intensity of pain with NRS, side effects, sleep quality with SQ, neuropathic pain with DN4 and health status with PGI-C were evaluated.

Results: To the T0 visit the patients reported pain to 7.85 (NRS) and the DN4 6.87 in 10 patients. The TP Group reached an optimal pain control with a NRS average of 2.54 and a DN4 of 3.58. Side effects were attenuated in 4 patients, resolved in 6 patients and persisted in 3 patients.

Conclusions: Our experience has shown that Tapentadol + Pregabalin has reduced the chronic pain intensity improving the neuropathic component, the compliance is proposed as certain innovation association, remarkable efficiency and good handling.

PP26

PERCUTANEOUS THORACIC 2 AND 3 RADIOFREQUENCY SYMPATHECTOMY FOR COMPLEX REGIONAL PAIN SYNDROME SECONDARY TO BRACHIAL PLEXUS INJURY

Chen Chee Kean, Phui Vui Eng, Nizar Abd Jalil, Alex Yeo Sow Nam

Background: Traumatic brachial plexus lesions are one of the most common forms of plexus injuries resulting from high-impact trauma, e.g. motor vehicular accident or industrial injury. Chronic neuropathic pain and subsequent development of complex regional pain syndrome (CRPS) is common following such injuries of the brachial plexus. It is often severe, debilitating and difficult to manage. When conventional pain management fails to alleviate pain and dysfunction, sympathectomy might play a role in multi-modal treatment of CRPS. Percutaneous radiofrequency sympathectomy is a relatively new technique, which has shown promising results in various chronic pain disorders.

Method: This is a retrospective record review in which we present four patients with CRPS secondary to brachial plexus injury for more than 6 months duration, who did not have symptomatic pain relief and functional improvement with conservative pain management and stellate ganglion blockade. They were offered percutaneous T2 and T3 radiofrequency sympathectomy after a successful diagnostic block.

Results: All four patients presented with CRPS with upper limb paralysis. An acceptable 6 months pain relief was achieved in all 4 patients where pain scores remained less than 50% that of initial scores. Consumption of oral analgesics was able to be tapered down during these 6 months follow-up. There were no complications attributed to this procedure were reported.

Conclusion: From this case series, percutaneous T2 and T3 radiofrequency sympathectomy might play a significant role in multimodal approach of CRPS management. Larger studies with randomized control groups would improve the level of evidence of the findings in this study.

PP27

PERIOPERATIVE PAIN MANAGEMENT, ARE WE DOING IT RIGHT? AN AUDIT ON PERIOPERATIVE ANALGESICS USE

Mee Yee Tang, Shu Ching Teo, Mat Ariffin Saman, Norzalina Esa

Background: The importance of effective perioperative pain management is widely known. It reduces postoperative morbidity and mortality and risk of developing persistent post-surgical pain. This audit looked into the perioperative analgesics use in a tertiary hospital.

Method: This is a prospective observational audit. All non-ICU patients above seven years old and had anaesthesia were included. Patients' demography, intraoperative analgesics, postoperative pain scores, analgesics and complications were reported. Relevant statistics analysed using SPSS 20.

Results: 1118(46.2%) out of 2420 cases were reported. 67 patients had combined general anaesthesia and regional anaesthesia (GA/RA), 626 and 359 patients had solely GA and RA respectively. Intraoperatively 97.1% of patients on GA/RA or GA alone had opioids, 48.7% local anaesthetic (LA) infiltration, 18.1% anti-inflammatories and 0.9% Paracetamol and Tramadol. Only 9.5% patients had one off or continuous regional blockade. Postoperatively, 24.3% and 9.4% of the patients did not receive any analgesic in first 6 hour and subsequent 18 hour respectively. Patients who had undergone laparoscopic abdominal or gynaecological surgery, open abdominal surgery are at risk of under-dosing of intraoperative Morphine. Pain score at first 6 hour and subsequent 18 hour (mean, SD) were 2.49, 2.12 and 1.49, 1.55 respectively. 18.5% of the patients on continuous regional blockade had to have LA infusion rate increased. The commonest postoperative complication was nausea 7.4%.

Conclusion: Opioids remain the commonest analgesics intraoperatively. Other intraoperative analgesics and regional techniques were not routinely used. There is need to consciously make perioperative multimodal analgesia a routine to ensure effective perioperative pain management.

PP28

COMPARISON BETWEEN PATIENT-CONTROLLED EPIDURAL ANALGESIA AND CONTINUOUS EPIDURAL INFUSION FOR PAIN RELIEF AFTER GYNAECOLOGICAL SURGERY

Suhaila Nanyan, Nurlia Yahya, Azmil Farid Zabir, Melvin Kandasamy, Muhammad Maaya, Nadia Md Nor

Objective: This prospective, randomised study compared the effectiveness of patient controlled epidural analgesia (PCEA) versus continuous epidural infusion (CEI) in providing pain relief post gynaecological surgery.

Methods: Sixty six ASA I or II patients planned for gynaecological surgery via Pfannenstiel incision under combined spinal epidural anaesthesia were recruited. They were randomised into two groups; Group A patients received PCEA and Group B patients received CEI. In the recovery area, both groups received an epidural combination of levobupivacaine 0.1% and fentanyl 2 µg/ml. Group A patients were allowed on-demand bolus doses of 5 ml with a 20 minute lockout interval, while Group B patients had their epidural infusion initiated at 6 ml/hour with titrated increments as required to a maximum rate of 12 ml/hour. Pain score and degree of motor blockade was assessed hourly in the first four hours and subsequently at four hourly intervals. Side effects were recorded at four hourly intervals. The total amount of analgesia, number of anaesthetic interventions and patient satisfaction was assessed 24 hours postoperatively.

Results: There was no significant difference in pain score, total amount of analgesia, number of anaesthetic interventions and patient satisfaction. The degree of motor blockade and side effects were comparable between the groups.

Conclusion: In conclusion, PCEA was comparable to CEI for pain relief after gynaecological surgery.

PP29

PAIN MANAGEMENT PRACTICES IN CRANIOTOMY PATIENT

Peter Chee Seong Tan, Vanitha Sivanaser, Jahizah Hassan

Background: There is increasing evidence that aggressive pain management is warranted in patients undergoing craniotomies. Many experience significant pain intra- and postoperatively. A nationwide survey was undertaken to look into the pain management practices in craniotomy patients.

Methods: A web-based questionnaire was delivered via emails to anaesthetic providers of six hospitals with neurosurgical services in Malaysia to analyze and determine the consensus of the current state of analgesia practices for craniotomy patients.

Results: 62 respondents inclusive of five neuroanaesthesiologists completed the survey. Of the respondents, almost 70% ran a neurosurgical list weekly. Approximate three quarters of them perceived post-craniotomy pain as mild (26.9%) to moderate (53.9%). Remifentanyl infusion was the most popular analgesia used intraoperatively (93.4%) followed by boluses of morphine and local anaesthetic infiltration (68.9%). About 30% of these respondents refrained from administering morphine due to the major concern that it would confound postoperative neurological assessment (83.3%). More than half of them (59.0%) were cautious with the prescription of cyclooxygenase-2 inhibitors attributable to the risk of haematoma. Majority (63.8%) of these anaesthetic providers prescribed analgesia postoperatively, paracetamol being the dominant choice, followed by tramadol and other opioids, and non-steroidal anti-inflammatory drugs. Intravenous fentanyl was favoured as the rescue analgesia during breakthrough pain. Only 39.7% of these respondents were satisfied with their current choice of analgesia regimen.

Conclusion: There exists uniform practices amongst anaesthesiologists in pain management. Remifentanyl infusion remains the popular intraoperative analgesia whereas paracetamol is commonly prescribed postoperatively. There remains a lack of progression in evidence-based analgesic practices in comparison to the west. This is evident in the postoperative analgesia care. A national practice guideline is needed to address the efficacy of pain control in craniotomy patients.

PP31

A COMPARISON OF AIRWAY COMPLICATIONS IN SMOKERS ADMINISTERED DESFLURANE VERSUS SEVOFLURANE THROUGH PROSEAL™ LARYNGEAL MASK AIRWAY

Cheah Pike Kuan, Raha Abdul Rahman, Wan Rahiza Wan Mat, Nadia Md Nor, Muhammad Maqay

Objective: To compare airway complications, which include coughing, laryngospasm and breath holding, at induction and emergence following desflurane or sevoflurane anaesthesia.

Methods: This was a prospective, single-blinded, randomised controlled clinical trial. One hundred and four premedicated ASA I and II smokers, aged between 18 to 50 years, planned for elective surgery were recruited. They were randomised to receive either desflurane or sevoflurane. Following induction with propofol, both inhalational agents were administered at 1.0 + 0.2 MAC through the Proseal™ laryngeal mask airway and discontinued at the last skin suture. Proseal™ laryngeal mask airway was removed once the patient responded to verbal command.

Results: At induction, only cough was seen, and the difference was statistically insignificant between the groups, ($p = 0.41$). At emergence, cough, laryngospasm and breath holding were observed in both groups, but the incidence of these complications was not statistically significant ($p = 0.29$, 0.33 and 0.33 , respectively) between the groups. There were no differences between the groups in time to emergence ($p > 0.05$).

Conclusion: In conclusion, there was no increased risk of airway complications following desflurane compared to sevoflurane anaesthesia, in cigarette smokers breathing spontaneously through the Proseal™ laryngeal mask airway.

PP30

NYSTAGMUS FOLLOWING INTRATHECAL MORPHINE ADMINISTRATION DURING AN EMERGENCY CESAREAN SECTION: A CASE REPORT

Aida Mastura Mohd Shah, Zarina Mahmood, Norliza Mohd Nor

A 27 years old female patient, G2P0+1 at 36 weeks 4 days was scheduled for emergency cesarean section (CS) under spinal anaesthesia for fetal distress. She has history of systemic lupus erythematosus in remission. Her condition affected the skin, haematological and musculoskeletal system. Preoperative physical examination and laboratory values were within normal limits.

Spinal anaesthesia was performed at L3-L4 level using a combination of 0.5% Heavy Bupivacaine, fentanyl and morphine. Anaesthesia level achieved and patient was comfortable for the operation. CS was performed successfully. About 1 hour and 30 minutes post spinal anaesthesia, patient complained of blurred vision associated with nausea, vomiting and giddiness in recovery bay. A stat dose of Metochlopramide 10mg was given intravenously.

Upon review 5 hours postoperatively, we noted nausea and vomiting had resolved but she still complained of blurred vision. Physical examination revealed bilateral vertical nystagmus. Other neurological examination was unremarkable. However, the nystagmus resolved spontaneously at 13 hours post CS. She was able to ambulate independently and was discharged home at postoperative day 2.

Transient nystagmus had been observed with the use of intrathecal morphine 3-4 hours post spinal anaesthesia. It had been postulated morphine as the cause for the nystagmus due to the reversibility of the symptom following naloxone administration.^{1,2,3}

However, other rare causes for nystagmus need to be excluded. This includes central nervous system pathology, inner ear disorders and others.³ In view of this, CT scan/ MRI is needed to exclude the diagnosis.

PP32

TRACHEAL INTUBATION USING REMIFENTANIL 2µg/KG OR 3µg/KG WITH PROPOFOL WITHOUT NEUROMUSCULAR BLOCKING AGENTS

KCM Goh, LW Luah, J Hassan, CY Lee

This prospective, randomized, double blind study was done to compare tracheal intubation conditions, haemodynamic responses and duration of apnoea following induction of anaesthesia using propofol 2.5mg/kg and remifentanyl 2 or 3µg/kg. Seventy ASA I and II patients (18 to 55 years) scheduled for elective surgery under general anaesthesia with tracheal intubation were recruited into the study and randomized into 2 groups using 2 doses of remifentanyl, 2 or 3µg/kg (REM-2 and REM-3 respectively). Intravenous remifentanyl was infused over 90 seconds (s), and propofol 2.5mg/kg was administered 60s after commencement of remifentanyl infusion. Laryngoscopy and tracheal intubation were attempted 90s after propofol was given. Intubating conditions were graded based on jaw relaxation, limb movement in response to intubation, movement of vocal cords at intubation and cough response during the process. Systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP), heart rate (HR) and apnoea duration were recorded. Satisfactory to excellent intubating conditions were observed in 97.1% of patients in REM-3 as compared to 48.5% of patients in REM-2 ($p < 0.001$). Following induction of anaesthesia, significant reductions in the mean DBP, MAP and HR were observed within each group. Inter-group comparison showed that reductions in mean SBP and DBP were significantly greater in REM-3 ($p < 0.05$). Apnoea duration was significantly shorter in REM-2 ($p < 0.001$). In conclusion, remifentanyl 3µg/kg in combination with propofol 2.5mg/kg provided significantly better intubating conditions compared with remifentanyl 2µg/kg, even though it resulted in significantly greater degree of hypotension and apnoea duration.

PP33

OPTIMUM DOSE OF REMIFENTANIL FOR INTUBATION WITH THE CLARUS VIDEOSCOPE SYSTEM WITHOUT MUSCLE RELAXANT

SY Foo, Lucy Chan, M. Shahnaz Hasan

Objective: To determine the optimum target concentration of remifentanyl with propofol for excellent oral intubation conditions using the Clarus Videoscope System without the use of muscle relaxant.

Methods: We recruited 16 healthy patients, age between 18 to 70 years, who required general anaesthesia with intubation for elective surgery. Induction of anaesthesia using exclusively target controlled infusion (TCI) propofol of 6 µg/mL and a predetermined TCI remifentanyl. Patients were then intubated without muscle relaxant using the CLARUS videoscope. Conditions for intubation and hemodynamic changes were observed and documented. The dose of remifentanyl was determined by the modified Dixon's up and down method and the subsequent up or down titration was 0.2 ng/mL. This continued till 7 crossover pairs were achieved.

Results: From the Modified Dixon's up and down method, the ED50 of remifentanyl to allow of excellent intubating conditions with CLARUS Videoscope is 4.84 ng/mL, while having a TCI propofol of 6 µg/mL. From the probit analysis, the ED50 and ED99 were 4.83 ng/mL and 4.95 ng/mL respectively. Time to intubate (TTI) using the CLARUS Videoscope from the start of induction average at 3 minute and 49 seconds (229 seconds). Time taken to achieve effect concentration (Ce) for propofol and remifentanyl is 2 minute and 10 seconds. The real TTI is actually then 99 seconds.

Conclusion: An optimal condition for intubation with CLARUS Videoscope under anesthesia is possible without muscle relaxant with remifentanyl 5 ng/mL and a TCI propofol of 6 µg/mL. Intubation with lower doses of remifentanyl is possible but may not result in excellent intubation conditions and does not obtund cough as the endotracheal tube enters the infraglottic region.

PP35

PCA REMIFENTANIL FOR LABOUR ANALGESIA: 4 CASE REPORT

Mohd Rohisham Zainal Abidin, Norliza Mohd Nor, Jamnah Abd Majid

Epidural analgesia is still the most effective method of providing pain relief during labour. However, not all women will choose to have an epidural, and there may be some who can't have it due to contraindications. The most commonly used alternative method for epidural analgesia is intramuscular (IM) pethidine. However, it is less efficacious and are known to cause neonatal respiratory depression. Entonox is the other common alternative offered to labouring mothers. Again many women find it unsatisfactory with high incidence of nausea and vomiting. PCA fentanyl seems to be the better alternative prior to remifentanyl but it is still not as rapid in onset and prolonged usage may lead to accumulation hence the risk of neonatal depression is there.

We present 4 cases of PCA remifentanyl for labour analgesia. The PCA protocol were as the following; Bolus 1.5 - 20 µg/ml with a lockout of 2 minutes. Background infusion of 80-100 µg/ml. The remifentanyl was diluted as 20 µg/ml concentration.

Indications for the use of PCA remifentanyl:

Case 1: Dural sinus thrombosis

Case 2: Dengue fever, critical phase

Case 3: Intrauterine death

Case 4: Degenerative disease of the lumbar spine

There was minimal incidence of sedation. No serious complications such as respiratory depression were encountered. Pain relief was deemed good by 3 patients, 1 patient gave the method as excellent. With the PCA regime described, remifentanyl is a good and safe alternative to regional technique

PP34

EPIDURAL ANALGESIA IN PARTURIENT WITH INFECTIVE PLEURAL AND PERICARDIAL EFFUSION

Asmah Z, Mat Ariffin S, Norzalina E

Introduction: Parturients with pleural and pericardial effusion has poor respiratory and cardiac reserve. Good labour analgesia is important to prevent further deterioration.

Case description: We report a case of 29 year old lady, Gravida 3, Para 2 at 37 week presented with shortness of breath for 2 weeks associated with pleuritic chest pain and cough. She was tachypnoea, afebrile, Spo2 98%, blood pressure 151/99 mmHg and pulse rate 110 bpm. Arterial blood gases illustrate uncompensated respiratory alkalosis. TWBC 17,100. Chest x ray shows massive left pleural effusion and cardiomegaly. Echocardiography reveals moderate pericardial effusion with thickened pericardium and present of septations and sediments. No right ventricular or right atrial diastolic collapse. Diagnosis of pneumonia and pericarditis most likely Tuberculosis was made. Pleural fluid was drained and intravenous antibiotic was started. In intensive care unit, she becomes more tachypnoeic and her respiratory alkalosis worsened. Chest tube was inserted and PCA Fentanyl was started. Few hours later, she was in active labour. Pain score was 8-10 despite on PCA Fentanyl. Epidural catheter was inserted at L3/L4. Ropivacaine 0.375% (30 mg) plus Fentanyl 100 microgram as a bolus and continue with 8ml/hr Ropivacaine 0.2% plus 2 mcg/ml fentanyl. Pain score reduced to 2-3. She delivered a healthy baby in ICU. Epidural catheter was removed and PCA Fentanyl was resumed. Anti Tuberculosis was started empirically. She was discharged 1 week later.

Conclusion: Epidural labour analgesia is not only effective than PCA Fentanyl but also safe to perform in parturient with infective pleural and pericardial effusion.

PP36

ULTRASOUND GUIDED PARAVERTEBRAL BLOCK: A STUDY OF THREE CASES

Hou Yee Lai, Cheng Wei Soo, Carolyn Yim, Ramani Vijayan

Background: Surgeries like thoracotomy and nephrectomy are painful procedures and adequate pain relief is important to reduce post-operative morbidity. There has been increasing interest in thoracic paravertebral block which has comparable analgesics efficacy with epidural but with a better side effect profile. Recent advancements in ultrasound allow safer and simpler paravertebral blockade to be performed.

Methods: Retrospective study on three patients who have undergone paravertebral block with catheter insertion for nephrectomy, thoracotomy and video assisted thoracoscopic surgery in University Malaya Medical Center. All patients received a paravertebral infusion of local anaesthetics for post operative analgesia and prescribed tramadol as a rescue analgesic.

Results: All three patients had uneventful operations. Post-operative pain scores were 0-2 at rest and 3-5 upon movement or coughing. Minimal rescue analgesics were required for all three patients. No anaesthetic-related complications were reported during or after surgery.

Conclusion: Paravertebral blockade provided good pain relief in these three patients with no complication. This block may be offered as one of the modalities of pain management in similar surgeries.

PP37

PATIENT SATISFACTION IN DAY CARE SURGERY AND ANAESTHESIA

Adelyn HS Guo, Nurafza Ahmad Hisham, Kavita Bhojwani, Usha Nair

Background: Day care surgery has been offered throughout Malaysia since the late 1990's. It is defined as surgical procedures offered to patients who are electively admitted, treated and discharged from the hospital on the same day. The benefits to these patients include, reduced waiting time for elective surgery, reduced costs for hospital stay, early recovery and mobilization of patients in the comfort of their own home with minimal disruption of personal lives and schedules. As one of the pioneer healthcare centers in Malaysia offering day care surgery, our objective was to determine the overall patient satisfaction in day care surgery and anaesthesia offered by Hospital Raja Permaisuri Bainun, Ipoh.

Method: This was a retrospective telephone survey, done over a period of 8 months. A total of 1892 patients were included in this survey.

Results: A total of 62.3% patients were satisfied while 25.1% patients were very satisfied with the given postoperative analgesia. Postoperative pain was not an issue as 45.9% patients were pain free post operatively, 44.3% had mild postoperative pain. The incidence of postoperative nausea and vomiting was assessed among patients, and only 31% suffered both these symptoms. A majority of patients (99.3%) were satisfied with the care given and overall management; whereas 97.8% were happy being treated as day care patients. Of all the patients contacted, 33.5% of patients were not reachable postoperatively.

Conclusion: Majority of patients were relatively pain free and satisfied with day care surgery and anaesthesia.

PP38

COMPARISON OF I-GELTM AND LMA-SUPREMETM WITH RESPECT TO EASE OF INSERTION, SEALING AIRWAY PRESSURE AND POSTOPERATIVE THROAT COMPLAINTS

MZ Abdullah, A Izaham, R Abdul Rahman, N A. Manap, A Dan

Background: Supraglottic airway devices are designed to overcome the disadvantages of endotracheal intubation. Every anaesthesiologist should be familiar with, and well practiced in a variety of airway devices available.

Objective: To compare the ease of insertion, sealing airway pressure and incidence of postoperative throat complaints between I-gelTM and laryngeal mask airway (LMA)-SupremeTM.

Method: This was a prospective randomised double-blinded study. One hundred and twenty ASA I or II patients undergoing general anaesthesia were randomly allocated to receive either I-gelTM or LMA-SupremeTM. The devices were introduced blindly and the LMA-SupremeTM cuff pressure was adjusted to 60 cmH₂O.

Results: The success rate were comparable but the insertion time was significantly shorter with I-gelTM than LMA-SupremeTM (14s vs 16s). The sealing airway pressure was significantly better with LMA-SupremeTM (35cmH₂O vs 30 cmH₂O). The incidence of sore throat and throat dryness was significantly lower in the I-gelTM group at 1, 12 and 24 hours following anaesthesia. There was no significant difference in the incidence of hoarseness and cough between the two groups at all the 3 time intervals.

Conclusion: The success rate of insertion was comparable. However, the LMA-SupremeTM group has a significantly better sealing airway pressure while the I-gelTM group has a significantly shorter insertion time and lesser throat complaints.

PP39

A PRELIMINARY AUDIT TO DETERMINE IF THE WHO SURGICAL SAFETY CHECKLIST IS IMPLEMENTED EFFECTIVELY

MF Yeoh

Background: The WHO Surgical Safety Checklist was introduced to improve perioperative safety. This audit focused on the attendance of recommended individuals during "Sign In" and "Time Out" and if all personnel of the operating team paused during "Time Out" of the Checklist.

Methods: A prospective audit was executed in a large district general hospital. An audit pro forma was completed for every surgical case performed in December 2012. Data collected included surgical specialty, surgical procedure, time of day surgery was performed, urgency of surgery, grade of the anaesthetist and operating surgeon, individuals present during "Sign In", individuals present during "Time Out" and personnel who paused during "Time Out". Adverse events resulting from the Checklist not carried out appropriately were recorded.

Results: 195 cases were eligible for auditing. 16 cases were excluded because of incomplete data. "Sign In" was not done for 1 case while "Time Out" was not performed for 6 cases. 85% of cases had full attendance of recommended individuals during "Sign In", 97% of cases had full attendance of essential personnel during "Time Out". All personnel paused during "Time Out" for 80% of cases. Adverse events that resulted included time delays, incorrect or unsafe use of surgical equipment and drug errors.

Conclusion: Modifying the WHO Surgical Safety Checklist to accommodate local practice and different specialties while maintaining minimum checks may improve compliance and promote patient safety. Safety checks is a team effort that should be made a part of professional practice and consistently applied for every patient.

PP40

EPIDURAL ROPIVACAINE/FENTANYL VERSUS EPIDURAL PETHIDINE FOR GYNAECOLOGICAL PROCEDURES - IS ONE SUPERIOR TO THE OTHER?

Abigail AL Choong, Nita Salina Abdullah, Maria HS Lee, Sumitra Pathmanathan, Subrahmayam Balan

Background: Epidural is a common post-operative pain management option following gynaecological procedures. Although a meta-analysis concluded that epidural local anaesthetic/opioid has superior mean pain scores, motor block is an unwanted side effect. Maximum pain scores are potentially better measures of pain control and hence this study assessed both mean and maximum pain scores 24 hours post-operatively in patients receiving epidural ropivacaine 0.2%/fentanyl 2µg/ml (ERF) and epidural pethidine 2mg/ml (EP). The rates of side-effects in both groups were compared.

Method: The records of patients who had epidural analgesia following gynaecological procedures were obtained from the Acute Pain Service database (January 2012 to February 2013). Both the mean and maximum pain scores and the occurrence of side-effects in first 24 hours were analysed. A pain score of ≤ 4 was considered adequate.

Results: There were 71 and 110 patients receiving ERF and EP analgesia respectively. Although 84.5% and 90% (p=0.269) of patients achieved mean pain scores of ≤ 4 in ERF and EP respectively, the proportion of patients that reported maximum pain scores of ≤ 4 were much lower, 39.4% in ERF and 58.2% in EP (p=0.014). Incidence of nausea/vomiting (28.2% vs. 31.8%) and pruritus (2.8% vs. 2.7%) were comparable in both groups. Incidence of hypotension and neurological complaints (lower limb motor and/or sensory block) were higher in ERF group (5.6% vs. 1.8% and 36.6% vs. 10.9%). No seizures were reported.

Conclusion: Epidural pethidine significantly reduces maximum pain scores with fewer side effects compared to epidural ropivacaine/fentanyl for gynaecological procedures.

PP41

EPIDURAL ANALGESIA ENHANCED WOUND HEALING IN A PATIENT WITH CUTANEOUS POLYARTERITIS NODOSA WITH INFECTED ULCERS

Ng KS, Cardoso MS, Voo SYM, Ridzwan R, Abdullah S

Epidural opioids and local anaesthetics have been shown to provide excellent analgesia in moderate to severe pain but is mainly used in postoperative and labour pain.

A thirty-year-old man with cutaneous polyarteritis nodosa was referred for management of painful infected ulcers in both feet which progressed despite daily dressing, antibiotics and prednisolone. Analgesia with oral tramadol around the clock with additional subcutaneous morphine before dressing proved unsatisfactory.

A lumbar epidural was inserted to deliver a continuous infusion of a mixture of local anaesthetic and opioid initially, and was subsequently switched to continuous infusion with patient-controlled boluses (PCEA). The patient had excellent pain relief, nurses were able to do aggressive daily dressing, and the ulcers began to heal within a week. He was discharged a month later with aqueous morphine for relief of dressing pain and the ulcers completely healed after another month at home.

Discussion: Management of incident pain during wound dressing is very challenging. In this patient, the wound was deep and dirty, requiring removal of slough during dressing, resulting in intolerable pain. Epidural infusion of local anesthetic and opioid was started for him because of its excellent analgesic effect, and PCEA solved the practical problem of additional bolus doses required for dressing.

The effective analgesia and dressing and possibly the vasodilatation and improved circulation in the lower limbs due to sympathetic block from the epidural all contributed to faster wound healing.

Conclusion: This patient was managed successfully by using a multidisciplinary approach to address all aspects of disease management.

PP43

ULTRASOUND GUIDED INTRATHECAL ANAESTHESIA: DOES SCANNING HELP?

Sherif A. Abdelhamid, Madgy A. Mansour

Intrathecal anaesthesia is widely used for many surgical procedures. Multiple attempts at needle placement may cause various complications, and patient dissatisfaction.

Aim: to use a preprocedure ultrasound guided surface marking; using a midline transverse interspinous ultrasound view at L4-5 interspace to guide needle insertion, aiming to decrease needle attempts.

Subjects and methods: 90 patients ASA I-II, scheduled for intrathecal anaesthesia were included in the study. Patients were randomly allocated to one of 2 groups. Group I was the ultrasound group, Group II was the surface land mark group. For each block we recorded: patient's and spine characteristics, number of needle attempts, and patient satisfaction, time for establishing landmarks by preprocedure u/s scanning or palpation, time to perform spinal anaesthesia, and total time to perform the whole procedure.

Results: successful first needle attempt was in (80%) in ultrasound group (I) versus 17(37,8%) in surface landmark group(II). Needle redirection attempts was 7(15.6%) in group I versus 16(35.5%) in group II. Second attempt was in 2 (4.4%) in group I versus 5(11.1%) in group II. Third attempt was observed only in group II in 7 (15.6%). There was a significantly more time needed to establish landmarks, and complete spinal anaesthesia in group I compared to group II(8.7±1.0 vs 5.4±0.4 respectively.). Patient satisfaction was significantly higher in group I(95.6%) than group II(77.8%). Conclusion: preprocedure ultrasound scanning improved the first needle attempt success rate, decreased redirection or further attempts, and gave better patient satisfaction.

PP42

THORACIC EPIDURAL ANALGESIA PROVIDES BETTER PAIN CONTROL POST HEPATOBILIARY SURGERY: A RETROSPECTIVE COHORT ANALYSIS IN MALAYSIA'S PRIMARY LIVER CENTRE

Mazlila MAS, Ahmad Afifi MA, Mary SC, Ng KS

Introduction: Acute pain following hepatobiliary surgery is managed mainly by intravenous opioids or thoracic epidural analgesia (TEA). To date, no local studies have shown which type of analgesic technique provides better analgesia and less complications.

Methods: All hepatobiliary cases under the Acute Pain Service (APS) in Hospital Selayang in 2012 were included. Following approval from ethical board, data collected on daily APS rounds (type of analgesia, pain score (PS) at rest and on movement on the first to third postoperative day (POD) and complications) were analyzed.

Results: There were 233 patients (58.4% male) with a mean age of 53 years. 65.2% had TEA using 0.2% ropivacaine +2 mcg/ml fentanyl, with average infusion of 7 ml/h; 27.5% had Patient Controlled Analgesia using Morphine (PCAM) and 7.3% were converted to PCAM from TEA. The mean PS of patients in the TEA group was 1.15, 0.86, 0.48 (rest) and 3.18, 3.11, 2.89 (movement) on POD 1, 2 and 3 respectively. Patients in the other two groups had higher mean PS; 2.41, 1.72, 1.39 (rest) and 4.99, 4.20, 4.02 (movement). Multivariate analysis and ANOVA confirmed that patients with TEA had lower pain scores at rest and on movement in the first 3 POD. The incidence of nausea, vomiting and giddiness was less in TEA group than the other two groups (p 0.012).

Conclusion: Thoracic Epidural Analgesia results in better pain scores with fewer side effects in major hepatobiliary surgery. We recommend using TEA as the preferred analgesic technique for this surgery.

PP44

INTRATHECAL DEXMEDETOMIDINE: USEFUL OR NOT?

Sherif A.Abdelhamid, Mohamed H. El-lakany

Local anaesthetics is associated with relatively short duration of action .A number of adjuvants have been used to prolong the postoperative analgesia.^{1,2} In our study we aim to evaluate the role of dexmedetomidine added to heavy bupivacaine 0.5% intrathecally for lower abdominal surgeries. Patients: Sixty two patients were randomly divided into one of two group, Group I received 3.5 mL volume of 0.5% hyperbaric bupivacaine and 5 µg dexmedetomidine in 0.5 mL of preservative free normal saline intrathecally. Group II received normal saline added to the heavy 0.5%bupivacaine and served as placebo. Results: There was a significant less time to reach T8 sensory level, 2-segment regression, and time to reach Bromage 3 in group I (Dexmedetomidine) compared to group II(saline). Intraoperatively, there were significantly less mean blood pressure and heart rate in group I compared to group II in most measured times. There was a significant more time to first requirement of analgesia and less analgesic requirement in group I compared to group II. Regarding the overall complications, there were 10 (32.3%) less significant complications in group I, compared to 18 (58.1%) in group II. As regards shivering, 2 patients (6.5%) had shivering in group I, while 12 (41.9%) had shivering in group II. with significant more shivering in group II compared to group I. Conclusion: dexmedetomidine at a dose of 5 µg provided earlier sensory and motor blockade, less postoperative analgesic requirements, less shivering for patients under intrathecal anaesthesia for lower abdominal surgery with no neurologic complications or sedation.

PP45

A RETROSPECTIVE REVIEW OF EFFECTIVENESS OF BASE EXCESS AND SERUM LACTATE AS PROGNOSTIC INDICATORS FOR PATIENTS ADMITTED TO INTENSIVE CARE UNIT

Tze Ling Ng, Prof YK Chan

Background: Recent evidence has suggested that there are a large number of patients who would be benefit from intensive care who at present are being treated on general wards. It is possible that with earlier recognition of these "sick" patients, appropriate resources could be directed towards this group and eventually outcomes may be improved.

Objective: The aim is to discover the reliability of lactate and base excess (BE) in predicting mortality, which could be used prospectively as a screening tool for future intensive care admissions.

Methodology: This is a retrospective, observational cohort study of all patients admitted to General Intensive Care Unit in University Malaya Medical Centre from March 2012 to May 2012. An audit form was constructed to record the demographic, laboratory and outcome data.

Results: 110 patients were included in the study. Both admission lactate and BE showed a strong correlation with mortality. The higher the lactate levels, the worse the prognosis. BE had a bell shaped trend of outcomes, where good outcome was between the range of -2 to -7mmol/L. The further the BE levels from this range, the worse the outcome.

Conclusion: Serum lactate and BE are powerful prognostic indicators for patients admitted to ICU. These variables could be used as a screening tool to pick up "ill" patients who require closer monitoring. They can also assist the intensive care providers in making the difficult decision of limitation of therapy when the conditions are no longer salvageable.

PP47

PERIPHERAL NERVE BLOCKS FOR SURGERIES OF LOWER LIMBS - 6 YEARS' EXPERIENCE

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Objective: Peripheral nerve blocks had been advocated as alternatives to general anesthesia and central nerve blocks. The objective of this study is to analyse the outcome of peripheral nerve blocks for surgeries of the lower limbs.

Methods: A 6 years' retrospective study was done from January 2007 till December 2012. The femoral blocks were performed in combination with either sciatic or popliteal nerves, using insulated needles (Stimuplex A-B Braun). The needle insertions were guided by ultrasonography using either linear or curve probes. The nerve stimulations were confirmed by the contraction of muscles supplied by the respective nerves using a nerve stimulator. A mixture of lignocaine 2% with either levobupivacaine 0.5% or bupivacaine 0.5% was used. The data was taken from operation theater data base and patients' medical records. Age, sex, physical status and types of operations were documented.

Results: The study involved 334 patients, comprising 221 males and 113 females. The mean age was 49.5 (youngest was 15, eldest 87). The majority of patients had physical status of ASA II E, III E and IV E. Almost all surgical procedures were upper and below knee amputations. A very small number of neurological complications were noted. Two patients developed signs of neurotoxicity. These patients were then observed in ICU and discharged well to the general wards. Eight patients were converted to general anesthesia due to failed block.

Summary: Peripheral nerve blocks were safe and very effective for surgeries of the lower limb. Complications were very minimal even for patients with poor physical status.

PP46

COMPARING THE SUCCESS RATE OF RADIAL ARTERY CANNULATION UNDER ULTRASOUND GUIDANCE AND PALPATION TECHNIQUE IN ADULTS

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Background: Previous studies have shown ultrasound guidance (USG) for arterial cannulation being advantageous compared to palpation technique, but little is known about its performance by novices. The objective of this study was to compare the utility of USG radial artery cannulation with palpation technique in terms of success rate, real-time to placement, number of attempts and complications.

Methods: After IRB approval, a randomized prospective study was performed January 2009 - October 2010. Ten third-year residents, having performed USG vascular catheterization as yet less than 3 times, were coached on the pork-phantom during a workshop for real time ultrasound-guided vascular access. For the study patients were randomized to either palpation (P-group) or US-guided technique (US-group); ten for each resident.

Results: 100 adult patients undergoing neurosurgery were enrolled. There were no statistically significant differences between P-group vs US-group in success rate (94% vs 86%; $P = 0.185$), time taken (64 sec. (7 - 768) vs 62 sec. (13 - 547); $P = 0.7$), and number of attempts: 1 (1 - 4) vs 1 (1 - 4); $P = 0.634$. Most common complication was puncture hematoma (P-group 24% vs US-group 26%; $P = 0.82$)

Conclusions: Regarding success rate, attended time, or number of attempts for radial arterial cannulation, we did not find any benefit of ultrasound guidance compared to palpation technique. Our findings are not in accordance to similar trials. However, we have to consider operators in our study being inexperienced in ultrasound-guided procedures but not in palpation techniques.

PP48

A SERIES OF AUDIT CYCLES EVALUATING THE DISPLAY OF ANAESTHETIC EMERGENCY GUIDELINES IN AREAS WHERE ANAESTHESIA IS COMMONLY PROVIDED

MF Yeoh, N Jain

Background: Anaesthetic emergencies are an infrequent but significant cause of morbidity and mortality making readily available emergency guidelines invaluable. Our audits evaluated the consistency of the display of anaesthetic emergency guidelines and if our practicing anaesthetists were aware of which and where these guidelines are displayed.

Methods: This is the third audit cycle in a district general hospital. The display of anaesthetic emergency guidelines as recommended by the Royal College of Anaesthetists was audited in the following areas where anaesthesia is commonly provided: anaesthetic rooms, operating theatres, recovery areas, Intensive Care Unit (ICU) and Spinal Injuries Unit (SIU). A questionnaire was used to identify if practicing anaesthetists knew which emergency guidelines are displayed and where they can be obtained within the hospital.

Results: In 2005, 78% of recommended anaesthetic emergency guidelines were displayed in anaesthetic rooms and recovery areas, 69% in 2008, 94% in 2009 and 83% at present. To date, there are no emergency guidelines displayed in operating theatres, ICU and SIU. 93% of anaesthetists were aware that the guidelines can be found in anaesthetic rooms while 28% were aware of emergency guidelines displayed in recovery areas. >80% of anaesthetists were aware that the Advanced Life Support algorithm and Anaphylaxis guideline are displayed while <50% of anaesthetists were aware about the display of the Advanced Paediatric Life Support algorithm and Difficult Airway Society guidelines.

Conclusion: It is safe clinical practice and a team responsibility to ensure that anaesthetic emergency guidelines will be easily and rapidly obtainable when needed.

PP49

COMPARISON OF ULTRASOUND-GUIDED TRANVERSUS ABDOMINUS PLANE

Ang Yiaw Kian

Background: Regional anaesthesia is the mainstay for postoperative pain relief in children. Transversus Abdominis Plane (TAP) Block has shown to be an effective analgesia after gynaecological and lower abdominal surgery in adult patients.

Objective: We compared the analgesic effects and duration of postoperative pain-free period in paediatric patients undergoing groin surgery who received ultrasound-guided TAP block or ultrasound-guided ilioinguinal/iliohypogastric block to determine if TAP block would provide better and longer postoperative analgesia. We also compared the duration taken to perform the regional blocks.

Method: Children undergoing groin surgery aged between 2 and 12 years old were randomized and received ultrasound-guided TAP block with 0.4ml/kg 0.25% levobupivacaine or ultrasound-guided ilioinguinal/iliohypogastric block with 0.1ml/kg 0.25% levobupivacaine. Surgery was done under standardized monitoring and general anaesthesia (spontaneous respiration). Time to perform the regional nerve blocks was recorded and supplementary suppository analgesic given intraoperatively. Post-operatively, pain score were recorded. The children were discharged and followed-up for 24 hours to determine the duration of analgesia.

Results: Ultrasound-guided TAP block provide less effective perioperative and postoperative analgesia for paediatric patients undergoing groin surgery. No significant difference in the duration of postoperative pain-free period and the duration taken to perform the blocks in both groups.

Conclusion: Ultrasound-guided TAP block provide less effective perioperative and postoperative analgesia for paediatric patients undergoing groin surgery than ultrasound-guided ilioinguinal/iliohypogastric block in this observational study. No significant difference in time to onset of additional analgesic requirement postoperatively and time taken to perform the regional nerve block in both groups.

PP50

IMMEDIATE RELEASE OXYCODONE (OXYNORM) VS TRAMADOL FOR POST OPERATIVE PAIN IN PATIENTS UNDERGOING TOTAL KNEE REPLACEMENT (TKR) ; A PRELIMINARY RANDOMIZED CONTROLLED DOUBLE BLIND TRIAL

Jayaram J, Mansor M, Rasiyah R, Abbas A

Background: TKR is an effective treatment for end stage chronic knee pain. Adequate analgesia postoperatively allows early rehabilitation and mobilization; improving functional ability and reducing complications. This study compares OxyNorm against Tramadol as part of the multimodal management of postoperative analgesia following TKR.

Objectives: Primary end point was Visual Analogue Scale (VAS) pain score preoperatively, 6, 12, 24 and 48 hours post operatively. Secondary end points were PONV, sedation, pruritus and respiratory rates.

Methodology: - 29 patients undergoing TKR over a six month period were recruited. Surgery was conducted under continuous spinal anesthesia with addition of intrathecal Morphine, femoral nerve block and periarticular injection of local anaesthetic. Postoperatively, patients were given IV Paracoxib then oral Celocoxib and Paracetamol once taking orally well. In addition, depending on the study arm randomized to; Group 1 received OxyNorm and Group 2, Tramadol.

Results: There was no statistical difference in VAS scores measured preoperatively and post operatively at 6, 12, 24 and 48 hours. But there was a trend for lower VAS pain scores in the OxyNorm group. The total mean VAS pain scores at all times were significantly lower in the OxyNorm group (1.58 1.80 vs. 2.32 2.05 p=0.004). There was similar trend in the OxyNorm group for lower PONV and Sedation scores. There were no incidences of pruritus or respiratory depression.

Conclusion: This study suggests that OxyNorm provides better analgesia post TKR with fewer incidences of PONV and over sedation and is currently still ongoing

PP51

POST-OPERATIVE PAIN EXPERIENCE AMONGST HEALTH CARE PERSONNEL

IG Awisul, AN Sakthi, Lily Ng, KM Rajesh

Background: The perception and experience of pain is influenced by a variety of factors. Understanding of patient's attitudes and concerns about postoperative pain is pivotal to prevent a multitude of complications.

Method: A cross-sectional survey was conducted amongst health care personnel whom attended a conference in Kuala Lumpur in 2012. The participants were given a self-administered questionnaire to obtain data on the type of surgical procedures they underwent, days of admission, types of pain services rendered, level of satisfaction from pain services rendered and pain scores.

Results: A total of 141 participants were recruited. Out of the total participants recruited, 56 (39.7%) of them underwent surgical procedures. Thirty two percent received acute pain service (APS) which was either epidural or patient-controlled analgesia. The remaining 68% received oral, intravenous or intramuscular analgesia. On the average, 83% were satisfied with the service received and 39% gave a pain score of equal or less than 4. Analysis between pain score and types of pain service was significant, whereby 75% under APS and 27% under non-APS gave a score of equal or less than 4 respectively. Pain score was also significantly related with post-operative satisfaction. However types of pain service were not statistically significant with the post-operative satisfaction.

Conclusion: Even though majority of the health care personnel in this survey were satisfied with the post-operative pain service received, the percentage of pain score equal or less than 4 is still suboptimal despite increased awareness of pain perception and recent developments in pain management.

PP52

DOUBLE-INJECTION PERIVASCULAR ULTRASOUND-GUIDED AXILLARY BRACHIAL PLEXUS BLOCK ACCORDING TO NEEDLE POSITIONING: A COMPARISON OF TWO METHODS: 12- VERSUS 6-O'CLOCK POSITION OF THE AXILLARY ARTERY

Youn Jin Kim, Soo-young Cho, Dong Yeon Kim

Background: This prospective, randomized, observer-blinded study compared two methods of double-injection perivascular (PV) ultrasound-guided axillary brachial plexus block (ABPB) at 12- (PV12) versus 6-o'clock (PV6) position of the axillary artery (AA) for upper extremity surgery.

Methods: Fifty patients were randomly allocated to receive a PV₁₂ (n = 25) or PV₆ (n = 25) ultrasound-guided axillary ABPB. The local anesthetics (LA) with 2% lidocaine and 29 ml of total volume were identical in all subjects. In the PV₁₂ group, injection was done at the 12-o'clock position of AA using 24 ml of LA, and in PV₆ group, same volume was done at the 6-o'clock. For both groups, the musculocutaneous nerve was last blocked using 5ml of LA which was deposited around the nerve. The performance time, number of needle insertion, and complications (LA toxicity, vascular puncture, paresthesia, numbness) were recorded. The primary outcome was the total anesthesia-related time (sum of performance and onset time). Secondary outcomes were success rate and incidence of adverse events.

Results: There were no differences between the 2 groups in terms of total anesthesia-related times (538.4 s, 579.9 s), success rate (84%), and incidence of adverse events. Vascular puncture was observed 1 in PV₁₂, 2 in PV₆.

Conclusions: Two Methods, which is 12- or 6-o'clock position of AA result in comparable total anesthesia-related times, success rate, and incidence of adverse events. Therefore, perivascular injection at 12-o'clock may be alternative method for double-injection PV₆ ultrasound-guided ABPB in case of specially difficult needling related to individual anatomical variation or equivocal nerve location.

PP53

PREEMPTIVE ULTRASOUND GUIDED ILIOINGUINAL COMPARED TO TRANSVERSUS ABDOMINAL PLANE BLOCK BEFORE PEDIATRIC INGUINAL HERNIA REPAIR

Ben Saad Moncef

Background: Children like adults suffer pain in spite of inability to complain in the same way. preemptive nerve block decreases intraoperative anesthetic consumption, the risk of getting chronic pain and need for perioperative narcotics.

Objective: In a prospective randomized controlled trial we attempted to compare the efficacy of ultrasound guided ilioinguinal to transversus abdominus plane block for pediatric hernia repair.

Methodology: Forty children (age range ,2years to 8 years) scheduled for inguinal hernia repair received following induction of general anesthesia an ultrasound guided ilioinguinal (n=20) or transversus abdominal plane block (n=20). all of the blocks were done with 0.3ml/kg of levobupivacaine 0.25%. Anesthesia was maintained at one MAC using sevoflurane, nitrous oxide 50% and O₂ 50%. incremental dose of intravenous fentanyl 0.25mcg/kg was given if the heart rate or blood pressure increases more than 20% of baseline value. FLACC behavioral pain scale of pediatric pain scales and VAS were used for pain assessment. In the recovery room pain was managed with pethidine in a dose of 0.5-1 mg/kg intravenously.

Results: In the groupe ilioinguinal block additional fentanyl was used only during sac retraction 25% and immediately after skin incision in transversus abdominal plane block 75%. in the recovery room the time of analgesia requirement was shorter in transversus abdominal block

Conclusion: Ultrasound guided ilioinguinal block compared to transversus abdominal plane block for pediatric hernia repair provide better per and postoperative analgesia . the onset time of transversus abdominal block is delayed suggesting its use for procedure with longer time or more volume of local anesthetics.

PP54

ULTRASOUND - GUIDED RECTUS SHEATH BLOCK FOR PARAUMBILICAL HERNIA REPAIR

Ben Saad Moncef

Background: Moderate to severe pain is a common outcome following paraumbilical hernia repair. Rectus sheath block is an established technique for pain control but without complications including the possibility of bowel injury even with ultrasound.

Objective: To minimize the risk of bowel injury and to make this technique easier. We attempted using ultrasound to compare the efficacy of two sites of local anesthetic injection during rectus sheath block (posterior rectus sheath versus anterior rectus sheath) for paraumbilical hernia repair.

Methodology: Thirty ASA I or 2 patients scheduled for paraumbilical hernia mesh repair received ultrasound guided rectus sheath block injection between rectus sheath muscle and the anterior rectus sheath (n=15) or between rectus sheath muscle and the posterior rectus sheath (n=15). All patients received general anesthesia with only fentanyl 1mcg/kg on induction. additional fentanyl was given if heart rate or blood pressure increases more than 20% than the baseline. anesthesia maintained with only one MAC of sevoflurane. the block was done bilaterally with levobupivacaine 0.25% at 0.25 ml/kg in each side. Pain was assessed using the visual analogic score and the total morphine required for pain control was also measured

Results: No additional fentanyl was needed in both groups. for the first six hours the VAS score was similar in both groups and no morphine was required for pain management in both groups

Conclusion: Ultrasound guided rectus sheath block injection in the anterior rectus sheath provide equivalent per and postoperative analgesia as rectus sheath block injection in the posterior rectus sheath. this technique is more easier may prevent serious complications however the space in the anterior rectus sheath is limited making the risk of injection into the rectus muscle more higher.

PP55

COMPARISON OF GLIDESCOPE RANGER AND C-MAC D-BLADE VIDEO LARYNGOSCOPES FOR TRACHEAL INTUBATION IN ELECTIVE SURGERY PATIENTS

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Background: Video laryngoscopy has proven to be superior in managing difficult intubation compared to conventional Macintosh direct laryngoscopy. Glidescopes and C-Mac D-Blade are 2 VL available in the market. The aim of this study is to evaluate the performance of the 2 video laryngoscopes, in terms of time for intubation, hemodynamic stability and complication.

Methodology: This is a single randomized control trial involving 114 patients that were recruited based on the inclusion and exclusion criteria. All patients were pre-oxygenated with 100% O₂ and monitored using standard monitoring of SpO₂, NIBP and BISS for sedation level. All patients were induced with alfentanil and propofol infusion to maintain the BISS level at 40-60. IV Rocuronium 0.9 mg/kg was given and monitored with TOF-watch. Macintosh blade was introduced to view and assessed Cormack-Lehane score. Afterwards, the VL devices either Glidescopes or D-Blade was performed to again assess the CL view and POGO score before intubating the patients.

Results: The result showed comparable time to view glottis, time for intubation and success rate. However, C-Mac D-Blade showed better Cormack-Lehane III score improvement from direct laryngoscopy than Glidescope Ranger, p value 0.048. C-Mac D-Blade also proved to have a more stable hemodynamic as Glidescope had a higher SBP, MAP and HR at minute 1 and 2 with p value < 0.05. There was no difference in complication of intubation.

Conclusion: Therefore, C-Mac D-Blade video laryngoscope was superior than Glidescope Ranger in terms of Cormack-Lehane improvement and hemodynamic stability compared to Glidescope Ranger.

PP56

ULTRASOUND-GUIDED PULSED RADIOFREQUENCY TREATMENT FOR SEVERE BRACHIAL PAIN IN A PATIENT WITH NEUROGENIC THORACIC OUTLET SYNDROME: A CASE REPORT

Jin Young Lee, Woo Seok Sim, Min Seok Oh

Objective: Thoracic outlet syndrome is characterized by neurogenic and vascular symptoms involving upper limb due to neurovascular bundles compression of the neck area just above the first rib. The conservative treatment has been focused on the scalene muscle relaxation for decompression. In this report, we performed ultrasound-guided PRF (pulsed radiofrequency) treatment for a patient with severe shoulder and arm pain, with excellent results.

Case Report: A 44-year-old, 157 cm, 55 Kg female patient was referred to our pain clinic with severe pain in the right shoulder and arm for 6 months. She has been clinically diagnosed with neurogenic thoracic outlet syndrome. Conservative analgesic medications, including gabapentin 600 mg, amitriptyline 10mg, and NSAIDs, provided only partial pain relief. She suffered from strong stabbing and lancinating pain (7 VAS). Ongoing pain was accompanied with numbness, coldness, and grip weakness in her right hand. Mild sensory abnormality was below the right C6 dermatome. She had a positive response to 3 diagnostic middle scalene muscle blocks with 0.375% ropivacaine under ultrasound-guided supraclavicular approach, which provided pain relief for 3 days with 70% reduction in pain intensity. Therefore, we performed PRF treatment in hopes of achieving a longer duration of pain relief. Post-procedurally, pain improved significantly with a VAS of 4. She has been followed in a VAS 3-4 by our pain clinic for the past 12 weeks.

Conclusions: Ultrasound-guided PRF treatment of the scalene muscle could potentially be considered as a safe and effective treatment option for patients with neurogenic thoracic outlet syndrome. Further study, including large clinical trials, will be needed to best establish efficacy and safety.

PP58

LUMBAR SYMPATHETIC BLOCK FOR ABDOMINAL PAIN BY RENAL VEIN SPASM IN A PATIENT WITH NUTCRACKER SYNDROME: A CASE REPORT

Jin Young Lee, Woo Seok Sim, Won Kyo Kim, Min Seok Oh

Objective: Renal vein spasm with Nutcracker syndrome is rare condition but can cause severe abdominal pain. This visceral pain is characterized by vague, deep, squeezing, cramping, or colicky. The management has been focused on escalating analgesic dose or surgical intervention for pain alleviation, but the evidences of sympathetic block are not sufficient in clinical trials. Here, we describe a case of satisfactory pain relief after lumbar sympathetic block in a patient with Nutcracker syndrome.

Case Report: A 33-year-old, 186 cm, 99 Kg male patient was referred to our pain clinic with persistent left sided flank pain for 2 years. He had been diagnosed with left renal artery stenosis, suspecting Nutcracker syndrome. Surgical history included left renal vein transposition for decompression of renal vessel stenosis. After surgery, the pressure gradient between left renal vein and inferior vena cava became normal, but the abdominal pain persisted. Analgesic medications provided only partial pain relief. He suffered from intermittent colicky and lancinating pain at left lower abdomen, occasionally radiating to his lower back (7 VAS). We considered epidural differential block for evaluating the pain origin. He had a positive response at sympathetic dose of local anesthetics, which provided pain relief with 50% reduction in pain intensity. Therefore, we performed single-shot lumbar sympathetic block at left L2 with 0.5% levobupivacaine and 4% lidocaine 4 ml mixed with dexamethasone 10 mg. Post-procedurally, pain improved significantly with a VAS of 2. He has been followed in a VAS 1-2 by our pain clinic for the past 16 weeks.

Conclusions: Lumbar sympathetic block could potentially be considered as an effective treatment option for patients with chronic visceral abdominal pain. It requires further research to evaluate the long-term outcomes.

PP57

ULTRASOUND-GUIDED PULSED RADIOFREQUENCY TREATMENT FOR THE INTRACTABLE NEOPLASTIC BRACHIAL PLEXOPATHY PAIN: A CASE REPORT

Jin Young Lee, Woo Seok Sim, Min Seok Oh

Objective: Metastatic tumors from the lung or breast most commonly cause brachial plexopathy, with a reported incidence rate of 0.43%, and it is a most debilitating aspect of cancer management for pain physicians. In this report, we performed ultrasound-guided pulsed radiofrequency (PRF) treatment for a patient with severe shoulder and arm pain following metastatic brachial plexus compression, with satisfactory results. Ultrasound-guided PRF treatment can thus be a feasible approach for patients with severe neoplastic brachial plexopathy pain, especially when there is a risk of functional nerve structure lesioning, such as a brachial plexus.

Case Report: A 59-year-old, 165 cm, 57 kg male patient was referred to our pain clinic with severe pain in the left shoulder and arm. He had diagnosed with advanced renal cell cancer with metastatic lung, left 1-2 rib, and left C7 paraspinal muscle. The pain had developed 4 months ago and neurological evaluation confirmed left brachial plexopathy at whole trunk level. Combined chemotherapy and analgesic medications, including hydromorphone, fentanyl patch, gabapentin, amitriptyline, corticosteroid, and NSAIDs, provided only partial pain relief. He suffered from strong stabbing and lancinating pain (9 VAS). The ongoing pain was accompanied with numbness, coldness, and grip weakness in his left forearm and hand. He also showed moderate dyspnea due to malignant pleural effusion, that he could not lie down for longer than 10 to 15 minutes. He had a positive response to 3 diagnostic brachial plexus block with 0.375% ropivacaine under ultrasound-guided supraclavicular approach, which provided pain relief for 1-2 days with 70% reduction in pain intensity. So, we proposed to perform PRF treatment in hopes of achieving a longer duration pain relief. Post procedurally, pain improved significantly around VAS 3-4. He has been followed in a VAS 4 by our pain clinic for the past 7 weeks. He is controlling his analgesics including hydromorphone 26 mg a day, which was 35% decreased requirement, without further nerve block.

Conclusions: In situations when managing patients with neoplastic brachio-plexopathy, who have atypical anatomy, positioning difficulty or contraindication factor for central neuraxial block, ultrasound-guided PRF treatment of brachial plexus may be a desirable alternative.

MSA FP-01	A Comparative Study Of Pre-Emptive Incision Site Infiltration Of Bupivacaine And Ropivacaine On Recovery Profiles Of Children For Inguinal Herniorrhaphy Under General Anaesthesia Dr. Naila Asad, Dr. Farrukh Afzal, Dr. Zara Ishrat, Dr. Khawar Ali, Kashif Siddique. Dr. Nosheen Akram, Dr. Naeem, Dr. Shahzad Tabassum, Dr. Majid Ali, Dr. Tanvir Butt	35A
MSA FP-02	Doppler Versus Ultrasound Guided In Lower Approach Internal Jugular Vein Cannulation In Normotensive Patients In HUSM Zainiyah MZ, Mohd Nikman A, Nor Khali Salhah AZ, Rhendra Hardy MZ	35A
MSA FP-03	Comparison Between Marsh And Schnider Models Of Target Controlled Infusion (TCI) Propofol During Induction Of Anaesthesia Siti Intan Zurhaida M Z A, Saedah A, W Mohd Nazaruddin W H, Sivaraj C	35A
MSA FP-04	Comparison Of The Efficacy Of Intravenous Parecoxib Versus Diclofenac Suppository For Post Operative Analgesia Supplementation To Intrathecal Morphine After Elective Caesarean Delivery Under Spinal Anaesthesia Husam M E, W Mohd Nazaruddin W H, Ramli I, Fong K K	35A
MSA FP-05	Bupivacaine 0.375% In Combination With Midazolam 2.5 MG Compared To Bupivacaine 0.5% Alone In Infraclavicular Brachial Plexus Block Ricky Aditya, Erwin Pradian, Tinni T. Maskoen	36A
MSA FP-06	The Findings And Results Of Epiduroscopic Laser Neural Decompression Daehyun Jo	36A

MSA FP-01

A COMPARATIVE STUDY OF PRE-EMPTIVE INCISION SITE INFILTRATION OF BUPIVACAINE AND ROPIVACAINE ON RECOVERY PROFILES OF CHILDREN FOR INGUINAL HERNIORRAPHY UNDER GENERAL ANAESTHESIA

Dr. Naila Asad, Dr. Farrukh Afzal, Dr. Zara Ishrat, Dr. Khawar Ali, Kashif Siddique, Dr. Nosheen Akram, Dr. Naeem, Dr. Shahzad Tabassum, Dr. Majid Ali, Dr. Tanvir Butt

Background: The important goals of anaesthesia in paediatric surgery is quick and smooth recovery. Pain is a major cause of postoperative discomfort. This study was done to compare the effects of bupivacaine and ropivacaine on recovery profile and postoperative analgesia after preemptive subcutaneous infiltration at incision site in children undergoing inguinal hernia repair.

Method: 100 children, aged 3-5 yrs scheduled for herniotomy under general anaesthesia were randomly divided into two groups in this double blinded study. After induction, appropriate size endotracheal tube was placed and anaesthesia was maintained with oxygen, nitrous and isoflurane. Group I was infiltrated at the site of incision with 0.25% Bupivacaine (1.5 mg/kg) and Group II with 0.25% ropivacaine (1.5 mg/kg), 5 minutes before incision. At the end of surgery, neuromuscular block was reversed by neostigmine (0.05 mg/kg) and atropine (0.01 mg/kg) and the patient shifted to recovery area. Haemodynamic parameters were recorded and recovery profile was measured for one hour postoperatively by Steward Recovery scale. Pain scores were assessed for one hour using Wong Baker Faces Scale in both groups. Rescue analgesia was given with nalbuphine 0.1 mg/kg in patients with pain score of more than 2.

Results: Intergroup comparison of haemodynamics did not show significant difference. Recovery scores did not show any significant difference after 20 min. Pain scores were not significantly different in both groups after 15, 30, 45, and 60 minutes. Rescue analgesia given to 6 patients in group I and 7 in group II.

Conclusion: Bupivacaine and ropivacaine do not differ significantly in recovery profile when infiltrated preemptively at site of incision.

MSA FP-03

COMPARISON BETWEEN MARSH AND SCHNIDER MODELS OF TARGET CONTROLLED INFUSION (TCI) PROPOFOL DURING INDUCTION OF ANAESTHESIA

Siti Intan Zurhaida M Z A, Saedah A, W Mohd Nazaruiddin W H, Sivaraj C

Background: Marsh and Schnider are the two common models of choice for target controlled infusion (TCI) of propofol.

Objectives: To compare the effects of these two models during induction.

Methodology: Sixty patients, ASA I and II, aged 18-60 year old, were randomized into two groups: Group A: Marsh model and Group B: Schnider model. All patients were premedicated with tablet midazolam 7.5 mg at night and prior going to the operation theatre. After preoxygenation, IV fentanyl 2 µg/kg was given. TCI propofol were started using target plasma concentration (TPC) of 4 µg/ml in both models. TPC was increased up to 6 µg/ml if induction failed within 5 min. Induction time, fail of induction, BIS index and effect-site concentration at induction and haemodynamic changes were recorded. Subsequent anaesthetic management was continued according to the requirement of the surgery.

Results: Induction time was significantly shorter in Marsh group than Schnider group with mean time of 1.73 ± 1.15 min vs. 3.57 ± 1.04 min respectively ($p < 0.001$). Effect-site concentration at induction in Marsh group was 1.73 ± 0.73 µg/ml vs. 3.26 ± 0.40 µg/ml in Schnider group ($p < 0.001$). BIS index at induction was significantly lower in Marsh group than Schnider group with index of 61.97 ± 11.46 vs. 70.60 ± 8.26 respectively ($p < 0.001$). Percentage of fail in induction and haemodynamic changes were not significant between the two groups.

Conclusion: Marsh model produced faster time of induction at lower effect-site concentration and lower BIS index than Schnider model.

MSA FP-02

DOPPLER VERSUS ULTRASOUND GUIDED IN LOWER APPROACH INTERNAL JUGULAR VEIN CANNULATION IN NORMOTENSIVE PATIENTS IN HUSM

Zainiyah MZ, Mohd Nikman A, Nor Khali Salhah AZ, Rhendra Hardy MZ

Background: Central venous cannulation traditionally is inserted blindly according to anatomical landmark. Currently evidence showed that ultrasound guided central venous catheter insertion was safer with reduced complications. Nevertheless there are some centre where ultrasound is not available. Doppler guided cannulation of internal jugular vein had been studied in infant and paediatric patients and even fewer in adult patients.

The aim is to compare the outcome between Doppler and ultrasound guided in cannulation of internal jugular vein catheter for central venous pressure monitoring in terms of the mean time and the successful first attempt between both apparatus.

Methodology: A prospective simple randomized control trial participating eighty four normotensive patients who require central venous pressure monitoring was carried out in HUSM. All central venous catheterization either using ultrasound or Doppler guided was inserted by the same operator. Mean access time, successful first attempt and the distance between carotid artery and internal jugular vein was recorded.

Result: Ultrasound guided internal jugular vein cannulations show less access time $60.0s \pm 23.0$ compare to Doppler $63.2s \pm 27.0$ and higher successful first attempt 38(90.5%) with p value = 0.13. However statistically its showed no significant different between both apparatus. Doppler also is reliable to be use as an adjunct technique as statistically its showed correlation between both with ICC 0.869, 95% CI.

Conclusions: Doppler guided in internal jugular vein cannulation can be use as an adjunct technique as it also able to increase the success rate of cannulation and it is as accurate as ultrasound technique.

MSA FP-04

COMPARISON OF THE EFFICACY OF INTRAVENOUS PARECOXIB VERSUS DICLOFENAC SUPPOSITORY FOR POST OPERATIVE ANALGESIA SUPPLEMENTATION TO INTRATHECAL MORPHINE AFTER ELECTIVE CAESAREAN DELIVERY UNDER SPINAL ANAESTHESIA

Husam M E, W Mohd Nazaruiddin W H, Ramli I, Fong K K

Background: Parecoxib is the only available intravenous cyclooxygenase-2 inhibitor. It has great potential as an alternative to suppository diclofenac sodium for post operative analgesic supplementation after elective caesarean (CS) delivery.

Objectives: The aim of the study was to compare the efficacy of intravenous parecoxib and suppository diclofenac sodium when used as an analgesic supplement to intrathecal morphine.

Methodology: Eighty six patients undergoing elective CS delivery under spinal anaesthesia were randomized to receive either IV parecoxib (40 mg) or suppository diclofenac (100 mg) at the end of the surgery and 12 hours after the first dose. All patients were administered patient controlled analgesia (PCA) morphine for 24 hours. Visual analogue score (VAS) and PCA morphine consumption were recorded every 6 hours for 24 hours. The time of the first PCA demand and maternal satisfaction were also documented.

Results: There was no significant difference in VAS score at 6, 12, 18 and 24 hours. Mean VAS for both groups were less than 2 at all time intervals. There was also no significant difference for morphine consumption at all time intervals. Mean morphine consumption was also less than 2 mg at all time intervals. There was no significant difference for time of the first PCA demand and maternal satisfaction of pain management.

Conclusion: IV parecoxib was as effective as suppository diclofenac sodium as a post operative analgesic supplementation to intrathecal morphine after elective caesarean (CS) delivery under spinal anaesthesia.

MSA FP-05

BUPIVACAINE 0.375% IN COMBINATION WITH MIDAZOLAM 2.5 MG COMPARED TO BUPIVACAINE 0.5% ALONE IN INFRACLAVICULAR BRACHIAL PLEXUS BLOCK

Ricky Aditya, Erwin Pradian, Tinni T. Maskoen

Bupivacaine has late onset and shorter duration of action when given as a single drug for brachial plexus block. There is a concern in the use of bupivacaine in large concentrations due to the occurrence of systemic toxicity caused by a small range of safety doses. Those concern will increase in Asian people who have the smallest average body weight. Adjuncts to local anesthetic may lowered local anesthetic requirement and enhance the quality of blockade. Midazolam may enhance the effect of local anesthetic in peripheral nerve block. A randomized controlled trial was conducted on 40 ASA I or II adult patients undergoing upper limb surgery under infraclavicular brachial plexus block in Dr. Hasan Sadikin Hospital. Patients were randomly allocated into two groups. Patients in group B were administered 30 mL of 0.5% bupivacaine and those in group BM were given 30 mL of 0.375% bupivacaine with midazolam 2.5 mg. Onset and duration of sensory blockade were measured and tested with Mann-Whitney test. The onset of sensory block was faster in group BM 14.20 (3.45) minutes compared to group B 20.00 (3.59) minutes ($p < 0.001$) and the duration was longer in group BM 12.75 (1.65) hours compared to group B 9.90 (2.15) hours, both showed highly significant results ($p < 0.001$). The conclusions of this study indicate that use of 0.375% bupivacaine in combination with 2.5 mg midazolam accelerated the onset as well as prolonged the duration of sensory blockade when used in brachial plexus block.

MSA FP-06

THE FINDINGS AND RESULTS OF EPIDUROSCOPIC LASER NEURAL DECOMPRESSION
Daehyun Jo

Background: Neuroplasty using a Racz catheter or epiduroscope and percutaneous endoscopic laser discectomy (PELD) are performed as treatment for chronic refractory low back and/or lower extremity pain, but they are limited in that they cannot completely remove the causing pathology. Lately, epiduroscopic laser disc and neural decompression (ELND) has been receiving attention as an alternative treatment, but there are insufficient reports of results.

Objectives: Hence we aimed to investigate and report the data of ELND in our hospital.

Methodology: 77 patients were selected who had received epiduroscopic laser disc and neural decompression via the anterior epidural approach. We observed the epidural pathology of all patients via epiduroscope. Their medical records were investigated, and the degree of symptom relief following the procedure was categorized into 5 stages of very good (5), good (4), no change (3), bad (2), and very bad (1) at 2 weeks and 1 month after the procedure.

Results: The subjects were 30 males and 47 females. Mean age was 54.6 for males and 59.6 for females with the youngest being 23 and the oldest 88 years old. In epiduroscopic photos of all patients, more than one situation of herniated disc, fibrous tissue and synechia, or inflammation was observed. 67 patients (87.0%) showed symptom relief 2 weeks after the procedure and 63 patients (81.8%) showed relief after 1 month.

Conclusion: ELND is considered to be an effective diagnostic and alternative treatment tool for chronic refractory low back and/or lower extremity pain, including lumbar disc

YIA FP-01	Avazzia Biofeedback Electro Stimulation Technology (Avazzia Best™) Device Versus Conventional Transcutaneous Electrical Nerve Stimulation (TENS) For Short Term Relief Of Chronic Musculoskeletal Pain: A Prospective Randomized Controlled Trial ST Kiung F, Abdul Wahab, R Kumaran, M Mansor	37A
YIA FP-02	Comparison Of The Efficacy Between Desflurane And Sevoflurane As Inhaled Anaesthetic Induction In Spontaneous General Anaesthesia Noorazwati I, Rhendra Hardy MZ, Suriana Mohd AB, Wan Nazaruddin WH, Shamsul Kamaruljan H	37A
YIA FP-03	Dexmedetomidine Decreases Postanesthesia Agitation And Pain After Tracheobronchial Stenting Mohd Fahmi Lukman, Azura Sharena Yahaya, How Soon Hin, Kuan Yeh Chunn	37A
YIA FP-04	Effects Of Acupuncture On Intraoperative Haemodynamics And Nausea And Vomiting In Parturients Undergoing Lower Segment Caesarean Section Under Subarachnoid Block SY Chan, Rohisham ZA	37A
YIA FP-05	Comparison Of The Efficacy And Safety Of Dexmedetomidine 50µg Versus 100µg Additive To The 0.5% Levobupivacaine In Supraclavicular Brachial Plexus Block For Arteriovenous Fistula (AVF) Surgery Chong SE, Mohd Nikman A, Mohd Fakhzan H, Rhendra Hardy MZ, Wan Nazaruddin WH	38A
YIA FP-06	A Comparative Study Of Intrathecal Fentanyl Or Magnesium In Addition To Heavy Bupivacaine-Morphine To Prevent Intraoperative Discomfort In Elective Caesarean Section Md Khairul Anwar A R, W Mohd Nazaruddin W H, Shamsulkamalrujan H, Norliza M N	38A

YIA FP-01

AVAZZIA BIOFEEDBACK ELECTRO STIMULATION TECHNOLOGY (AVAZZIA BESTTM) DEVICE VERSUS CONVENTIONAL TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) FOR SHORT TERM RELIEF OF CHRONIC MUSCULOSKELETAL PAIN: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL

ST Kiung F, Abdul Wahab, R Kumaran, M Mansor

Objective: TENS and TENS-like devices are frequently prescribed for chronic pain management. This study determines the efficacy of conventional TENS versus Avazzia BEST TM for the management of chronic musculoskeletal pain.

Method: This prospective randomized controlled study was conducted on 60 patients in University Malaya Medical Center. Measured outcomes include immediate post-treatment pain score followed by post-treatment 24 hours pain severity and pain interference score, using visual analogue scale and brief pain inventory questionnaires. Data was analyzed using SPSS with statistical significance set at $p < 0.05$.

Results: Majority of the patient (71.7%) were females with mean age of 54.1. Soft tissue injury, tendinitis or bursitis consists 61.7% of chronic pain. The baseline characteristics of patients recruited in both arms were similar ($p > 0.05$). Pain score at 24 hours post-treatment was significantly lower with Avazzia BESTTM (mean VAS score 22.0 vs 46.8, $p < 0.001$). There were no differences found in immediate pain score post treatment, 24 hours post-treatment pain severity and pain interference score. Based on patient global assessment of treatment satisfaction, a third of patients on Avazzia BESTTM were very satisfied with the treatment compared to 13.3% on conventional TENS. All the patients recruited were willing to continue on their current treatment.

Conclusion: Avazzia BESTTM provides better pain relief at 24 hours post treatment compared to conventional TENS.

YIA FP-03

DEXMETOMIDINE DECREASES POSTANESTHESIA AGITATION AND PAIN AFTER TRACHEOBRONCHIAL STENTING

Mohd Fahmi Lukman, Azura Sharena Yahaya, How Soon Hin, Kuan Yeh Chunn

Background and objective: Insertion of multiple sizes of rigid bronchoscope during tracheobronchial stenting for the treatment of airway obstruction not only extremely discomfort but may cause post procedure hemodynamic instability. As Dexmedetomidine (Dex) provides sedation, analgesia, maintains hemodynamic stability and causes minimal respiratory depression, it is an ideal agent to treat agitation and pain after those procedures. In this study we examined the effects of Dexmedetomidine given at the end of procedure.

Method: 21 ASA I - III patients aged between 30 and 70 year, having elective tracheobronchial stenting were recruited. Patients were put on standard monitors including arterial blood pressure measurement. Patients were induced with IV Fentanyl and IV Propofol, followed by placement of LMA ProSeal. Anesthesia was maintained with TCI Propofol/Remifentanyl. 10 minutes before end of procedure, in Dex group, IV Dexmedetomidine 0.5 mcg/kg was given while in control group, patients received IV Fentanyl 1.0 mcg/kg. In recovery room, mean arterial pressure (MAP), heart rate, Riker Sedation Agitation Scale (RSAS) and Face, Legs, Activity, Cry, Consolability scale (FLACC) were assessed every 5, 15 and 30 minutes respectively.

Results: 10 patients received Dexmedetomidine compared with 11 patients who did not receive Dexmedetomidine. There were no significant differences regarding patient characteristics, duration of anesthesia and baseline MAP. MAP, heart rate, RASS and FLACC were significant lower in Dexmedetomidine group ($P < 0.001$). None of the patients in both groups showed respiratory depression.

Conclusion: Single dose IV Dexmedetomidine is an ideal agent to treat agitation and pain after tracheobronchial stenting.

YIA FP-02

COMPARISON OF THE EFFICACY BETWEEN DESFLURANE AND SEVOFLURANE AS INHALED ANAESTHETIC INDUCTION IN SPONTANEOUS GENERAL ANAESTHESIA

Noorazwati I, Rhendra Hardy MZ, Suriana Mohd AB, Wan Nazaruddin WH, Shamsul Kamaruljan H

Background: Sevoflurane and desflurane are inhalational agents that are commonly used in anaesthesia. However desflurane is pungent despite having fast onset and offset compared to sevoflurane. This study was designed to compare the efficacy of both agents as inhaled induction agent in facilitating LMA insertion for spontaneous general anaesthesia.

Methodology: This was a randomized, single blinded, prospective study, involving 60 premedicated, ASA I or II adult patients whom were planned for emergency or elective surgeries under spontaneous general anaesthesia. They were premedicated and given intravenous fentanyl 2µg/kg prior to induction. Patients were preoxygenate for 3 minutes then mixed with 50% NO₂ for 2 minutes. Inhalational induction was performed in titrated dose. Duration of induction and LMA insertion were recorded. End tidal concentration and MAC at LMA insertion, airway complications during induction and LMA insertion were recorded. Hemodynamic trend at induction, LMA insertion until 3 minutes post LMA insertion were recorded.

Results: The duration for induction and successful LMA placement in desflurane were longer with mean 106.4 ± 27.7 sec and 265.3 ± 99.1 sec compared to sevoflurane 83.4 ± 23.0 sec ($p \geq 0.05$) and 178.9 ± 47.7 sec ($p \geq 0.01$) with mean end tidal concentration desflurane was 4.25 ± 0.53 and sevoflurane was 4.33 ± 0.78 and mean MAC $1.27 \pm 0.35 / 2.21 \pm 0.60$. Both have comparable number of attempt and similar ease of insertion. Desflurane has similar airway complication with sevoflurane. Desflurane appeared more stable hemodynamics. Desflurane has significantly increase BP/MAP and PR during insertion compared to sevoflurane.

Conclusion: Premedication, opioid and nitrous oxide facilitate desflurane induction and LMA insertion. Airway qualities were better with sevoflurane however hemodynamic changes were better in desflurane.

YIA FP-04

EFFECTS OF ACUPUNCTURE ON INTRAOPERATIVE HAEMODYNAMICS AND NAUSEA AND VOMITING IN PARTURIENTS UNDERGOING LOWER SEGMENT CAESAREAN SECTION UNDER SUBARACHNOID BLOCK

SY Chan, Rohisham ZA

Objective: To study the effectiveness of acupuncture at acupoints in decreasing the incidence of hypotension, nausea and vomiting in parturients undergoing Lower Segment Caesarean Section (LSCS) under subarachnoid block (SAB) and therefore reducing the usage of vasopressors and antiemetics.

Background: Hypotension and intraoperative nausea and vomiting after SAB for LSCS occur commonly due to sympathetic blockade. Despite prophylactic measures, its incidence is still up to 30-60%. Vasopressors and antiemetics, which are used to counter the complications of SAB have their own side effects, drug interactions and costly. The use of acupuncture at acupoint is hypothesized to reduce incidence of hypotension and nausea and vomiting therefore increase patient comfort and decrease the usage of drugs and reduce in cost.

Method: After obtaining approval from the Medical Research and Ethics Committee (MREC) Ministry of Health Malaysia and written informed patient consent, 80 singleton parturients undergoing LSCS under SAB were randomized into two groups, the acupoints at PC 6 (Neiguan) bilaterally and non-acupoints at bilateral anterior part of mid forearm. **Results:** The mean drop of the systolic blood pressure was significantly less in the acupoint group compared with the non-acupoint group [acupoint 87mm Hg; non-acupoint 80mm Hg; $p = 0.001$]. Significantly less vasopressors was required to maintain arterial blood pressure in the acupoint group ($p = 0.009$). Antiemetics usage is significantly lower in the acupoint group compared to non-acupoint group ($p = 0.007$).

Conclusion: Acupuncture on the acupoint reduced the drop in systolic blood pressure, therefore less usage of vasopressors and antiemetics leading to reduction in cost.

YIA FP-05

COMPARISON OF THE EFFICACY AND SAFETY OF DEXMEDETOMIDINE 50µg VERSUS 100µg ADDITIVE TO THE 0.5%LEVOPUPIVACAINEIN SUPRACLAVICULAR BRACHIAL PLEXUS BLOCK FOR ARTERIOVENOUS FISTULA (AVF) SURGERY

Chong SE, Mohd Nikman A, Mohd Fakhzan H, Rhendra Hardy MZ, Wan Nazaruddin WH

Background: Dexmedetomidine is an alpha-2 agonist used as sedation in ICU and remote anaesthesia. Unlike Clonidine, its effect as additive in peripheral nerve block has not been widely researched upon. The aim of this study is to compare the efficacy and outcome of additive dexmedetomidine 50µg versus 100µg to levobupivacaine 0.5% in supraclavicular brachial plexus block in AVF surgery .

Methodology: Forty six adult with chronic renal failure patients scheduled for AVF surgery were studied in prospective, randomized, single operator double blinded study design. The supraclavicular block was performed with the ultrasound and a nerve stimulator technique. Group A (dexmedetomidine 50µg added to 20 ml of levobupivacaine 0.5 % + 1ml of normal saline) versus Group B (dexmedetomidine 100µg added to 20 ml of levobupivacaine 0.5 %). The onset, duration of action, haemodynamic parameters changes, vascular diameter changes and sedative effects were recorded

Result: The onset of sensory and block is faster in Group B (8.08 ± 1.38); ($P < 0.002$ -sensory) and motor (11.33 ± 1.52 ; $P < 0.024$). Duration of action of the block is longer in Group B (12.3 ± 1.01); ($P < 0.001$). Sedation effects present in both group, however it is not statistically significant. ($P > 0.5$) Both group have a stable haemodynamic profiles. Group B causes significant increased the artery (0.020 ± 0.0067); ($P < 0.02$) and vein diameter (0.022 ± 0.0074); ($P < 0.001$).

Conclusion: Dexmedetomidine as an additive for supraclavicular block in ESRF patient for AVF surgery causes faster onset, prolonged duration of anesthesia, increase the artery and vein diameter and produced sedation effect with stable haemodynamic parameters.

YIA FP-06

A COMPARATIVE STUDY OF INTRATHECAL FENTANYL OR MAGNESIUM IN ADDITION TO HEAVY BUPIVACAINE-MORPHINE TO PREVENT INTRAOPERATIVE DISCOMFORT IN ELECTIVE CAESAREAN SECTION

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Background: Intrathecal morphine in addition to heavy bupivacaine is a common practice for postoperative pain management in caesarean section delivery under spinal anaesthesia. However this technique does not totally prevent the incidence of intraoperative visceral discomfort. The aims of this study were to compare the effects of small doses of intrathecal fentanyl or magnesium in addition to common intrathecal drug regimes in preventing intraoperative discomfort during elective caesarean section.

Methods: Eighty-four (ASA I or II) adult patients scheduled for elective caesarean section under spinal anaesthesia were randomly allocated to one of the three groups: (1) Control group (C): hyperbaric bupivacaine 0.5% + 100 µg morphine (0.1 ml) + 0.2 ml of 0.9% NS, (2) Fentanyl group (F): hyperbaric bupivacaine 0.5% + 100 µg morphine (0.1 ml) + 10 µg fentanyl (0.2 ml), (3) Magnesium (Mg): hyperbaric bupivacaine 0.5% + 100 µg morphine (0.1 ml) + 50 µg magnesium sulphate (0.1 ml) + 0.1 ml of 0.9% NS. Intraoperative discomfort score, requirement of intraoperative IV fentanyl supplementation, onset and duration of sensory and motor block, hemodynamic changes, fetal outcomes, time to the first request of postoperative analgesia, side effects and maternal satisfaction were evaluated.

Results: Group F showed significantly less discomfort requiring intervention (0 %) than group C (50%) and group Mg (39.3%); ($p < 0.001$). IV fentanyl supplementation was also significantly less in the group F than the other two groups; ($p < 0.001$). Group Mg showed significant slower in onset, ($p = 0.025$), but prolonged in the duration of motor block, ($p < 0.001$), than the other two groups. Time to the first analgesic request was longer in group Mg, 390 min (95% CI 370.92-409.08), vs. 250 min (95% CI 230.75- 269.25) in group C and 320 min (95% CI 308.00- 332.00) in group F; ($p < 0.001$). Hemodynamic changes, side effects, onset of sensory and maximal dermatomal block, apgar scores and maternal satisfaction were comparable in all groups.

Conclusion: The addition of intrathecal fentanyl to heavy bupivacaine-intrathecal morphine prevented intraoperative discomfort during spinal anaesthesia. Whereas, intrathecal magnesium sulphate was not favourable to prevent intraoperative discomfort but it prolonged motor blockade and postoperative analgesia