the degree of functional recovery that may take place. The selection of airway management technique must be carefully considered. Clinical experiences in intubating patients with cervical spine injuries via the intubating laryngeal mask airway (ILMA™, Fastrach) encouraged us to undertake a prospective, randomised controlled study to compare upper cervical spine excursion during oral tracheal intubation using fibreoptic intubating scope with that during intubation via the ILMA™ (Fastrach). **Methodology:** Thirty-two patients aged between 18 and 65 years, belonging to American Society of Anesthesiologists status I–III physical status were included in the study. Patients who were morbidly obese or with oropharyngeal pathology or mouth opening <2 cm and those who refused to give the consent were excluded from the study. Patients were randomly assigned to one of two groups. Group fibreoptic bronchoscope: patients in whom trachea was intubated using fibreoptic intubating scope and group ILMA: patients in whom intubation was performed via the ILMA™ (Fastrach). Three lateral cervical spine X-rays were taken. In each group, during the different intubating procedures, excursion of the cervical spine was radiographically documented. **Results:** Cervical spine excursion during intubation with ILMA™ was more as compared to that during intubation with fibreoptic intubation at C1–C2. There was no neurological deterioration in either group post-intubation. Patients in both the group tolerated the procedure well. The incidence of sore throat was more in patients intubated with ILMA™. **Discussion/Conclusion:** In conclusion, findings of our study suggests that ILMA™ is not inferior to fibreoptic scope for awake intubation in patients with unstable cervical spine with respect to success rate of intubation, post-intubation neurological function, degree of cervical spine motion on fluoroscopy, haemodynamic changes and patient satisfaction.

ISNACC-S-13

Effect of 0.45% saline and plasmalyte A used during intraoperative and post-operative period on serum osmolality in patients undergoing craniopharyngioma surgery

Pranshuta, Nidhi Panda, K. K. Mukherjee[1], Hemant Bhagat, Neeru Saini

Departments of Anaesthesia and Intensive Care and [1]Neurosurgery, Post Graduate Institute of Medical Education and Research, Chandigarh, India

Background: Electrolyte imbalance and acute diabetes insipidus (DI) are the most common complications in patients undergoing craniopharyngioma surgery. Data are sparse regarding the choice of fluid in patients undergoing craniopharyngioma excision. We compared the effects of iso-osmolar plasmalyte A and hypo-osmolar 0.45% saline infused perioperatively on perioperative serum osmolality, serum sodium level and incidence of DI. **Methodology:** A prospective randomised double-blind study was conducted in 28 patients undergoing transcranial excision of craniopharyngioma. The patients received either plasmalyte A or 0.45% normal salineintraoperatively and till 7th post-operative day. Serum and urine osmolality, serum and urine sodium, urine specific gravity, Glasgow coma scale and total dose of desmopressin required were measured in the perioperative period and for up to 7 days post-operatively. **Results:** Demographic data were comparable. A statistically significant difference was found between the two groups in serum osmolality at 2 h (P = 0.033), 3 h (P = 0.009) after the start of surgery, at the end of surgery (P = 0.013) and on post-operative day 0 (P = 0.015) with 0.45% saline group having serum osmolality <300 mosm/kg as compared to plasmalyte group. The urine osmolality at 2 h (P = 0.03), at post-operative day 0 (P = 0.015) and post-operative day 1 (P = 0.010) was more than 300 mosm/kg in 0.45% saline group as compared to plasmalyte A group. Plasmalyte A group had hypernatremia (P = 0.015) as compared to 0.45% saline group on post-operative day 1. **Discussion:** 0.45% saline has better effect than plasmalyte A on serum osmolality in patients undergoing transcranial resection of craniopharyngioma.

ISNACC-S-14

Quest for the Holy Grail: Assessment of dynamic parameters of fluid responsiveness in patients with acute aneurysmal subarachnoid haemorrhage

Ajay Prasad Hrishi P., Manikandan S., Girish M.[1]

Departments of Anesthesia and [1]Neurosurgery, Division of Neuroanesthesiology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India

Introduction: Delta down (DD) >5 mmHg, superior vena cava collapsibility index (SVCCI) >36% and aortic velocity time integral variability (VTI AoV) >20% are reliable predictors of fluid responsiveness in critically ill patients. The aim of this study was to assess the utility of DD, SVCCI, VTI AoV as predictors of fluid responsiveness in patients with acute subarachnoid haemorrhage (SAH) undergoing neurosurgery for clipping of intracranial aneurysm. **Methods:** After Institutional Ethics Committee approval, prospective pilot study was done on fifteen patients undergoing surgical management of intracranial aneurysm after informed consent. Post-recording baseline vitals, anaesthetic parameters, DD, SVC diameters, VTI AoV, stroke volume, cardiac output and cardiac index (CI), patients received fluid loading (FL) of 15 ml/kg of

crystalloids over 30 min. Measurements were repeated post-FL. Response to FL was considered positive if CI increased > 15% from baseline. **Statistics:** Data expressed as mean ± standard deviation, continuous variables were compared using Student's *t*-test. $P < 0.05$ was considered statistically significant. The predictive abilities of variables for fluid responsiveness determined using Pearson's coefficient analysis. **Results:** SVCCI and VTI AoV had high index of sensitivity and specificity for predicting fluid responsiveness in SAH patients; expressing strong correlation with the CI variability. DD > 5 mmHg had high sensitivity and moderate specificity in differentiating responders and non-responders showing good correlation with CI variability. **Conclusion:** Aortic VTI variation >20% and SVCCI 1 >36% appears to be the more 'reliable index of fluid responsiveness' as compared to DD. SVCCI is an excellent predictor of fluid responsiveness and can be easily obtained with basic TEE views.

ISNACC-S-15

To evaluate efficacy of dexmedetomidine in supratentorial craniotomy surgeries

Satishpatil

MGM Medical College, Navi Mumbai, Maharashtra, India

Background: In this randomised prospective clinical study, we investigated the effects of fentanyl and dexmedetomidine as adjuvant agents in supratentorial craniotomies on the following: Haemodynamic changes during perioperative and recovery periods, recovery times and side effects, such as hypertension, shivering, nausea and vomiting. **Methodology:** Twenty consenting American Society of Anesthesiologists physical status I–II patients undergoing intracranial tumour surgery were randomly divided into two groups. In Group D ($n = 10$), dexmedetomidine was infused as a 1 µg/kg bolus dose 10 min before induction of anaesthesia and maintained with 0.4–0.5 µg/kg/min during the operation. In Group F ($n = 10$), patients were given fentanyl 0.02 µg/kg/min as an infusion for anaesthesia maintenance. At induction, fentanyl was given as a 2 µg/kg dose in Group D and as a 4 µg/kg dose in Group F. Haemodynamic changes, recovery times and post-operative side effects were recorded before induction during the perioperative period and 24 h post-operatively. **Results:** In Group D, mean arterial pressure and heart rate values after intubation, after skull clamp insertion and after extubation were lower than in Group F ($P < 0.05$). Recovery times were found to be shorter in Group D as compared to Group F; the same trend was observed for the supplemental opioid requirement. During the post-operative period, there was no shivering, nausea or vomiting in Group D but, in Group F, four patients complained of shivering and three patients experienced nausea and vomiting. **Discussion:** In our study, we found that dexmedetomidine controlled the haemodynamic changes better than fentanyl perioperatively, after extubation and during the early post-operative period. Our results suggest that dexmedetomidine is safer and more effective in controlling haemodynamic changes during surgical stimulation than the standard agents used in neuroanaesthesia.

ISNACC-S-16

Dexmedetomidine as an adjuvant to caudal epidural ropivacaine for lumbosacral spine surgeries

Raghavendra B. S., Sandhya K.

Department of Anaesthesiology, Bengaluru Medical College and Research Institute, Bengaluru, Karnataka, India

Context: Pre-emptive caudal epidural is a proven technique for providing analgesia for spinal surgeries. Prolonged pain relief with no motor blockade is desired for early mobilisation. **Aim:** Our study aimed to evaluate the effect of addition of injection dexmedetomidine to caudal ropivacaine on the duration of analgesia, haemodynamic profile and the associated side effects. **Methods:** In this prospective double-blind study, a total of 60 patients undergoing lumbosacral spine surgery were randomised to receive 20 cc of pre-emptive caudal epidural injection of either injection ropivacaine 0.2% (Group R, $n = 29$) or a mixture of injection ropivacaine 0.2% and injection dexmedetomidine 1 µg/kg (Group RD, $n = 31$) under general anaesthesia after the patient was positioned prone for surgery. Visual analogue scale (VAS) scores, heart rate, blood pressures and time to rescue analgesia were recorded at regular intervals for the first 24 h. Data analysis was carried out using Statistical Package for Social Science (version 10.5 package). **Results:** Mean VAS scores were significantly lower in the Group RD for up to 12 h following the caudal block. No clinically significant haemodynamic changes were noted in either of the groups. No other side effects were seen in both the groups. **Conclusion:** These results suggest that injection dexmedetomidine is an effective additive to injection ropivacaine for pre-emptive caudal epidural analgesia in lumbosacral spine surgeries.

ISNACC-S-17

Bispectral index and haemodynamic alterations during surgical decompression in head injury patients

Nitin Manohar, Radhakrishnan M., Dhritiman Chakrabarti, Deepti B. S., Dheeraj Masapu

Department of Neuroanaesthesia, National Institute of Mental Health and Neurosciences, Bengaluru, Karnataka, India