



Figure 1: Kaplan–Meier curve shows that the early stoppage of midazolam secondary to the failure of control of refractory status epilepticus or infusion termination due to severe hypotension ($P = 0.005$)

days, $P = 0.006$), duration of Intensive Care Unit stay (11 [6–13.5] vs. 15 [14.25–23] days, $P = 0.006$) and duration of hospital stay (11 [7–13.5] vs. 22 [15.75–43.25] days, $P = 0.006$). The difference of time taken for seizure control between the groups was trending toward significance (4 [3–4.5] vs. 5 [4–12] h, $P = 0.091$). Survival curve analysis showed a significant difference between the groups for stoppage of infusions due to either hypotension or inadequate seizure control, with midazolam recording earlier infusion discontinuation (Breslow's test, $P = 0.005$) [Figure 1]. Termination of infusions due to successful seizure control did not show any significant difference ($P = 0.609$). **Conclusion:** Despite the limitation of small sample size, outcomes seem to be better with propofol infusion rather than midazolam. Future studies with larger sample sizes are likely to validate this finding.

ISNACC-S-19

Bispectral index artefact compendium: Mechanisms explored

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Introduction: Bispectral index (BIS), the widely accepted monitoring modality for depth of hypnosis under anaesthesia, has had multiple versions improving upon the original algorithm. Artefact recognition and removal are important aspects of any neuromonitoring modality. This article aims to review the various artefacts recognised during BIS monitoring along with additional unpublished observations and mechanisms for the same. **Methodology:** PubMed was searched using

keywords 'Bispectral index AND (Artifact OR Artefact)' and relevant articles were compiled. Cross referencing from these articles, a list of artefacts concerning BIS were prepared. Wherever mechanisms of artefact processing were not elucidated satisfactorily, a patent review under assignee 'Aspect Medical Systems' was done to obtain additional information. Additional unpublished artefacts were also listed and researched similarly. **Results:** The list of artefacts recognised was either physiological (electrocardiographic, frontalis electromyography [EMG], seizure) or external (electrical - facial nerve stimulator; cautery - bipolar/monopolar, electrical line interference, CUSA, coil detacher artefact, electromagnetic shaver; mechanical - forced air warmer). **Discussion:** Almost all artefacts presented as increase in BIS EMG with or without signal quality index deterioration with or without BIS fluctuation. High-amplitude signal contaminations were usually recognised as artefacts by the BIS monitor while low-amplitude ones were not. Signal contamination occurred even when frequency range of artefact signal was out of bandwidth allowed by BIS filters (may be attributed to Gibbs phenomenon). The exact mechanism behind each artefact is explained and when possible, a method to ameliorate the undesirable signal is suggested.

ISNACC-S-20

Magnetic resonance imaging predictors of intraoperative bleeding in intracranial neurosurgical tumour surgery

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Introduction: Intraoperative blood loss during intracranial tumour surgery is a common and serious complication and predicting the same is challenging task for the anaesthesiologist. Although radiological scans can be used to qualitatively predict intraoperative blood loss, no current literature explores it systematically. This study is designed with the purpose of elucidating the magnetic resonance imaging (MRI) characteristics predictive of intraoperative bleeding. **Methodology:** Retrospective Observational Single centre study. E-hospital for haemoglobin (Hb) (pre-operative and post-operative) values and InstaRIS PACS MRIs of intracranial tumour surgery patients was collected. Putative predictors of blood loss from MRIs were: (1) Size of tumour, (2) proximity to venous sinuses, (3) proximity to major intracranial arteries and first-degree branches, (4) pattern of contrast enhancement, (5) contrast enhancement ratio, (6) suspected histopathology of tumour, (7) percentage of areas of hypointensity (necrosis) within tumour, (8) average pixel intensity of susceptibility weighted

images, (9) number of flow voids within tumour and (10) peritumoural oedema. The method utilised involved calculation of estimated blood loss from pre-operative and post-operative Hb values and intraoperative blood transfusion weight of patients. Formula used was $(\text{Hb}_{\text{pre}} - \text{Hb}_{\text{post}}) / \text{Hb}_{\text{pre}} \times \text{estimated blood volume (EBV)} + \text{intraoperative BT volume administered}$. $\text{EBV} = 70 \times \text{weight (females)}; 65 \times \text{weight (males)}$. $\text{BT volume} = \text{packed cell volume (PCV)} (0.6/0.35) = \text{PCV} \times 1.714$ or whole blood volume. A sample size of 100 patients was planned for producing a predictive model. Spearman's correlation analysis was used for association between blood loss and MRI characteristics. Linear and logistic regression were used for identifying independent predictors of volume of intraoperative blood loss and predicting high blood loss (>25% of EBV). **Results:** Currently, 20 patients have been recruited. None of the above parameters appear to be significantly correlated with the calculated blood loss. Thus, none of the parameters were used for predictive modelling. Updated results will be discussed after complete data collection. **Conclusion:** The importance of quantitative prediction of expected blood loss in anaesthetic practice cannot be undermined in neurosurgeries. With no precedence of such study in known literature, we expect this study to be useful and hopefully lay background for future detailed research in this niche.

ISNACC-S-21

Hypothermia in traumatic brain injury for control of intracranial hypertension: Standalone therapeutic option or adjunct?

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Background: Traumatic brain injury (TBI) is a major cause of death and disability across the globe. Raised intracranial pressure (ICP) has been the major detrimental factor while dealing with management of head trauma. Hypothermia has been shown to reduce ICP. Hence, our study planned to see the effect of hypothermia (32–35°C) for ICP reduction after TBI. **Methodology:** In this prospective randomised controlled trial, adult patients with primary closed TBI with raised ICP >20 mmHg for ≥5 min after first line treatments and with no obvious reversible cause, ≤10 days from the initial head injury, with core temperature ≥36°C (at the time of randomisation) and with an abnormal computed tomography scan were randomised to either hypothermia (32–35°C) or normothermia group. **Results:** A total of 27 patients were randomised, 14 in

hypothermia group and 13 in normothermia group. The mean age of the patients was 35.29 and 26.85 years, the mean ICP at the time of randomisation was 22.65 and 24.05 mmHg in hypothermia and control group, respectively. The Glasgow coma score at admission was 6.9 in the two groups. Of 13 patients in the hypothermia group, 4 patients were enrolled following decompressive craniectomy and raised ICP responded well to induction of hypothermia. In rest of the patients in hypothermia group, 5 were managed with hypothermia alone whereas 4 required decompressive surgery. Two patients in each group developed pneumonia. There were no coagulation abnormalities in either group. Mean duration of Intensive Care Unit and hospital stay was 10.15 days, 9.5 days and 19.5, 18.57 days in normothermia and hypothermia group, respectively. **Conclusions:** Hypothermia can be used safely as adjunct to other modalities for controlling ICP in severe head injury patients.

ISNACC-S-22

Craniopharyngioma surgery and various perioperative factors influencing its outcome: A prospective observational study

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Introduction/Purpose: The incidence of craniopharyngioma is stated around 1.3/million person-years whereas the incidence is higher in India with 10.2%. This current study is a prospective observational attempt to determine perioperative factors that affect the outcome of patients undergoing surgery for craniopharyngioma. The primary objective being duration of hospital and Intensive Care Unit (ICU) stay and Glasgow outcome scale (GOS) at discharge while the secondary objective being quality of life at 3-month and 6-month post-surgery. **Methods:** All patients aged 5 years and above belonging to either sex scheduled for elective craniopharyngioma surgery from 1st April 2014 to 31st March 2015 in Cardio-Neuro Centre of All India Institute of Medical Sciences, were included in the study while patient's or guardian's refusal or redo-surgery were excluded. The demographics, baseline characteristics (admission Glasgow coma scale, tumour size, hormonal status, location, hydrocephalus, hypothalamic involvement), intraoperative data (anaesthesia and surgery related), GOS at discharge and post-operatively quality of life assessed using the health utility indices (2/3) for a period up to 6 months after surgery were collected. **Results:** Twenty-two patients were included in the study. The median duration of hospital and ICU stay were 17 days (6–64) and 3.5 days (1–25), respectively. The median