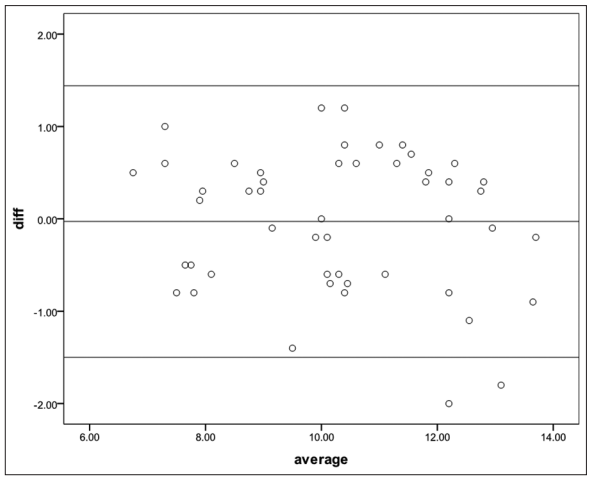

Figure 1: The Bland Altmann analysis shows good agreement between the device and lab haemoglobin values

and Neurosciences and in Neurosurgical ICU. Blood sample was collected intraoperatively and Hb value was obtained using HemoCue Hb analyser immediately, and the same sample was sent for lab analysis. **Analysis of the Study:** SPSS 19 was used for the study. Paired sample *t*-test for comparison and Bland Altman plot was used to find the agreement between the two methods. **Results:** Paired samples *t*-test. **Conclusion:** HemoCue Hb analyser can be useful to guide blood transfusion in emergency neurosurgery and neurocritcal care. **Limitations:** Availability of the device and small sample size **Applicability:** Simple and useful device to obtain instant Hb values in a high volume centre where lab reports are usually delayed and can be performed even by paramedical staff anytime of the day.

ISNACC-S-29

Effect of anaesthetics on glioblastoma cell line migration, proliferation and matrix metalloproteinase-2

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Introduction: Anaesthetic technique and other perioperative factors have the potential to impact the invasion and migration ability of tumour cells that can affect long-term outcome after cancer surgery. The aim of this study is to investigate the effect of sevoflurane and thiopentone on cell migration, proliferation and matrix metalloproteinase (MMP)-2 of glioblastoma cell line. **Methodology:** Human glioblastoma U87MG cell line was chosen for the study. The study comprised a study group (cell line exposed to different concentration of sevoflurane/thiopentone) and a control group (cell line not exposed to sevoflurane/thiopentone). In the thiopentone group, cells were treated with 100 µM, 500 µM and 1000 µM concentrations of thiopentone for 30 min. In these voflurane group, the cells were exposed to 2.5% sevoflurane in air-oxygen mixture with a FiO_2 of 45–55% in an incubator chamber for 90 min. Cells in control group for sevoflurane were only exposed to mixture of 45–55% O_2. Migration and activity of MMP-2 were assessed by wound healing migration assay and gelatin zymography assay, respectively, after incubation for 24 h whereas proliferation was assessed by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay after 48 h of incubation. **Results:** Various concentrations of thiopentone and 2.5% sevoflurane significantly lowered the migration of the U87MG glioma cells and MMP-2 activity ($P < 0.05$) compared to controls. However, there was no significant effect of both thiopentone and sevoflurane on proliferation. **Discussion:** Anaesthetics at increasing concentration cause a decrease in cell migration and MMP activity essential for metastasis. This study may have implications for future development of anti-malignant therapy and can influence the choice of anaesthetic agent in cancer surgeries.

ISNACC-S-30

Intraoperative haemodynamic changes during emergency surgical decompression in head injury patients

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Background: Intraoperative hypotension is associated with worse outcomes in head injury patients. We intended to study the intraoperative haemodynamic changes in traumatic brain injury (TBI) patients undergoing emergency surgery. **Methodology**: Twenty adult patients undergoing surgery for TBI within 48 h of insult were recruited. Patients' demographics and clinical findings were recorded. After induction, the radial arterial line was secured and cardiac output was monitored with FloTrac/EV1000 sensor to obtain cardiac index (CI), stroke volume index (SVI), pulse rate (PR) and mean arterial pressure (MAP). Systemic vascular resistance index (SVRI) was measured in patients who had central venous catheter *in situ*. Data were collected at following time points – incision, craniotomy beginning, end, durotomy and after decompression. **Results:** CI decreased during

Table 1: Overall trends of change in parameters across time points

Parameter	Preincision	Postincision	Precraniotomy	Beginn craniotomy	End craniotomy	Postcraninotomy	Postdurotomy	Postdecompression	*P*
CI	4.3±1.3	4.3±1.2	4.1±1.3	3.9±1.6	3.6±1.5	3.6±1.1	3.8±1.3	3.7±1.1	0.008
SVI	48.2±10.7	47.4±10.6	46±12.7	42.8±16.4	41.3±15.5	42.9±12.7	44.8±14.8	42.7±12.9	0.291
SVV	9.3±3.6	8.7±3.8	8.3±2.7	9.1±5	10.9±4.4	10.3±4.7	6.4±2.2	10.1±5.3	0.026
SVRI	1610±584	1867±755	1818±851	2202±1317	2165±1198	1767±575	1537±470	1583±664	0.052
PR	89.1±18.8	91.9±18.9	90.3±18.6	92.3±18.7	88.9±19.5	87.8±19.6	85.6±17.9	89±16.7	0.068
MAP	90.9±14	100.1±16.2	91.7±13.9	97.9±12.6	91.5±17.8	84.2±13.8	79.6±13.6	79.5±12.4	<0.001

CI: Cardiac index, SVI: Stroke volume index, PR: Pulse rate, MAP: Mean arterial pressure, SVRI: Systemic vascular resistance index, SVV: Stroke volume variation

craniotomy and increased after durotomy significantly. Stroke volume variation (SVV) increased during craniotomy and decreased after durotomy significantly. MAP increased at beginning of craniotomy and decreased significantly after durotomy. SVRI and SVI decreased, PR increased during craniotomy but was not statistically significant. **Discussion**: Decrease in CI, increase in SVV and SVRI, not associated with change in PR or MAP occurred in the pericraniotomy period due to blood loss during craniotomy. The increase in CI and fall in SVRI and MAP after durotomy may be the result of loss of sympathetic tone. Advanced haemodynamic monitoring might be useful and provide better understanding of pressure and flow changes in patients undergoing surgery for head injury.

ISNACC-S-31

Comparison of changes in central venous oxygen saturation and ST segment changes in a V lead electrocardiographic with changes in haemoglobin in neurosurgical patients undergoing craniotomy and tumour excision: A prospective observational study

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Background: The aim of the study was to observe the trends in central venous oxygen saturation ($ScvO_2$) and ST segment changes with change in haemoglobin (Hb) in patients undergoing acute blood loss during surgery and assess their role as blood transfusion trigger. **Methods:** Seventy-seven consecutive patients undergoing craniotomy were recruited for this study at a tertiary care institution after obtaining written, informed consent. After establishing standard monitoring, anaesthesia was induced with standard anaesthetic protocol. Central venous cannulation was performed either in the subclavian or internal jugular vein with electrocardiogram guidance to confirm the position of the catheter tip at the superior vena cava-right atrial junction. $ScvO_2$ was checked at baseline, before and after blood transfusion and at the end of the procedure. ST changes were also recorded at the above times. Comparison of the mean and standard deviation for the haemodynamic parameters was performed between the transfused and not transfused patient groups. Pearson correlation test was done to assess the correlation between the covariates. Receiver operating characteristic (ROC) curve was constructed for the $ScvO_2$ variable, which was used as a transfusion trigger and the cut-off value at 100% sensitivity and 75% specificity was constructed. Linear regression analysis was done between the change in Hb and the change in $ScvO_2$ and change in Hb and change in the ST segment. **Results:** There was a statistically significant positive correlation between the change in $ScvO_2$ and change in Hb during acute blood loss with a regression coefficient of 0.8 and also between change in ST segment and Hb with a regression coefficient of -0.132. The ROC curve showed a $ScvO_2$ cut off of 64.5% with a 100% sensitivity and 75% specificity with area under curve of 0.896 for blood transfusion requirement. **Conclusions:** We conclude that $ScvO_2$ and ST segment changes may be considered as physiological transfusion triggers in patients requiring blood transfusion in the intraoperative period.

ISNACC-S-32

Retrospective analysis of airway management, intraoperative haemodynamics and post-operative complications in patients with atlantoaxial dislocation