

complication except AKI was found to be significantly associated with increased ICU stay. Most of the patients of AKI died early in ICU. Respiratory dysfunction was found to be independently associated with 3.05 times higher risk of worsening clinical condition (disability) ( $p < 0.018$ ). Presence of hypotension during ICU stay (4.2 times,  $p < 0.005$ ), AKI (24.7 times,  $p < 0.02$ ), Coagulopathy (3.13 times,  $p < 0.047$ ) and GCS  $< 6$  patients (4.2 times,  $p < 0.006$ ) of TBI were independently associated with significantly increased risk of ICU mortality. **Conclusion:** Neurotrauma patients tend to have poor outcome due to concomitant non-neurological complications. These have significant bearing on ICU stay, disability and mortality. Early diagnosis and prevention can improve the overall outcome and shorten their ICU stay.

#### ISNACC-S-34

##### Effect of perioperative hyperglycemia on neurological outcome in aneurysmal subarachnoid hemorrhage

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**Introduction:** Hyperglycemia is associated with delayed cerebral ischemia and cerebral infarction in patients with aSAH (aneurysmal subarachnoid hemorrhage). We planned to assess prevalence, predictors of perioperative hyperglycemia and its effect on outcome. **Methods:** A prospective observational study was carried out in 150 patients with aSAH for clipping. Blood sugar levels at admission, intraoperative and postoperative period were assessed. RBS  $> 160$  mg/dl and RBS  $> 200$  were considered as hyperglycemia and severe hyperglycemia respectively. Persistent hyperglycemia was defined as hyperglycemia during any 2 of 3 study periods (preoperative, intraoperative and postoperative periods) and transient hyperglycemia was defined as hyperglycemia during any one study period. Predictors of hyperglycemia and its effects on outcome was measured by number of ICU, hospital days, GOS and mortality at 1 and 3 months after discharge were assessed. **Results:** Two patients were excluded due to incomplete data and statistical analysis was carried out in 148 patients. Prevalence of perioperative hyperglycemia and severe hyperglycemia was 75.7% and 27%. Prevalence of persistent hyperglycemia and persistent severe hyperglycemia was 37.83% and 7.43%. The predictors of hyperglycemia in patients with aSAH were identified by multivariate logistic regression. History of DM, high RBS at admission, high MAP at admission, longer duration surgery and anaesthesia were predictors of perioperative and persistent hyperglycemia. Perioperative hyperglycemia were

associated with increased ICU days ( $p \leq 0.007$ ), hospital days ( $p \leq 0.038$ ) and poor GOS at 1 and 3 months after discharge. At three months follow up 47.5% patients with perioperative severe hyperglycemia and 54.54% patients with persistent severe hyperglycemia and transient severe hyperglycemia ( $p = 0.002$ ) had poor outcome (GOS-1-3). **Conclusion:** Hyperglycemia is a potentially modifiable risk factor which is significantly associated with poor outcome after aSAH.

#### ISNACC-S-35

##### A comparison of the effect of 0.9% saline versus balanced salt solution (plasma-lyte a) on acid base equilibrium, serum osmolarity and serum electrolytes in supratentorial neurosurgical procedures requiring craniotomy

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**Introduction:** The most commonly used isoosmolar fluid in neurosurgery is 0.9% saline (308 mosm/L) which has a high chloride content (154 mmol/L), and is known to produce acidosis. Balanced salt solutions, e.g. Plasmalyte A, are isoosmolar (294 mosm/L), contain additional electrolytes, have less chloride content (98 mmol/L) and are stated to produce less acid base disturbances. Our aim was to study the effects of plasma-Lyte A (Baxter healthcare (India) pvt Ltd.) on acid base balance, serum osmolarity and serum electrolytes in neurosurgical procedures. **Methods:** In this prospective study, 70 Subjects were randomly allocated to two groups, to receive either 0.9% saline as the sole intravenous fluid (Group N) or Plasma-Lyte A (Group P). Arterial Blood Gas Samples were analysed at regular intervals and the variables noted were: serum osmolarity, pH, base deficit or excess, chloride, lactate, sodium, potassium, calcium, and glucose levels. The data was analysed statistically by student's T test (continuous) and chi-square test (categorical) using NCSS software version 9.0. **Results:** Towards the end of the surgery, pH was found to be low in the normal saline group ( $7.334 \pm 0.05$  and  $7.275 \pm 0.05$ ) as compared to the plasmalyte group ( $7.402 \pm 0.03$  and  $7.406 \pm 0.03$ ), this difference being statistically highly significant ( $p < 0.0001$ ). The difference in base deficit was also highly significant at the same time intervals. (Group N  $-2.474 \pm 1.169$  and  $-3.682 \pm 2.12$ , Group P  $-1.046 \pm 0.831$  and  $-1.438 \pm 1.093$ ,  $p < 0.0001$ ). Chloride levels were significantly higher in the normal saline group at different time intervals ( $112.8 \pm 8.002$  and  $102.57 \pm 6.17$ ), ( $115.77 \pm 9.84$  and  $103.63 \pm 5.2$ ) and ( $117.194 \pm 10.7$  and  $103.15 \pm 4.95$ ) ( $p$  value  $< 0.0001$ ). Serum electrolytes and serum osmolarity were found to be comparable in both

the groups at all time intervals. **Conclusion:** Plasmalyte A is a better alternative to 0.9% saline as intravenous fluid in neurosurgical procedures as it produces lesser acidosis and maintains serum chloride levels.

#### ISNACC-S-36

##### A rare entity of intra-arterial embolism in neurointerventional suite

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**Introduction:** Symptomatic arterial embolism during neurointerventional procedures is a rare complication which can result in catastrophic consequences. We report a rare case of arterial embolism during endovascular coiling of basilar top aneurysm in a patient, who developed cardiac arrest intraoperatively and developed complication after cardiopulmonary resuscitation and was managed successfully. **Case Summary:** A 79 years old woman who was undergoing elective endovascular balloon assisted coiling of an unruptured large basilar top aneurysm suddenly had a fall in end-tidal CO<sub>2</sub> followed by cardiac arrest. The occurrence of arterial air embolism was simultaneously alerted by the neurointerventionist. Cardiopulmonary resuscitation with 100% FiO<sub>2</sub> and high PEEP was started and the patient was revived successfully. Post resuscitation she was shifted to Intensive care unit (ICU) on high inotropic support. In ICU she was observed to be pale. Her haemoglobin in ABG was found to be 5.4 g%. Bedside ultrasonography revealed haemoperitoneum. Contrast computerised tomography of chest and abdomen was done which showed hepatic artery branch bleed. Glue embolisation of the ruptured artery was undertaken immediately. Subsequently she made uneventful recovery with no neurological deficit and was discharged in a stable condition. **Conclusion:** High index of suspicion of arterial air embolism is required during neurointerventional procedures. Its prompt diagnosis and appropriate management are needed to avoid major permanent neurological deficits and mortality.

#### ISNACC-S-37

##### Oral pregabalin reduces VAS score in patients with acute aneurysmal subarachnoid haemorrhage

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**Introduction:** Patients with acute aneurysmal subarachnoid haemorrhage (aSAH) usually present with excruciating headache. Since pain activates

the sympathetic system and contributes to various complications including aneurysmal re-bleed, pain control in these patients is vital in the perioperative period. Pregabalin ( $\beta$ -isobutyl-GABA) is recognized to have analgesic, antiepileptic, antiemetic and anxiolytic properties that make it an attractive adjuvant in pain management for these patients. **Methods:** We conducted a double blind, placebo controlled randomized clinical trial to assess the effect of perioperative pregabalin in decreasing anaesthetic and opioid requirement and perioperative headache in patients with aSAH undergoing aneurysmal clipping. Twenty-two WFNS grade 1-2 aSAH patients were randomized to receive either pregabalin (75 mg BD) or placebo till 24 hours post operation. Headache, assessed using a visual analogue score (VAS), at admission, prior to induction and at 6, 12 and 24 hours post-operatively were compared using a Mann-Whitney test. **Results:** We present the interim analysis of 22 participants recruited to date. Pregabalin recipients had a significantly greater decline in VAS between admission and pre-induction (-4.18 vs -1.82;  $p = 0.008$ ); lower VAS at 12 hours post-op (3.73 vs 4.75;  $p = 0.035$ ) and required fewer rescue analgesics in the 24 hours following surgery (0.64 vs 2.1;  $p = 0.002$ ). **Conclusion:** Data from this interim analysis suggests that pregabalin significantly decreases perioperative headache and the need for rescue analgesics in aSAH. However, a larger number of participants may be required to assess its impact on decreasing the anaesthetic and analgesic requirements and to exclude potential adverse effects.

#### ISNACC-S-38

##### Comparison of pharmacological neuroprotection provided by propofol versus desflurane for long term postoperative cognitive dysfunction in patients undergoing surgery for aneurysmal subarachnoid hemorrhage

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**Introduction:** Aneurysmal subarachnoid hemorrhage (aSAH) is an acute life threatening condition with 30-40% mortality rate. Amongst the survivors, 40-50% suffers disability due to cognitive decline affecting quality of life on long term basis. The present concept of definite early intracranial aneurysm surgery poses challenges to anesthesiologist. During intracranial aneurysmal surgery, propofol and desflurane commonly used anesthetic agents. There is lack of data pertaining to anesthetic agents and cognitive sequelae following these agents. **Methods:** Randomized prospective comparative study enrolled 100 patients. Both the groups had 50 patients