

### A0035 Effect of Scalp Block and Ultrasound-Guided Transverse Abdominis Plane Block on Intraoperative Hemodynamics and Perioperative Analgesia in Abdominal Bone Flap Cranioplasties: A Prospective, Randomized, Double-Blinded Study

M. Ravi Kumar,<sup>1</sup> Nitin Manohar,<sup>1</sup> Astha Palan,<sup>1</sup> Pradeep K.<sup>1</sup>

<sup>1</sup>Department of Neuroanaesthesia, Yashoda hospitals, Secunderabad, Telangana, India

**Background:** Regional techniques provide good perioperative analgesia and stable intraoperative hemodynamics but sparsely used in neuroanesthesia. This study assessed the effect of scalp block and ultrasound-guided transverse abdominis plane (TAP) block with 1 µg/kg clonidine as adjuvant to 0.2% ropivacaine versus intravenous fentanyl (0.1 µg/kg/h) on intraoperative hemodynamics and perioperative analgesia in abdominal bone flap cranioplasties (ABFC).

**Materials and Methods:** Sixty ASA I, II, and III patients undergoing ABFC were randomly divided into two groups of 30 each to receive either ropivacaine + clonidine in scalp and TAP block and IV saline infusion (group T) or saline in scalp and TAP block and IV fentanyl infusion (group C) after general anesthesia. Intraoperatively IV fentanyl (1 µg/kg) was given as supplemental analgesic when there was > 20% rise in hemodynamics above baseline. Postoperatively, paracetamol 1 g IV was given, when VAS scores were ≥ 4. Intraoperative hemodynamics, opioid requirement, postoperative duration of analgesia, VAS scores, and total analgesic requirement were noted. Data were analyzed using chi-square test/Fisher's exact test for categorical data and the Mann-Whitney test/unpaired *t*-test for quantitative data.

**Results:** Intraoperatively, stable hemodynamics, reduced fentanyl requirement (µg/kg) ( $0.06 \pm 0.04$  vs.  $1.73 \pm 0.52$ ) and, postoperatively, prolonged duration of analgesia (minutes) ( $1,056 \pm 364.6$  vs.  $394 \pm 202.2$ ), better VAS scores ( $2.5 \pm 0.7$  vs.  $3.2 \pm 0.7$ ), and reduced total analgesic requirement (grams) ( $1 \pm 0.8$  vs.  $3 \pm 0.6$ ) were found in group T as compared with group C.

**Conclusions:** Regional techniques with adjuvant along with general anesthesia offers better hemodynamic stability and perioperative analgesia in ABFC surgeries.

### A0036 Intraoperative Motor Evoked Potentials in a Pregnant Patient

Astha Palan,<sup>1</sup> Nitin Manohar<sup>1</sup>

<sup>1</sup>Department of Neuroanaesthesia, Yashoda hospitals, Secunderabad, Telangana, India

**Background:** Intraoperative neurophysiological monitoring (IONM) is used to monitor the integrity of neuronal pathways and is necessary in neurosurgical procedures to prevent postoperative deficits. But its use and safety in pregnant cases is sparsely reported and remains to be established.

**Case Description:** We describe case of a lady with 26 weeks of gestation with right intraventricular tumor extending up to thalamus posted for craniotomy and excision under IONM. Motor evoked potentials (MEPs) were chosen

since tumor was close to thalamus and internal capsule. Patient was induced and intubated, and anesthesia was maintained with bi-spectral index (BIS)-guided total intravenous anesthesia (TIVA). We monitored fetal rate with USG and also monitored uterine tone with fetal cardiotocography (CTG). We limited the number of MEP stimulations to minimum and used lowest currents (150–175 V) to get responses. No significant changes in MEP amplitude were observed intraoperatively, and patient was extubated without any motor or sensory deficits. Normal fetal heart rate was also confirmed with CTG and fetal ECHO.

**Conclusions:** A multidisciplinary team approach involving neuroanesthesiologists, neurosurgeons, and obstetricians with continuous monitoring of the fetal well-being by fetal heart rate, uterine contractions by CTG, and intraoperative neurophysiological monitoring by MEP were useful in our case. In our case, no deleterious intraoperative or postoperative complications were seen in mother and fetus with the use of MEP monitoring. Keeping the voltage minimum for MEP, reducing number of MEP stimulation trains, monitoring of fetal heart rate, and uterine tone are some of the strategies which can be considered in such cases.

### A0037 High-Field 3T Intraoperative Magnetic Resonance Imaging in Neurosurgery: Single-Center Experience of 100 Cases

Astha Palan,<sup>1</sup> Nitin Manohar,<sup>1</sup> Ravi K. Manchala,<sup>1</sup> Manjunath S. Thammaiah<sup>1</sup>

<sup>1</sup>Department of Neuroanaesthesia, Yashoda hospitals, Secunderabad, Telangana, India

**Introduction:** Intraoperative MRI (iMRI) is an upcoming tool in this modern era of neurosurgery, but it poses specific challenges.

**Materials and Methods:** Prospective observational study was conducted at Yashoda hospitals, and patients undergoing iMRI-guided resection of intracranial space-occupying lesions (SOLs) were included. At our center the magnet is located in the room adjacent to neurosurgery operating room (OR). Following variables were recorded: preoperative imaging diagnosis, presence or absence of residue on iMRI, whether iMRI modified our surgical decision, complications and mishaps attributed to iMRI, and time required to shift and time for image acquisition. Data were recorded using spreadsheet software (Excel) and analyzed.

**Results:** A total of 100 patients with various intracranial SOLs were included in the study. Primary gross total resection (GTR) was achieved in 44 cases (44%) and residue was detected in 56 cases (56%), secondary GTR was achieved in 37 (37%) cases, and decision of discontinuing surgery was taken in 19 cases (19%) due to presence of tumor remnant in eloquent cortex or adjacent to major vascular structures. The mean time required for shifting and image acquisition in first 20 cases was 85.6 minutes, which was reduced to 37.4 minutes in next 80 cases. We noted and analyzed the mishaps occurred during imaging and complications in the early postoperative period. Coil induced and contact burns were seen in 3 cases (3%), circuit disconnection and transient rise in EtCO<sub>2</sub> occurred in one patient.

**Conclusions:** Setting up and effective utilization of any new investigation modalities has its own challenges. Our experience shows that it takes multiple iteration of the shifting process, along with initial training session and mock drill, proper education of neurosurgical technicians and nursing staff, and meticulous data collection and auditing to analyze and smoothen the workflow.

#### A0038 A Rare Case of Cephalic Tetanus: Diagnostic Dilemma

Rahul Ghiya,<sup>1</sup> Bhibukalyani Das,<sup>1</sup> Indranil Ghosh<sup>1</sup>

<sup>1</sup>Department of Neuro-Critical Care, Institute of Neurosciences, Kolkata, West Bengal, India

**Background:** Tetanus is an acute toxemic illness caused by soluble exotoxin of *Clostridium tetani*. Localized tetanus, especially the cephalic component, is extremely rare.

**Case Description:** The case of a 64-year-old woman with cephalic tetanus is described who went through a stormy hospital stay but ultimately went home in a stable condition. She was admitted with deviation of mouth to the left and slurring of speech without any loss of consciousness or muscle weakness. Next day she was complaining of dysphagia and choking. She was started on methylprednisolone and immunoglobulin suspecting a diagnosis of acute infective demyelinating polyneuropathy with bulbar involvement. At this time, all investigations including CSF analysis and MRI were normal. Over the next day, her symptoms increased and she developed trismus with sudden laryngospasm and respiratory arrest. She was intubated after administration of succinylcholine and ventilated under sedation. Over the next 2 days, she continued to develop autonomic dysfunction and was administered anti-tetanus immunoglobulin 500 IU intramuscularly. She underwent tracheostomy after which she again received 2,000 IU of anti-tetanus immunoglobulin. After this she received magnesium infusion to target a serum magnesium of 3 to 4 mg/dL. She continued to receive magnesium till it was more than 4 mg/dL. As trismus and autonomic dysfunction continued, she was given diazepam 5 mg twice daily orally and dexmedetomidine infusion. Gradually, she was weaned off, and dose of diazepam was increased to 10 mg thrice daily. As a last resort, she was administered intrathecal anti-tetanus immunoglobulin 250 IU. After this she showed gradual improvement in her symptoms and was decannulated. Thus, after almost 4 weeks, she was fit for discharge.

**Conclusions:** Cephalic tetanus is characterized by frequent laryngeal spasms with danger of death from asphyxia. It was a difficult case with lots of diagnostic dilemma, successfully managed at our institute.

#### A0039 Effect of Perioperative Blood Pressure on Neurological Outcome in Patients Undergoing Clipping following Aneurysmal Subarachnoid Hemorrhage

Shailesh Gupta,<sup>1</sup> Prachi Agarwal,<sup>1</sup> Nidhi Panda,<sup>1</sup> Kiran Jangra,<sup>1</sup> Sivashanmugam S. Dhandapani,<sup>2</sup> Hemant Bhagat<sup>1</sup>

<sup>1</sup>Department of Anaesthesia and Intensive Care, Postgraduate Institute of Medical Education and Research, Chandigarh, India

<sup>2</sup>Department of Neurosurgery, Postgraduate Institute of Medical Education and Research, Chandigarh, India

**Background:** It is postulated that elevated blood pressure (BP) is a homeostatic response to elevated intracranial pressure serving to maintain cerebral blood flow. Low BP results in cerebral hypoperfusion, which may aggravate ischemic injury. Studies to define the optimum BP associated with good neurological outcome are lacking. Therefore, we sought to observe the effect of perioperative blood pressure on long-term neurological outcome of patients with aneurysmal SAH.

**Materials and Methods:** After Institute Ethics Committee approval and written informed consent from the patients or their nearest kin, 338 patients with SAH of all grades and age more than 18 years scheduled to undergo surgery were included in the study. The systolic, diastolic and mean blood pressures were recorded at admission, preoperatively and intraoperatively. Postoperative blood pressures were recorded till ICU stay of the patient.

**Results:** Higher values of SBP, DBP, and mean arterial pressure (MAP) at the time of admission and in the preoperative period were associated with favorable neurological outcome at 3 months. There was no effect of intraoperative BP on the postoperative long-term neurological outcome. In the early postoperative period, patients with higher SBP, DBP, and MAP were associated with unfavorable neurological outcome. However, multiple logistic regression analysis did not demonstrate the effect of perioperative BP as an independent risk factor for long-term neurological outcome in patients with aneurysmal SAH.

**Conclusions:** The perioperative blood pressure is not an independent predictor of long-term neurological outcome in patients undergoing aneurysmal neck clipping following SAH. Since admission, preoperative and early postoperative BPs have the potential to affect the outcome, BP should be meticulously observed and maintained within the normal physiological limits.

#### A0040 Evaluation of Cerebral Perfusion Pressure and Cerebral Blood Flow Velocities in Different Head Positions Using Transcranial Doppler in Neurosurgical Patients

Nisha Basker,<sup>1</sup> Sethuraman Manikandan,<sup>1</sup> Mathew Abraham<sup>2</sup>

<sup>1</sup>Department of Anaesthesia, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India

<sup>2</sup>Division of Neuroanaesthesiology, Department of Neurosurgery, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, India

**Background:** Different head positions in neurosurgical patients in the postoperative unit may affect cerebral perfusion pressure. The primary aim of this study was to investigate the effects of various head positions on the cerebral blood flow velocities by transcranial Doppler (TCD) in these patients.

**Materials and Methods:** This study with observational, prospective repeated measures was designed to measure bilateral MCA (middle cerebral artery) flow velocities, pulsatility index using TCD at different head positions in 20 patients who underwent cranial surgery admitted in the NSICU within 24 hours of surgery. The data collection