

to 60 years of age, ASA I and II, undergoing anterior cervical spine surgery were selected. Patients with comorbidities, difficult airway, and previous hoarseness were excluded. Study conducted over 1 year primarily to observe changes in ETT cuff pressure and secondarily to observe peak/mean airway pressures changes and postoperative hoarseness or sore throat. Sample size was calculated using effect sizes from previous studies and power/sample size calculation software with 80.0% statistical power type II error = 0.20 and 5% type I error probability $\alpha = 0.05$, Alpha error = 0.05. After anesthesia induction, patients were intubated with flexometallic ETT and cuff was inflated to 20 cmH₂O. Intraoperative cuff pressure changes were monitored every 10 minutes until extubation, including application of manual and self-retaining retractors. Peak and mean airway pressures were also recorded. Postoperatively, presence and severity of sore throat and hoarseness were recorded. Statistical analysis performed using ANOVA for intragroup data and Wilcoxon's signed rank test for hoarseness and sorethroat with SPSS 11.5.

Results: Cuff pressure measured at various time points after application of retractor was significantly higher compared with cuff pressure at induction ($p < 0.05$). No significant rise was recorded in airway pressures. Hoarseness and sorethroat at 1, 4, and 24 hours improved significantly ($p < 0.001$).

Conclusion: Application of retractors during anterior cervical spine surgeries causes significant rise in ETT cuff pressure leading to hoarseness and sorethroat immediately postoperatively.

Keywords: ETT, cuff pressure, hoarseness

References

1. Garg R, Rath GP, Bithal PK, Prabhakar H, Marda MK. Effects of retractor application on cuff pressure and vocal cord function in patients undergoing anterior cervical discectomy and fusion. *Indian J Anaesth* 2010;54(4):292–295
2. Shaaban AR, Kamal SM. Comparison between betamethasone gel applied over endotracheal tube and ketamine gargle for attenuating postoperative sore throat, cough and hoarseness of voice. *Middle East J Anaesthesiol* 2012;21(4):513–519

A039 Enzymatic Evaluation of General Anesthesia-Induced Neurotoxicity in Aneurysmal Subarachnoid Hemorrhage Patients

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Introduction: Animal and observational human studies suggest that general anesthetics cause neurotoxic changes in developing brain. No direct evidence of neurotoxicity in adults exposed to general anesthetics is available. Proposed mechanism of neurotoxicity is neuroapoptosis. Caspase-3 is the biomarker.

Aim: Estimation of changes in cerebrospinal fluid (CSF) and serum caspase-3 in subarachnoid hemorrhage (SAH) patients exposed to general anesthetics.

Methodology/Description: Prospective randomized double-blind study—from January 2016 to May 2017. Thirty-two patients with good grade aneurysm—clipping and endovascular coiling were recruited and randomized to four groups for the maintenance of anesthesia—propofol, isoflurane, sevoflurane, and desflurane. Lumbar drain preoperatively was inserted for CSF sampling. Standard monitors and induction techniques were used. Concentrations of anesthetic agents were compared using state entropy—maintained between 40 and 60. CSF and serum samples collected at baseline, 1 hour after exposure to anesthesia, after the cessation of anesthesia. Samples were centrifuged, stored and later analyzed using ELISA.

Results: CSF caspase-3 levels significantly decreased from baseline to 1 hour after exposure to anesthetic agents, which then reached to baseline levels after the cessation of anesthesia. These changes were statistically significant and comparable between all the groups. Serum caspase-3 levels significantly increased from baseline to 1 hour after exposure to anesthetic agents, which then reached to baseline levels after the cessation of anesthesia. These changes were statistically significant and comparable between all the groups.

Conclusion: Intravenous and inhalational anesthetic agents have same effect on the serum and CSF caspase-3 levels. The reduction in CSF caspase-3 levels suggests the role of anesthesia in reduction of apoptotic mechanism. Increase in serum caspase-3 levels after exposure may be due to caspase-dependent apoptosis in peripheral mononuclear cells secondary to inflammatory stress response.

Keywords: CSF, SAH, caspase-3

References

1. Kacira T, Kemerdere R, Atukeren P, et al. Detection of caspase-3, neuron specific enolase, and high-sensitivity C-reactive protein levels in both cerebrospinal fluid and serum of patients after aneurysmal subarachnoid hemorrhage. *Neurosurgery* 2007;60(4):674–679; discussion 679–680
2. Wang J, Wang JF, Hu XM. Caspase-3 in serum predicts outcome after aneurysmal subarachnoid hemorrhage. *Clin Chim Acta* 2016;460:196–202

A040 Effect of Anesthetic Agents on Cognitive Function and Peripheral Inflammatory Biomarkers in Young Patients Undergoing Surgery for Spine Disorders

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Introduction: Exposure to anesthesia has been postulated to affect the cognitive function by inciting central nervous system (CNS) inflammation. So, we planned to compare the pharmacological effect of propofol, desflurane, and sevoflurane on postoperative cognitive function and measure the change in concentration of serum S-100 β , interleukin 6 (IL-6), and tumor necrosis factor alpha (TNF- α) to look for the contribution of systemic inflammation.

Methodology/Description: A prospective, double-blind, randomized trial. Institutional ethics committee approval and consent from patient obtained. We enrolled 66

patients allocated into three equal groups to receive either sevoflurane ($n = 22$), desflurane ($n = 22$), or propofol ($n = 22$). Standard anesthesia protocol was followed. Patients with preoperative MMSE ≤ 23 were excluded. Each patient was assessed thrice with battery of cognitive tests in preoperative period (baseline), after 72 hours (early POCD), after 3 months (delayed POCD) of surgery. Serum levels of IL-6, TNF- α , and S-100 β were measured before surgery and 72 hours after surgery.

Results: Mean score of various psychometric tests was improved slightly in early postoperative period which was not significant ($p > 0.5$). In delayed postoperative period, there was significant improvement in cognitive scores as compared with baseline ($p < 0.5$) in all the groups. There was nonsignificant change in the levels of biomarkers S-100 β , TNF- α , and IL-6 between baseline and postoperative period in all the groups.

Conclusion: In young patients, there is no effect of anesthesia on postoperative cognitive functions. As far as inflammatory markers are concerned, they do not relate to patient's cognitive status.

Keywords: anesthesia, sevoflurane, desflurane

References

1. Dokkedal U, Hansen TG, Rasmussen LS, Mengel-From J, Christensen K. Cognitive functioning after surgery in middle-aged and elderly Danish twins. *Anesthesiology* 2016;124(2):312–321
2. Johnson T, Monk T, Rasmussen LS, et al; ISPOCD2 Investigators. Postoperative cognitive dysfunction in middle-aged patients. *Anesthesiology* 2002;96(6):1351–1357

A041 Clinical Presentation and Outcome of Midline Posterior Fossa Tumors: A Single Center Prospective Observational Study

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Introduction: Posterior fossa tumors constitute 50% of childhood brain. Medulloblastomas are the most common midline posterior fossa tumor in childhood. This study is designed to determine the frequency and types of midline posterior cranial fossa tumors and study the different clinical presentation of these tumors, surgical complications, and final outcome as measured by the Karnofsky performance scoring.

Methodology/Description: After permission from ethics committee, the study was performed as a prospective observational study on 60 patients admitted from March 2015 to March 2017 and operated for midline posterior fossa tumors, at the KIMS Hospital, Secunderabad. The data were entered on the predesigned form. Descriptive statistics were used for demographics. Data were analyzed using the EXCEL and SPSS softwares.

Results: The gender distribution was 38 male and 22 female patients with equal adults and children. Maximum

belonged to the age group of 0 to 12 years. Of these, 52 patients presented with headache and 40 had vomiting. Blurring of vision was seen in 22 patients. Most common midline posterior fossa tumor was medulloblastoma. Postoperative hydrocephalus and seizures were seen in six patients. Out of 60 patients, 12 patients had poor outcome versus 48 patients with good outcome on the Karnofsky performance status.

Conclusion: Midline posterior fossa tumors were more common in males. Symptoms of raised ICP and cerebellar symptoms were most common presentations. Headache and histopathology of tumor: high grade or low grade shows statistically significant correlation with outcome of patients as measured with the Karnofsky performance scoring. As our study was of small duration, long-term study can give better results

Keywords: Karnofsky performance scoring, medulloblastomas, midline posterior fossa tumor

References

1. Yasargil MG, Abdulrauf SI. Surgery of intraventricular tumors. *Neurosurgery* 2008;62(6 Suppl 3):1029–1041; discussion 1040–1041
2. Desai KI, Nadkarni TD, Muzumdar DP, Goel A. Prognostic factors for cerebellar astrocytomas in children: a study of 102 cases. *Pediatr Neurosurg* 2001;35(6):311–317
3. Panigrahi M, Krishnan SS, Varma DR. Crescent posterior fossa durotomy for occipito-marginal venous sinus preservation: a pilot study. *Acta Neurochir (Wien)* 2012;154(11):2115–2121

A042 Setting Up an Intraoperative MRI Suite: Our Experience

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Introduction: The advent of intraoperative magnetic resonance imaging (IOMRI) represents a substantial improvement in ensuring complete removal of intracranial lesions but poses specific challenges to the neurosurgical OT team.

Methodology/Description: This observational study was conducted to assess our learning curve of resource utilization and conduct of 3T-IOMRI at our hospital for the first month. Every time we performed an IOMRI, we collected data and noted mistakes and processes we could improve next time. Data collected included time required to move patients into the MRI room and back to OT, number of personnel required, changes made to our checklist, and standard operating procedures for equipment utilization and patient transfer. We also collected data regarding number of patients with residue who underwent resurgery, quality of scans, and surgeon satisfaction.