

bypass grafting: case report. *J Neurol Neurosurg Psychiatry* 2002;72(3):394–395

### A036 Anesthesia Challenges in Pregnant Lady with Traumatic Brain Injury: Report of Two Cases

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**Introduction:** Trauma is the commonest nonobstetrical cause of death in females, complicating approximately 6 to 7% of all pregnancies. The common etiology for trauma in pregnancy is motor vehicle accidents, falls, violent assaults, and burn injuries. Management of these patients poses a lot of challenges to anesthesiologists, neurosurgeons, and obstetricians as two lives are involved.

**Methodology/Description:** We describe successful anesthesia management and maternal and fetal outcome of two patients admitted with neurotrauma, sustained after fall from Mumbai local train. The first was a 26-year-old lady, 36 weeks pregnant with acute right temporoparietal extradural hematoma diagnosed on computed tomography (CT) scan with Glasgow Coma Scale (GCS) 15/15, operated under general anesthesia. She was extubated postoperatively and discharged after 5 days. After a week of discharge, she delivered a baby boy without any abnormality. Another pregnant female, 29 years old, came with head injury. CT scan showed depressed right parietal skull bone fracture with brain contusion. She was admitted with GCS 12/15 and 18 weeks gestation on USG with viable fetus and underwent decompression craniotomy under general anesthesia. Postoperatively, she required ventilatory support for prolong time and delivered 1.4 kg premature baby at 32 weeks of gestation. She showed no neurological improvement and succumbed to death after 6 months of hospital stay. Our aim to report these cases is to assess, how timely multifaceted intervention in pregnant lady with post-traumatic brain injury can affect the outcome.

**Conclusion:** The management of trauma in pregnancy requires a multidisciplinary approach so that maternal and fetal condition is optimized timely, managed appropriately and judiciously to achieve best outcome.

**Keywords:** traumatic brain injury, Pregnancy, anesthesia

#### References

1. Reddy SV, Shaik NA, Gunakala K. Trauma during pregnancy. *J Obstet Anaesth Crit Care* 2012;1:3–9
2. Satapathy MC, Mishra SS, Das S, Dhir MK. Emergency management strategy for pregnant head trauma victims-case report and review of literature. *Indian J Neurotrauma* 2014;11:45–48

### A037 Anesthesia for Surgical Decompression of Pott's Spine in Pregnancy with Lung Isolation Technique: An Interesting Case Report

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**Introduction:** Spinal tuberculosis (Pott's disease) during pregnancy is reported to be rare and can be associated with destruction of the intervertebral disc and adjacent vertebrae that can lead to cord compression and thereby paraplegia or quadriplegia. Awareness of signs and suitable investigations may be delayed due to pregnancy, as patient and clinician may attribute these to the gravid state. Timely surgical decompression can lead to favorable prognosis and good outcome of pregnancy. It can be a diagnostic and therapeutic challenge to successfully maintain the balance between the physiological demands of the mother and the fetus during anesthesia and surgery. The existing literature is limited and inconclusive regarding general anesthesia using double lumen endotracheal tube with lung isolation technique in the surgical decompression of Pott's spine during pregnancy.

**Methodology/Description:** Our patient was 26 weeks primigravida with D3-D5 Pott's spine with paraparesis who underwent D4 corpectomy with D3–D5 fusion through transaxillary transthoracic approach. We describe the successful management of this patient in the left lateral position under general anesthesia with one lung ventilation with due maintenance of hemodynamic stability and oxygenation of the mother and fetus.

**Conclusion:** Our case demonstrates that surgery for Pott's spine can be safely performed through transthoracic approach with single lung ventilation technique thorough monitoring of oxygenation, ventilation, acid–base balance, and hemodynamics of the mother and fetus.

**Keywords:** Pott's spine, pregnancy, one lung anesthesia

#### References

1. Kaul R, Chhabra HS, Kanagaraju V, et al. Antepartum surgical management of Pott's paraplegia along with maintenance of pregnancy during second trimester. *Eur Spine J* 2016;25(4):1064–1069
2. Han IH, Kuh SU, Kim JH, et al. Clinical approach and surgical strategy for spinal diseases in pregnant women: a report of ten cases. *Spine (Phila Pa 1976)* 2008;33(17):E614–E619

### A038 Assessment of Changes in Endotracheal Tube Cuff Pressure during Anterior Cervical Spine Surgery and its Postoperative Effects: A Prospective Observational Study

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**Introduction:** During anterior cervical spine surgeries, retraction applied can increase endotracheal tube (ETT) cuff pressure causing complications.

**Methodology/Description:** Ethical committee approval and patient consent was obtained. Twenty patients, 18

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 cmH<sub>2</sub>O. 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 $\beta$ , interleukin 6 (IL-6), and tumor necrosis factor alpha (TNF- $\alpha$ ) 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