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Transesophageal echocardiographic study of etiology of hemodynamic fluctuations during major neurosurgical procedures

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Introduction: Patients undergoing neurosurgical procedures can have a variety of hemodynamic fluctuations which affect cerebral hemodynamics, cerebral perfusion pressure, intracranial pressure; and outcome. Hence it is important to identify the etiology so that appropriate treatment can be initiated, such as infusion of fluids or blood or vasopressors. TEE has recently been found to have a major role in non-cardiac surgery. We prospectively studied the impact of TEE to identify the etiology of hemodynamic fluctuations during major neurosurgical procedures. **Methods:** After IEC clearance, 65 adult patients in whom TEE was otherwise indicated for expected hemodynamic changes due to intracranial lesion characteristics; head-up position with venous air embolism risk; and those undergoing intracranial aneurysm surgery, were included. We excluded patients with low GCS, refusal to consent and any contraindication to placing TEE probe. After standard anaesthesia induction, TEE probe was placed and intraoperative fluctuations were monitored based on preload changes, contractility and afterload changes along with hemodynamic changes (heart rate change <50/>100/min; and BP +/- 30 mm Hg from baseline were considered significant). **Results:** Significant hemodynamic changes occurred in 23 out of 65 patients. There were episodes of low systolic/mean BP and tachycardia. Twenty patients had more than 2 episodes of hemodynamic fluctuations. Seven had more than three episodes. On TEE examination, most frequent abnormality was increase in SVC collapsibility index followed by increased stroke volume variability. The SVR was also found to be reduced indicating vasodilation. Two patients had RWMA. In all patients hemodynamic instability was successfully managed. **Conclusion:** Our study showed intraoperative TEE use was beneficial in identifying the cause of intraoperative hemodynamic fluctuations as well as aided in management.

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Lung ultrasound as a bedside tool for assessment of extra vascular lung water in critically ill head injured patients - An observational study

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Introduction: Incidence of pulmonary edema in patients with traumatic brain injury is 11-71%. Early detection of Extra Vascular Lung Water (EVLW) helps in better clinical outcome of the patient. Primary objective of the study was to identify the presence of extravascular lung water seen as >3 B lines per lung field, using lung ultrasound in critically ill head injured patients. Secondary objectives were to compare the diagnostic accuracy and delay in identification of EVLW using chest x ray versus lung ultrasound. Association of EVLW with duration of mechanical ventilation and ICU stay was observed. **Methods:** This observational study was conducted in Trauma ICU, Advanced Trauma Centre, PGIMER, Chandigarh during study period of Sep 2015 to Dec 2016. After Ethical clearance (IEC No. INT/IEC/2015/372), a total of 120 patients with head injury requiring mechanical ventilation and critical care were enrolled in the study. Daily routine chest x ray and daily bedside lung ultrasound were done from the day of ICU admission until the patient was on mechanical ventilator support. **Results:** Incidence of pulmonary edema in our study was found to be 61.67% (n = 74/120, p value <0.001). Lung ultrasound was the initial method of detection of EVLW in n = 68/74, 91.9% and it was both chest X-ray and ultrasound in n = 6/74, 8.1%. Of the 74 patients who showed pulmonary edema on lung ultrasound, chest x ray could identify pulmonary edema in only 49 patients. The mean time gap between identification of EVLW by using lung ultrasound and chest X-ray was 1.42 ± 0.77 days. **Conclusions:** Lung ultrasound is a good bedside investigative modality for early detection of EVLW compared to routine chest X-ray in critically ill head injured patients. There is a significant association between duration of mechanical ventilation and ICU stay with the presence of EVLW.

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Thoracic epidural blood patch with CT conformation used in treatment of recurrent subdural hematoma with spontaneous intacranial hypotension

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Introduction: CSF Leakage is a primary cause of SIH. SIH with SDH is a rare case but with morbid complication. Incidence of 1/50000 SDH present with SIH. Unfamiliarity with SIH among physician and unusual clinical, radiological presentation delays diagnosis. **Case Summary:** 54 year old male with Diabetes, OSA and HTN presented with holocranial headache, vomiting and