# Endovascular mechanical thrombectomy - anesthesia quality issues

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pneumonic consolidation (36,4%), electrolyte imbalance (24,3%), leukocytosis (48,5%), arrhythmia and acidosis 30,3%.
**Conclusions**: The brain has the ability to protect itself against ischemia. Using BC for Neuroprotection after extensive surgical decompression raises more questions than answers.
**References**:
1. Anesthetics, Cerebral protection and Preconditioning. RR Nunes et al. Rev Bras Anestesiol. 2013;63(1):119-138
2. R.D. Sanders, D. Ma, M. Maze. Anaesthesia induced neuroprotection. Best Pract Research Clin Anaesthesiology, 19 (2005), pp. 461-474

## 06AP06-1
## Effect of two anaesthetic regimes with dexmedetomidine as adjuvant on transcranial electrical motor evoked potentials during spine surgery

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**Background and Goal of Study**: Intraoperative transcranial motor evoked potential (TcMEP) is a useful tool in detecting spinal cord dysfunction. The quality of intraoperative TcMEP is influenced by various factors. Choosing appropriate anaesthetics is vital for proper interpretation. We aimed to compare the effect of two anaesthetic regimes with dexmedetomidine as adjuvant on amplitudes of TcMEP during spine surgery.
**Materials and Methods**: Thirty patients between 18-60 years scheduled for elective dorso-lumbar spine surgery with TcMEP monitoring were randomised into three groups. Patients received either propofol (group-P) 100-150 mcg/kg/min or desflurane (group-D) (<0.5 MAC). In both the groups infusions of dexmedetomidine 0.6 mcg/kg/hr and fentanyl 1 mcg/kg/hr was administered. In the standard group (group-S) patients received propofol 100-150 mcg/kg/min, fentanyl 1 mcg/kg/hr along with equal volume of saline (placebo). TcMEP amplitudes were recorded bilaterally from electrodes placed at least in one set of muscles with motor origin rostral and one set of muscle caudal to the spinal level of lesion at different time points. One way analysis of variance (ANOVA) was used for parametric distribution of data. Kruskal–Wallis test was used for comparison for non-parametric data distribution of data. A p value of less than 0.05 was considered significant.
**Results and Discussion**: Three patients (2 from group-D, 1 from group-P) were excluded after allocation. 27 out of 30 patients were analyzed. The demographic and surgical characteristics of patients were comparable. The stimulation voltage needed to elicit the responses in all the three groups was comparable. There was no difference in brachioradialis muscle amplitudes observed between the groups at different time points. But, in the right brachioradialis muscle we found reduced amplitudes at baseline in group-D (p=0.04) and at 120 mins in group-P (p=0.03). We noticed reduced amplitudes of bilateral brachioradialis muscle in group-P at 60 mins (p=0.01) and 90 mins (p=0.02) with respect to baseline. For lower extremity we measured amplitudes of TcMEP in tibialis anterior (TA) and did not find any difference in amplitudes between groups at different time points.
**Conclusions**: We observed that desflurane-dexmedetomidine combination did not hinder TcMEP as compared to both standard and propofol-dexmedetomidine group. Thus this combined regime can be used in surgeries requiring motor evoked potential monitoring.

## 06AP06-2
## Predictors of unfavorable outcome in aneurysmal subarachnoid hemorrhage

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**Background and Goal of Study**: The mortality after aneurysmal subarachnoid hemorrhage (aSAH) has improved because of better diagnosis and management of complications as well as early obliteration of the aneurysm. Neurogenic pulmonary edema (NPE) is a clinical syndrome which is related to acute increase of intracranial pressure and consequential release of catecholamines into the circulation. The aim of this study is to identify the independent predictors of an unfavorable outcome (Glasgow Outcome Score 1, 2 and 3) in aSAH patients.
**Materials and Methods**: 262 aSAH patients (162 females) are prospectively included in the study. Clinical characteristics, electrocardiographic (ECG) changes, serum cardiac and inflammatory biomarkers were measured on admission. Outcome was assessed 3 months after admission. Univariate and multivariate analysis of these data was performed in order to predict the unfavorable outcome.
**Results and Discussion**: 156 patients (54.37%) had unfavorable outcome. Comparison revealed that patients with unfavorable outcome were significantly older (54.37±10.56 vs. 49.13±10.77, P<0.001) and sustained more severe SAH (82.7% vs. 39.6%, P<0.001). These patients developed NPE (10.3% vs. 2.8%, P=0.023), hydrocephalus (34.0% vs. 20.8%, P=0.020), and had higher frequency of rerupture (28.2% vs. 3.8%, P<0.001). The independent predictors of an unfavorable outcome were Hunt and Hess grade ≥ 3 (OR 4.291; 95% CI 2.168–8.491, P<0.001), higher systolic blood pressure on admission (OR 1.020; 95% CI 1.002–1.038, P=0.030), higher heart rate on admission (OR 1.024; 95% CI 1.001–1.048, P=0.038) and rerupture (OR 4.961; 95% CI 1.461–16.845, P=0.010).
**Conclusions**: These data suggest that rerupture is associated with unfavorable outcome, as well as high blood pressure and heart rate.
**References**:
1. Schmidt JM, Crimmins M, Lantigua H, Fernandez A, Zammit C, Falo C, Agarwal S, Claassen J, Mayer SA. Prolonged elevated heart rate is a risk factor for adverse events and poor outcome after subarachnoid hemorrhage (2014) Neurocrit Care 20(3):390–398.
2. Tang C, Zhang TS, Zhou LS. Risk factors for rebleeding of aneurysmal subarachnoid hemorrhage: a meta-analysis (2014) PLoS One 9:e99536.

## 06AP06-3
## Endovascular mechanical thrombectomy - anesthesia quality issues

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**Background:** Endovascular mechanical thrombectomy in acute ischemic stroke (AIS) is one of the most expanding, advancing and challenging clinical field during the past few decades. Still there is ongoing debate on the kind of anesthesia to be preferred. General anesthesia (GA) or conscious sedation (CS) remains a matter of (neuro)anesthesiologist's choice.
**Clinical case-series:** We present a single "mothership" center experience that has a high volume neurointerventional level. During the last year, half of all procedures were thrombectomies - in total, 80 cases. We preferred general endotracheal anesthesia, with target controlled infusion (TCI) technique using propofol and remifentanil, and rocuronium for intubation. Short acting drugs allow rapid neurological examination after procedure. Using this strategy, we avoid excessive BP variability, patient's movements are decreased, airway is secured and optimal carbon dioxide control levels are achieved.
**Discussion**: AIS outcome is dependent on rapid diagnosis and early treatment, namely, the time factor. The effect of anesthetic technique on the success of reperfusion is still a discussion topic. Therefore, challenge for anesthesiologist is understanding of the current and the future developments in that specific field. Anesthetic management for this patients is much more than anesthetic plan of sedation or GA. Strategies include an individualized approach to hemodynamic and respiratory parameters, intravascular fluids and neuroprotection that can be essential for a favorable outcome. "Time is brain" and dedicated team members are time saving. Taking into account our clinical experience, as well as technical factors, we found GA the most suitable anesthetic technique for that kind patients.
**Conclusions:** Although optimal anesthetic management for AIS remains controversial, due to lack of evidence from randomized trails, experience of the team may yield a greater effect on the outcome than an anesthesia technique. In stroke "mothership" center establishing, one of the milestones is creation of a competent neuroanesthesiologist who is able to provide care for that kind patients. Drugs fine titration, accurate BP and respiratory function monitoring, good plan in dealing with possible complication and close cooperation with neuroradiologist are essential for favourable outcome.

## 06AP06-4
## Period prevalence of perioperative anemia among neurosurgical patients in the largest University Hospital Centre in Croatia

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**Background and Goal of Study**: Prevalence of anemia in neurosurgical patients varies, depending on the population and type of surgery, from 2,7% to almost 50% [1]. The goal of this investigation was to estimate the period prevalence of perioperative anemia among neurosurgical patients in our institution.
**Materials and Methods**: Neurosurgical patients admitted to University Hospital Center Zagreb from the beginning of January to the end of August 2016, were included in this retrospective descriptive study. The following data were collected using hospital information system: age, sex, initial diagnosis (cerebrovascular disease, intracranial tumor, trauma, spinal pathology), type of surgery (elective/emergency), hemoglobin levels at admission and at discharge from the hospital and number of hospital days. Inclusion criteria were: neurosurgical disease or trauma, age 12- 85 years, GCSS 3-15 . Exclusion criteria were: major systemic disease, previous blood transfusions within one year, previous or current chemotherapy and patients younger than 12 years. Descriptive statistical analysis were performed using Statistica, StatSoft, San Diego, California 2012.