A003 A Physiological Observational Study to Compare the Difference between Noninvasive Blood Pressure in the Dependent and Nondependent Arms with Reference to Invasive Arterial Blood Pressure in Patients Undergoing Neurosurgical Procedures in Lateral Decubitus Position
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Background: Patients are positioned in the lateral decubitus position (LDP) for surgeries. Blood pressure (BP) varies with arm and body position due to hydrostatic force. This has been studied in awake, pregnant, and stroke patients. We have studied the difference between noninvasive BP (NIBP) in the dependent and nondependent arms with reference to invasive BP and the differences as the anesthesia progresses.^{1,2}

Materials and Methods: Forty-two ASA I–III patients aged between 18 and 70 years undergoing neurosurgical procedures in LDP were recruited. Using an appropriate cuff size, NIBP was measured simultaneously in both the arms in supine position. After induction, invasive BP was done and transduced at midaxillary line. Both arms NIBP was correlated with invasive BP at 5 minutes and 15 minutes. After positioning in LDP, invasive BP was transduced at the mid-sternal level. Twelve readings of NIBP were recorded simultaneously on both arms, correlated with invasive BP, and analyzed.

Results: Mean age- 42.2 years, 28 patients -ASA I and 14 patients-ASA II, BMI- 23.63. The mean difference between the noninvasive and invasive BP in systolic, diastolic and mean in right arm -0.125, 9.25, and 3.65 mm Hg; and 1.475, 7.24, and 1.925 mm Hg in the left arm in supine position. In LDP, the noninvasive systolic, diastolic, and mean BP of dependent arm was compared with the invasive BP; was varying between 2–6; 7–10; 2–4 mm Hg, respectively. All three BPs of nondependent arm were compared with invasive BP and varied between -8 and -15; -4 and -10; -8 and -14, respectively. The mean BPS difference between NIBP and ABP was larger in left LDP compared with right LDP. Hypertensive patients had fluctuations in mean difference compared with normotensives.

Conclusions: Noninvasive mean BP of the dependent arm correlates well with invasive mean BP. Nondependent arm systolic and mean BP is much lower when compared with invasive pressures. There is no significant change in difference as anesthesia progresses.

References

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A004 Analyzing the Effects of Intraoperation Video-Clip Display on Hemodynamics and Satisfaction of Patients during Lumbar Discectomy under Spinal Anesthesia
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Background: Most neurosurgeons and anesthesiologists prefer the less invasive intervention for most surgeries; recently, the lumbar anesthesia is a more popular method. In this study, we have tried to distract the attention of patients to their favorite video clip instead of their surrounding operating room background to evaluate the hemodynamics as well as their satisfaction during the operation.

Materials and Methods: Eighty patients who were scheduled for an elective one level discectomy under the regional spinal anesthesia enrolled in this prospective randomized clinical trial. Patients were randomized with sealed envelope method, and each envelope was randomly assigned from this set of envelopes to be either in case group 1 (video group) or control group 2 (no audio and video and only head phones on their ears). In all patients, systolic and diastolic blood pressures, pulse rate, and SpO₂ were measured and recorded in the questionnaire charts.

Results: Of the 80 patients with lumbar disk herniation, 53 patients were males and 27 females. The mean age for all patients was 44 years. Systolic and diastolic blood pressures at the end of surgery was significantly lower in video group ($p = 0.045$ and 0.004). Systolic blood pressure differences between third and fifth and the end of the surgery with minute 0 was significantly less in the video group ($p = 0.025$, 0.018 , and 0.030). Diastolic blood pressure differences between third and fifth and the end of the surgery with minute 0 was significantly less in the video group ($p = 0.051$, 0.019 , and 0.15). Pulse rate differences between first, third, fifth, and exactly before leaving the recovery room with minute 0 was significantly less in the video group ($p = 0.015$, 0.028 , 0.030 , and 0.008).

Conclusions: According to our study, by displaying patients' favorite video clip during the surgical intervention, we could highly reduce their attention to what is happening in operating room, and therefore, decrease their anxiety and stress.

A005 Effect of Left Ventricle Outflow Tract Velocity Time Integral Guided Goal-Directed Fluid Therapy on Intraoperative Hemodynamic Parameters in Patients with Aneurysmal Subarachnoid Hemorrhage: A Randomized Controlled Trial

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Background: Hypovolemia and fluid imbalance are quite common after aneurysmal SAH and negatively affect the clinical outcome. Hypovolemia correlates with the clinical grade of SAH and may exacerbate vasospasm. Goal-directed fluid therapy (GDFT) utilizes cardiac output (CO) monitoring techniques to guide clinicians for administering fluids, vaso-pressors, and inotropes. We compared hemodynamic effects and postoperative outcome of patients receiving intraoperative GDFT using left ventricular outflow tract (LVOT) velocity time integral (VTI) by transesophageal echocardiography (TEE) with the CVP-guided conventional fluid therapy in patients undergoing clipping of aneurysm.

Materials and Methods: Fifty adult ASA I and II patients with subarachnoid hemorrhage secondary to aneurysm rupture, scheduled to undergo clipping surgery were included. In the preoperative period, transthoracic echocardiography (TTE) of all patients was done to rule out stunned myocardium or valvular abnormalities. The study patients were then randomly divided into two groups; Group V ($n = 25$), patients received GDFT using LVOT-VTI. LVOT-VTI was measured with TEE in transgastric long-axis view and kept between 15 and 25 cm. Group C ($n = 25$), Patients received CVP-guided fluid therapy and a CVP of 8 to 10 cm of water was aimed intraoperatively.

Results: Both the groups had similar heart rates and mean blood pressures intraoperatively throughout the duration of surgery. However, intraoperative fluid administration to Group V was significantly less than that administered to group C ($p < 0.0001$). The baseline serum lactate levels as well as the lactate levels at the end of surgery were comparable in the two groups. The average intraoperative urine output, blood loss, and the average amount of blood administered were also similar in the two groups. Postoperatively, both the groups had similar durations of postoperative mechanical ventilation and ICU stay. The incidence of postoperative complications like ventilator-associated pneumonia, sepsis, vasospasm, and in-hospital mortality were also comparable. MRS scores at discharge ($p = 0.169$) and eGOS at 1 ($p = 0.48$) and 3 months ($p = 0.556$) were comparable in the two groups.

Conclusions: Intraoperative GDFT using TEE in aneurysmal clipping is viable and results in lesser amount of intraoperative fluid administration while maintaining stable hemodynamics during surgery.

A006 Anesthetic Challenges of an Infant with Apert Syndrome and Tetralogy of Fallot for Craniostomy Correction

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Background: Apert syndrome (ApS) is characterized by craniosynostosis, craniofacial anomalies, and symmetrical syndactyly. Approximately 10% of Apert syndrome children can have associated congenital cardiac anomalies. It is rare to see ApS with tetralogy of Fallot (TOF). Craniosynostosis corrective surgery is associated with massive bleeding and

venous air embolism. The presence of TOF increases the risks of perioperative morbidity and mortality.

Case Description: An 8-month-old infant (weight 6 kg), diagnosed with ApS and TOF was planned for a bifrontal craniotomy with frontal advancement and right frontal orbitotomy. As the child had difficult venous access, it was decided to perform gas induction. After standard monitoring, induction was performed with sevoflurane (4%). An intravenous (IV) line was secured quickly, anesthesia was deepened with fentanyl (1.5 µg/kg), ketamine (1.0 mg/kg), and propofol (1 mg/kg) and sevoflurane concentration was decreased (2%). Intubation was performed using a video laryngoscope. Arterial and the subclavian triple lumen was established. Scalp block, fentanyl, and morphine were given for analgesia. A loading dose of tranexamic acid (20 mg/kg), followed by an infusion (1 mg/kg/h) was given to reduce the bleeding. Scalp dissection and the strip cranioplasty resulted in 150 to 170 mL of blood loss, which was replaced with packed red blood cells (100 mL), fresh frozen plasma (50 mL), and cryoprecipitate (25 mL). A low dose of noradrenaline was started (0.02–0.05 µg/kg/min) to maintain the systemic vascular resistance (SVR). The child remained warm, hemodynamically stable, and the SpO₂ was varying between 85 and 93%. At the end of surgery, the child was extubated and shifted to the neurosurgical ICU. The main anesthetic challenges were the management of difficult airway, C-MAC video laryngoscope helped us to secure the airway. Maintaining the SVR using noradrenaline and avoiding factors which can increase the pulmonary vascular resistance prevented intraoperative “Tet spell.” Transfusion of blood and blood products helped maintaining the hemodynamic stability.

Conclusions: Meticulous planning and administration of titrated anesthetics to maintain both cardiovascular and the cerebrovascular homeostasis is paramount important for a successful outcome.

A007 An Unusual Presentation of Guillain-Barré Syndrome with Cervicobulbar Palsy

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Background: Guillain-Barré syndrome (GBS) is an autoimmune disorder. Flaccid paralysis is the hallmark of this disease, there are some rare variants which may be easily missed unless suspected. Here, we present a case of rare pharyngeal-cervical-brachial (PCB) variant of GBS with associated lower motor neuron type of facial palsy. The PCB variant is defined by rapidly progressive oropharyngeal and cervicobrachial weakness, and is often misdiagnosed as brainstem stroke, myasthenia gravis, or botulism.

Case Description: A 48-year-old female patient presented to us with complaints of breathing difficulty, which increased markedly on the same day, followed by facial