

## [NM-292] LOSS OF MEPS AND SSEPS IN A TEENAGER UNDERGOING POSTERIOR SPINAL FUSION: CHALLENGES OF A WAKE-UP TEST

<sup>1</sup>Giuratrabocchetta G, <sup>1</sup>Deshmukh S, <sup>2</sup>Patino M

<sup>1</sup>University of Florida , Gainesville , FL, United states; <sup>2</sup>Cincinnati Children's Hospital Medical Center , Cincinnati , Ohio, United states

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Introduction: Scoliosis affects 1-2% of teenagers. 0.2-0.5% of cases require surgical intervention. Adolescent idiopathic scoliosis is the most common type, with higher incidence in girls. Generally, a Cobb angle > 45 degrees requires surgical intervention. Intraoperative monitoring with somatosensory evoked potentials (SSEPs) and motor evoked potentials (MEPs) is critical to detect potential spinal cord ischemia, so that surgeon and anesthesiologist can intervene to preserve neurologic function . Using both SSEPs and MEPs decreases the incidence of false positives with monitoring just SSEPs. If abnormal SSEPs and MEPs persist despite the interventions, a wake up test is considered. Case: A 14 year old female with severe thoracolumbar idiopathic scoliosis underwent a posterior spinal fusion (PSF). PMHx unremarkable. Premedication with midazolam 15 mg PO. Induction was uneventful, and TIVA with propofol and remifentanyl was chosen for maintenance. After surgical rod placement, left MEPs were lost. After rod realignment, there was still 60-90% loss of left MEPs. The rod was completely removed. MAPs were kept 60-70's with 0.5 mcg/kg/min of neosynephrine. Remifentanyl at 0.4 mcg/kg/min and propofol 150 mcg/kg/min. Rod was replaced, but 90% loss of left MEP was recorded, with a change in right SSEPs. MAP was then increased to 80's and blood transfused to maintain Hct >30%, but MEP and SSEPs did not improve. It was decided to proceed with a wake up test. Ten minutes after discontinuation of TIVA, patient followed commands and moved all four extremities. Reassurance to the patient was critical during this period of time. After the surgeons noted gross preservation of the neurologic function, the patient was anesthetized again. Midazolam 2 mg was administered to help prevent recall, with 50 mcg of fentanyl. Remifentanyl and propofol drips were restarted. MEPs and SSEPs remained decreased for the duration of the case. Upon extubation, patient's neurologic function was again evaluated. Discussion: If intraoperative wake up test is planned, the patient and the family should be educated beforehand, to be prepared on what to expect. As well as reassured that anesthesia will be immediately resumed. Communication is the key to a successful wake up test. The surgeon should be notified immediately when there is any change in evoked potentials. If a wake up test is planned, choice of anesthetic should be tailored. Remifentanyl is ideal, for his context sensitive half life shorter than sufentanyl. Context-sensitive half life for propofol is less than 40 minutes for infusions up to 8 hours. References: 1. Gambrall MA. Anesthetic implications for surgical correction of scoliosis. AANA J. 2007;75(4):277-85. 2. Komatsu R, Turan AM, Orhan-Sungur M, McGuire J, Radke OC, Apfel CC. Remifentanyl for general anaesthesia: a systematic review. Anaesthesia. 2007;62(12):1266-80 3. Grottke O, Dietrich PJ, Wiegels S, Wappler F. Intraoperative wake up test and postoperative emergence in patients undergoing spinal surgery: a comparison of intravenous and inhaled anesthetic techniques using short-acting anesthetics. Anesth Analg. 2004;99(5):1521-7.

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