Traction-related loss of transcranial motor evoked potentials (TcMEP) with preservation of somatosensory evoked potentials (SSEP) during neuromuscular scoliosis correction-A case report
Malgorzata Lutwin-Kawalec, MD; Dinesh K Choudhry, MD, FRCA; Anthony Dinardo, DC, D.ABNM, Suken Shah MD

INTRODUCTION
- MEP and SSEP monitoring is a standard of care for PSF surgery
- Skeletal traction is frequently used during PSF in children with severe scoliosis
- Traction-related EP changes during scoliosis correction have been described in orthopedic and neurosurgical literature, but not in pediatric anesthesia literature

CASE PRESENTATION
- 9 y/o 28.8 kg male with T-L kyphoscoliosis secondary to Prader Willie syndrome
- PSF T2-T4 and L2-L3 with a dual magnetic growing rod placement was planned
- Induction with sevoflurane, and maintenance with TIVA (propofol and sufentanyl)
- Cranial tongs were applied, neuromonitoring established and patient positioned prone
- Baseline SSEPs and MEPs were normal
- 25 lbs. traction applied: complete bilateral loss of MEPS below cervical level with concurrent arterial hypertension without any change in SSEPs
- Traction was undone and in 15 minutes MEPs were back to base line
- 12 lbs. of traction applied again to assist with kyphosis correction and lumbar screws placement without any change in potentials
- During preparation for O-arm, due to lack of stimulation, drop in BP was associated with loss of right-sided MEPs
- Three doses of ephedrine, hypotension resolved, right-sided MEPs return to baseline traction removed and MEPs and SSEPs return to baseline, transfer to PICU

Postoperative course
- No clinical sensory or motor deficit and patient discharged home three days after surgery
- Two post-op clinic visits for magnetic growing rod lengthening were unremarkable

DISCUSSION
- Traction to the axis of the spinal column is frequently applied in order to correct the spinal deformity
- Intraop. skeletal traction can be associated with spinal cord stretching and ischemia with electrophysiologic changes
- Patients with thoracic location of the major curve, increasing Cobb angle and rigidity of major curve had higher risk of developing MEPS changes
- Releasing traction proved the most reliable maneuver for reestablishing the MEPS
- Important to ensure optimal spinal cord perfusion by maintaining adequate systemic blood pressure (MAP > 65 mmHg), normothermia, normocarbia, avoiding anemia and maintaining close communication with neurophysiologist

REFERENCES
4. Critical Event Checklist, SPA website