

References

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A045 Suppression of Motor Evoked Potentials with Low MAC Sevoflurane

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Introduction: Intraoperative motor evoked potentials (MEP) help prevent postoperative motor deficits in complex spine surgeries. Changes in MEP, that is, decrease in amplitude >50% or absence of response can occur due to various metabolic, hemodynamic, and technical causes.

Methodology/Description: Our case was a 50-year-old lady with Arnold Chiari malformation and syringomyelia without any motor deficits. She was posted for foramen magnum decompression. Intraoperative MEP monitoring was planned to avoid spinal cord damage during surgery. After fiberoptic awake intubation, anesthesia induction was performed with propofol (2 mg/kg) and fentanyl (2 µg/kg). For maintenance, sevoflurane (0.8–1 MAC) with O₂ + air and dexmedetomidine (0.5 µg/kg/h) + fentanyl 1 µg/kg/h infusion was initiated. Once the patient was prone, there was significant hypotension and corrective measures taken (inotropes). The anesthesiologist was hesitant to switch to propofol and decided to continue with low-dose sevoflurane (0.3 MAC). We tried to achieve baseline recordings but were unsuccessful. After confirming all hemodynamic, metabolic parameters, and checking connections again (RAW EMG), anesthesia protocol was changed to TIVA (entropy guided) with propofol, fentanyl (1 µg/kg/h), and dexmedetomidine (0.5 µg/kg/h) and successful baseline MEP recordings were achieved. Thorough checklist, proper anesthesia protocol, and communication with surgeon help us to warn, predict, and prevent postoperative deficits during intraoperative neuromonitoring in complex spine surgeries.

Conclusion: Sevoflurane even at low MAC (0.3 MAC) can suppress MEP recordings and should preferably not be used during MEP. TIVA is preferable.

Keywords: motor evoked potentials, spine surgeries, neuromonitoring, inhalational anesthetics

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A046 GPi-Targeted DBS Placement using Optic Tract Stimulated VEP and Corticospinal Tract Stimulation in a Case of Severe Primary Dystonia

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Introduction: Optical tract stimulated visual evoked potential (VEP) is useful during deep brain stimulation (DBS) in the globus pallidus internum (Gpi) for the treatment of primary dystonia. Recordings of cortical VEPs obtained after stimulation of the optic tract may be a potential option to microelectrode recordings (MERs), since optic tract lies just beneath the best target for Gpi DBS.

Methodology/Description: A 25-year-old patient with severely symptomatic dystonia on multiple drugs was posted for DBS placement into GPi. Awake DBS placement was ruled out (severe symptoms with opisthotonus paroxysms every 15 to 20 minutes and noncooperative). The patient received all drugs for dystonia on the day of surgery. Once shifted into OT, baseline VEPs were recorded with LED goggles. Then general anesthesia was induced with fentanyl, propofol, and atracurium and changes in VEP were noted. Steady-state anesthesia with entropy-guided TIVA with propofol and dexmedetomidine was achieved where recordings of the VEP (P100) were sufficiently good. Bilateral scalp block and pin site infiltration were given to decrease the requirement of anesthetics. Computed tomography (CT) scan was done with the same infusions and atracurium boluses. On returning to the OT, the patient was repositioned and entropy reattached. Goggles and O1, O2, Oz, FZ were attached. Corticospinal tract monitoring with needle electrodes in mentalis, deltoid, adductor pollicis, and tibialis anterior was planned. Anesthesia was maintained with entropy-guided dexmedetomidine and propofol infusions and hourly fentanyl boluses targeting <60 without muscle relaxants. DBS placement was done with neuronavigation + CARM and mainly optic tract stimulation and recording N40-P70. DBS electrodes were placed at 1mm away from the distance where optic tract) VEP amplitudes were maximum and no positive corticospinal stimulation even with 5 mA current. DBS electrode placement was confirmed with intraoperative MRI after sanitization and removal of all metallic electrodes, entropy sensors, etc. Later the battery was placed and the patient was extubated.

Conclusion: Challenges faced in such GPi targeted DBS placements are enormous and careful planning and teamwork are utmost important in such cases

Keywords: visual evoked potentials, dystonia, GPi

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