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O-013 - INTRAOPERATIVE NEUROPHYSIOLOGIC MONITORING OF OCULOMOTOR NERVES DURING ENDOSCOPIC SUPERIOR EYELID TRANSORBITAL SURGERY. PROOF OF CONCEPT AND ANATOMIC DEMONSTRATION

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Resumen

Introduction: Transorbital Neuroendoscopic Surgery (TONES) via the superior eyelid route is evolving in treating different skull base pathologies. These pathologies may involve cranial nerves (CNs) within their intracranial portion. Thus, intraoperative neurophysiologic monitoring is mandatory. Concerning the extraocular muscle function, monitoring is a matter of debate and may pose technical difficulties because of the pathway via the eye. In this article, the authors aim to describe the technique utilized in our center, including anatomic demonstration.

Objectives: To describe the technique used in our institution for intraoperative neurophysiologic monitoring of oculomotor nerves during endoscopic superior eyelid transorbital surgery, including cadaveric anatomical demonstration.

Methods: Oculomotor nerves were monitored intraoperatively in six patients. Hookwire needles were used in all cases. An oculoplastic surgeon introduced needles to the superior oblique (IV CN) and external rectus (VI CN) muscles via transconjunctival. The needle to the inferior rectus (III CN) was introduced via transcutaneous because it did not interfere with the approach. Continuous spontaneous electromyographic (sEMG) activity was registered in all cases. Triggered EMG (tEMG) was carried out for CNs identification if necessary. Corticobulbar motor evoked potentials (CoMEPs) were obtained periodically throughout the surgery in all cases. An anatomic study performed in three specimens (six sides) is presented for technique demonstration.

Results: In six patients affected by different skull base pathologies, extraocular muscle function was intraoperatively monitored during TONES. No ocular complications or electrode pullout was detected. cEMG was not affected due to the orbital retraction because the periorbita remains intact. tEMG was correctly obtained in one IV CN during the resection of a petroclival meningioma and in one III CN during chondrosarcoma excision. CoMEPs were not viable.

Conclusions: Continuous and triggered EMG obtained via transconjunctival needle introduction during endoscopic superior eyelid transorbital surgery is viable for monitoring the oculomotor nerves.