Cranial nerve monitoring

Intraoperative monitoring of neurophysiologic function is rapidly evolving as an important adjunct during skull base surgery to reduce the incidence of neurological deficit.

Facial nerve monitoring is an excellent model, since electrical and mechanical evoked potentials can be directly presented to the surgeon in real-time through an acoustic loudspeaker display.

Despite routine use of intraoperative neuromonitoring in Vestibular schwannoma surgery, its application in predicting long-term facial function is limited.

The lower cranial nerves may also be monitored using similar electromyographic techniques. Auditory system monitoring is more difficult due to the low amplitude response that requires averaging and filtering to extract the evoked potential. In conjunction with auditory monitoring, improved hearing preservation may be further enhanced by concomitant facial nerve monitoring, since the surgeon is alerted to traumatic manipulations that may affect both facial and cochlear nerves. Techniques and interpretative issues are presented to maximize the efficacy and safety of cranial nerve monitoring.