



**ORIMtec**

*Surgical Monitoring that Raises the Standard of Care*

### **Article Highlight**

*Article:* Predictive value of intraoperative neurophysiological monitoring during cervical spine surgery: a prospective analysis of 1055 consecutive patients

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*Summary:* This paper is a prospective study of a consecutive series of 1055 patients at an academic centers neurosurgery service who underwent cervical surgery over a 5 year period. The sensitivity, specificity, positive and negative predictive values were determined for somatosensory evoked potentials (SSEP), motor evoked potentials(MEP), and spontaneous electromyography (sEMG).

The author's conclusions are that multimodality monitoring is useful for predicting and preventing neurological injury in cervical spine surgery. SSEPs had a sensitivity of 52%, specificity of 100%, PPV of 100% and NPV of 97%. Motor evoked potential sensitivity was 100%, specificity 96%, and NPV 100%. sEMG had a sensitivity of 46%, specificity of 73%, PPV of 3% and NPV of 97%.

*Comments:* Universal acceptance to the benefits of monitoring cervical procedures with intraoperative monitoring is not as prevalent as for thoracolumbar procedures. This paper helps to quantify the utility of the different monitoring modalities and shows the benefits to multimodality monitoring. Though the anesthetic protocols need to be adjusted to properly run MEPs, the high sensitivity to detecting neurological changes helps to offset the lower sensitivity of SSEPs and EMGs. This study had a very limited number of cases that used MEPs as they reserved it for high risk procedures, only 26 out of the 1055 cases utilized MEP. Still the data points to the utility of this test. As MEPs monitor the corticospinal tract function with location and vascular supply that differs from the posterior cord, the utility of adding this test and the proven benefit to detecting changes that can cause potentially devastating neurological complications warrant the use of this test.

In my view, combined multimodality monitoring is the way to go to optimize detection of neurological injury in cervical procedures. Working with the surgeon and the anesthetic team is paramount to achieving the highest quality monitoring and the best overall care for the patient.