



Motor Evoked Potentials Predict Recovery in Spinal Cord Injury

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Introduction

Whilst the utilization of intraoperative neurophysiologic monitoring (IOM) with somatosensory (SSEP) and motor evoked potentials (MEP) has become widespread in spine surgery, scientific studies of its diagnostic and therapeutic benefit have been limited. This study aims to describe the IOM experience at a large level I trauma center and assess for prognostic capability of this technology.

Methods

The neurosurgery REDCAP database at our Level 1 Trauma Center was queried for patients with acute cervical spinal cord injury who underwent surgery with IOM between 2007 and 2011, yielding 32 patients. In addition to demographic data, we assessed preoperative and postoperative spinal cord injury severity (AIS grade), surgical data, use of steroids, and hemodynamic data.

Results

The mean age in this cohort of patients was approximately 56 (range 22-85 yrs) and AIS grades were A (n=10), B (n=5), C (n=6), D (n=11). All patients underwent surgical decompression and stabilization with intraoperative SSEPs and MEPs. In the group of severe SCI (AIS A, B, C) patients with elicitable MEPs, AIS improved by an average of 1.5 grades, as compared to the patients without elicitable MEP who improved by 0.7 grades (p=0.005).

Conclusions

In patients with severe SCI (AIS A, B, C) presence of MEPs was found to predict neurologic improvement. This significant finding warrants future prospective study MEP as a prognostic tool in SCI.

Learning Objectives

1. To discuss the role of MEPs in SCI
2. Use of MEPs to guide treatment and provide prognostic data

References

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