



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Spinal Cord Injuries

Presence of Motor Evoked Potentials in Patients with Severe Spinal Cord Injury as a Prognostic Marker to Predict Neurological Improvement

Motor evoked potentials (MEP) are electrical signals that can be recorded in the muscles and spinal cord in response to activity in the motor centers of the brain. These signals can be disrupted after traumatic spinal injury; however, it is unclear what relationship exists between the presence or absence of these signals after injury and clinical neurological function. In this study, researchers at the University of California (San Francisco, CA) performed a retrospective chart review to evaluate the diagnostic and prognostic value of MEP status in patients with acute spinal cord injury (SCI).

The study revealed that MEP presence predicted neurological function, as measured by American Spinal Injury Association Impairment Scale (AIS), at discharge. Patients with present MEPs had higher AIS grades (indicating less impairment) at discharge in comparison to patients with absent MEPs. Additionally, in patients with more severe SCI (i.e., AIS A-C), the degree of neurological recovery was greater in patients with MEPs vs. those without. Finally, MEP presence also correlated with degree of SCI as measured by MRI and Brain and Spinal Injury Center (BASIC) scoring (*Dhall et al., 2018*).

As a whole, this study supports MEP status as a diagnostic of neurological and neurophysiological injury as well as a predictor of neurological recovery.

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REFERENCES:

Dhall, S. S., Haefeli, J., Talbott, J. F., Ferguson, A. R., Readdy, W. J., Bresnahan, J. C., . . . Whetstone, W. D. (2018). Motor Evoked Potentials Correlate With Magnetic Resonance Imaging and Early Recovery After Acute Spinal Cord Injury. *Neurosurgery*, 82(6), 870-876. doi:10.1093/neuros/nyx320

