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## Effects of magnesium sulfate on the clinical course and GCS of patients with a severe diffuse axonal injury

Moslem Shakeri<sup>a</sup>, Firooz Salehpour<sup>a</sup>, Ali Ahmadvand<sup>a</sup>, Rozita Jafari<sup>b</sup>, Abdolrasoul Safaiyan<sup>a</sup>, Ali Meshkini<sup>a,\*</sup>

<sup>a</sup> Tabriz University of Medical Sciences, Tabriz, Iran.

<sup>b</sup> Imam Reza Teaching Hospital, Tabriz University of Medical Sciences, Tabriz, Iran.

### Abstract:

**Background:** Previous studies have shown that magnesium sulfate (MgSO<sub>4</sub>) administered in a patient with a diffuse axonal injury (DAI) can serve as a useful neuroprotective agent. The present study was conducted to examine whether magnesium sulfate has a therapeutic efficacy and safety in patients with a severe diffuse axonal injury.

**Methods:** Adult patients admitted within 1 hour of a closed Traumatic Brain Injury (TBI) with a severe diffuse axonal injury that met eligibility criteria were randomly selected and divided into two groups. Our treatment guidelines consisted of an initial loading dose of 50 mg/kg magnesium sulfate and then 50 mg/kg QID (quarter in die) up to 24 hours after the trauma. The outcome measures were mortality, Glasgow Coma Scale (GCS) score, and motor function scores which were assessed up to 2 months post-trauma.

**Results:** Magnesium showed a significant positive effect on GCS score at 2 months post-trauma (P=0.03). Motor functioning scores of patients in the MgSO<sub>4</sub> group were higher than those in the control group but this was not statistically significant (P equal to 0.51).

**Conclusions:** Findings of the present study demonstrated that administration of magnesium sulfate following severe DAI can have neuroprotective effect

### Keywords:

*Severe diffuse axonal injury, Magnesium sulfate, Outcome*

\* Corresponding Author at:

Ali Meshkini: Associate Professor of Neurosurgery, Tabriz University of Medical Sciences, Tabriz, Iran, Email: [meshkinia@yahoo.com](mailto:meshkinia@yahoo.com), (Meshkini A.).