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Evaluation of Traumatic Spine by Magnetic Resonance Imaging and Its Correlation with Cliniconeurological Outcome.

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Abstract

BACKGROUND: Spinal trauma is associated with long-term disability. Early detection can lead to prompt and accurate diagnosis, expeditious management, and avoidance of unnecessary procedures. Magnetic resonance imaging (MRI) helps to accurately depict the presence and extent of spinal cord injury (SCI) in these patients.

PURPOSE: This study was aimed to look for various MRI findings which are predictive of initial neurological deficit in patients with spinal trauma and to correlate the findings with resultant neurological outcome.

MATERIALS AND METHODS: The present study was conducted over a period of 18 months from January 2016 to June 2017 in 57 patients with spinal trauma who underwent MRI spine. Neurological status of patients was assessed at the time of admission and discharge in accordance with the American Spine Injury Association (ASIA) impairment scale. Various MRI parameters were evaluated for correlation with the severity of the spinal injury.

RESULTS: Patients with cord transection, cord hemorrhage, and epidural hematoma had initial high-grade ASIA impairment scale. Patients with cord transection and cord hemorrhage did not show any improvement in their neurological status during their hospital stay. Patients with only cord edema and epidural hematoma showed favorable neurological outcome. Cord contusion showed lesser neurological recovery, as compared with cord edema and normal cord.

CONCLUSION: MRI findings in acute SCI correlated well with the initial neurological deficits on admission and at the time of discharge. MRI should be recommended in all patients with suspected spinal trauma both as a diagnostic and prognostic indicator.

KEYWORDS: American spine injury association score; cord contusion; cord edema; cord hematoma; cord hemorrhage; cord transection; magnetic resonance imaging; neurological deficit; spinal cord injury; spinal trauma; trauma

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