

Evaluation of Traumatic Spine by Magnetic Resonance Imaging

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Abstract : Study Design: This prospective study was conducted at the department of Radio Diagnosis, at Pt B.D. Sharma PGIMS, Rohtak in 57 patients of spine injury on radiographs or radiographically normal patients with neurological deficits presenting within 72 hours of injury. Aims: Evaluation of the role of Magnetic Resonance Imaging (MRI) in Spinal Trauma Patients and to compare MRI findings with clinical profile and neurological status of the patient and to correlate the MRI findings with neurological recovery of the patient and predict the outcome. Material and Methods: Neurological status of patients was assessed at the time of admission and discharge in all the patients and at long term interval of six months to one year in 27 patients as per American spine injury association classification (ASIA). On MRI cord injury was categorized into cord hemorrhage, cord contusion, cord edema only, and normal cord. Quantitative assessment of injury on MRI was done using mean canal compromise (MCC), mean spinal cord compression (MSCC) and lesion length. Neurological status at admission and neurological recovery at discharge and long term follow up was compared with various qualitative cord findings and quantitative parameters on MRI. Results: Cord edema and normal cord was associated with favorable neurological outcome. Cord contusion show lesser neurological recovery as compared to cord edema. Cord hemorrhage was associated with worst neurological status at admission and poor neurological recovery. Mean MCC, MSCC, and lesion length values were higher in patients presenting with ASIA A grade injury and showed decreasing trends towards ASIA E grade injury. Patients showing neurological recovery over the period of hospital stay and long term follow up had lower mean MCC, MSCC, and lesion length as compared to patients showing no neurological recovery. The data was statistically significant with p value <.05. Conclusion: Cord hemorrhage and higher MCC, MSCC and lesion length has poor prognostic value in spine injury patients.

Keywords : spine injury, cord hemorrhage, cord contusion, MCC, MSCC, lesion length, ASIA grading

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