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Clinical Imagistic Correlations in Cervical Spinal Cord Trauma

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Introduction

Cervical spine trauma with the involvement of spinal cord represents a major cause of devastating neurologic morbidity amongst the young population. The management of this condition is undermined by a poor level of evidence regarding the possible evolution and long-term outcome. Numerous efforts have been made in the last decades to find the clinical and imaging indicators for the neurological and overall prognostic of these complex patients. However, little can be predicted today and the information that reaches the patient and his family rely mostly on experience and clinical flair.

Methods

We analyzed the quantifiable measures comprised within the diffusion tensor MRI images and how well they correlate with the clinical status. We looked at the data from 15 patients with cervical spinal cord trauma, subaxial, and measured diffusion fractional anisotropy (FA), anisotropy diffusion coefficient (ADC), and fiber length (FL) and studied their degree of correlation with the clinical data (measured on SLIC scale)

Results

The results showed a strong correlation between clinical and imaging data, for all measured parameters (FA, ADC and FL) suggesting that measures of the diffusion tensor imaging are a good indicator of the level of neurological damage.

Conclusions

MRI diffusion tensor imaging can provide valuable additional information on the severity of spinal chord leasions. The imaging data proves more reliable in terms of correlation with the neurological evolution of the patients.

Learning Objectives

Diffusion tensor imaging parameters

SLIC system

Cervical trauma prognostic

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