

عنوان مقاله:

The Assessment of Pathological Changes of the Brain Tissue in Patients with Clinically Isolated Syndromes (CIS)
(Suggestive of Multiple Sclerosis Using Magnetization Transfer Imaging (MTI)

محل انتشار:

هشتمین کنگره فیزیک پزشکی ایران (سال: 1387)

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خلاصه مقاله:

The aim of this study is to investigate abnormalities in the brain tissue of patients with clinically isolated syndrome (CIS) suggestive of multiple sclerosis (MS). In this method, magnetization transfer ratio (MTR) parameter accompanied with segmentation regional measurements and histogram analysis were used to improve the evaluation of disease progression in CIS patients. Conventional MR imaging protocols such as T1-weighted, T2-weighted, T2-FLAIR as well as MT-2DSPGR were performed on four CIS patients and four normal subjects. White matter, gray matter and lesion masks were segmented from T2-weighted images and superimposed on MTR map using FSL software. Lesions were classified into isointense and severely hypointense according to their signal intensities relative to white matter on the T1-weighted images. MTR parameters of these two lesion types, normal appearing white matter (NAWM) and normal appearing gray matter (NAGM) were analyzed in comparison with those of normal controls. The MTR histograms of NAWM and NAGM were also generated for each segmented brain tissues. A significant reduction was found in mean white matter MTR and the histogram peak position between CIS patients and healthy subjects. The MTR histogram for NAWM showed also a total shift to the left. The MTR value for gray matter in CIS patients was similar to that of controls. Isointense lesions have significantly higher MTR values than severely hypointense lesions. Significant reduction in NAWM-MTR compared to normal subjects shows that pathological changes outside visible lesions on conventional MR images occur among patients with CIS at presentation. Quantitative MT imaging can help to evaluate the extent of global damage in the brain tissue

کلمات کلیدی:

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