

Multi-modal Quantitative Brain MRI in Multiple sclerosis Patients in Therapeutic Response, Follow up and Prognosis: A New Concept

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Multiple sclerosis MS is the most frequent immune-mediated disabling neurological disease of the central nervous system CNS in human being.

There is increasing evidence that the severity of the clinical manifestations of MS does not directly related to the extent of tissue destruction, but rather represents a more complex process that balance among tissue destruction, repair, and cortical reorganization of the CNS.

In this article we discuss a new method for quantitative measurement of combined structural and functional data of cerebral network to predict accurate and objective therapeutic response and prognosis of multiple sclerosis patients.

In this regard, in future trials, clinicians can use a host of quantitative MRI metrics as an objective measurement of a drug response and predict prognosis of patients using a multimodal neuroimaging data fusion technique. Discrepancies in multimodal data can present original insight into brain processes involved in multiple sclerosis patients.

Using standardized multimodal quantitative MRI data and analyses by fusion of data driven from conventional MRI, diffusion tensor imaging and functional MRI.

This new method may be able to demonstrate the magnitude of pathology that is not evident by the radiologist or clinician. This may be an objective new tool for treatment monitoring and prognosis evaluation.

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