

Poster presentation

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Correlating brain atrophy with cognitive dysfunction in multiple sclerosis: neuropsychological, neuroradiological, and neurophysiologic findings

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Background

Multiple sclerosis (MS) is a relatively common, chronic progressive neurological illness affecting individuals primarily in the third and fourth decades of life.

Cognitive impairment (CI) may develop at any time during the course of the disease in the presence or absence of neurological disability.

Materials and methods

In this review we summarize distinctive features of cognitive and psychopathological impairments of multiple sclerosis.

Results

Neuropsychological impairment is a common feature of multiple sclerosis. Affected patients often have deficits in information-processing speed and memory and exhibit psychopathological states such as depression. Cognitive disorders are observed in 40 to 65% of the cases at any period of the disease. It is a major contributing factor to unemployment, accidents, impairment of daily functioning, and loss of social activity in those affected by MS. Structural brain imaging studies show a positive correlation between the extent of brain atrophy and cognitive dysfunction. However, measures of tissue atrophy including whole-brain and central atrophy are especially well correlated with and predictive of cognitive impairment. The degree and pattern of cognitive dysfunction is highly correlated with the amount and location of white-matter disease within the cerebral hemispheres.

Discussion

Recent studies have shown that conventional measures of brain atrophy explain more variance in neuropsychological dysfunction than do measures of lesion burden. In particular, neuropsychological outcomes correspond highly with linear measures of sub cortical atrophy such as ventricle enlargement. Continuing research focuses on the possible relationship between measures of regional brain atrophy and cognitive and emotional impairment.