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Relationship Between Depression and Cognitive Impairment in Patients with Multiple Sclerosis

Background: Multiple Sclerosis (MS) is an autoimmune, neurodegenerative disease characterized by chronic inflammation and demyelination of the brain and spinal cord. This deterioration of the central nervous system leads to a wide range of motor, cognitive, and neuropsychiatric symptoms. Each patient varies in symptom profile and disease course. However, cognitive impairment has been found in roughly half of all people with MS regardless of MS subtype. This may present as deficits in attention, information processing speed, executive function, and visuospatial perception. This impairment may interfere with basic and instrumental activities of daily living, vocational status, and social functioning; all of which may impact overall quality of life. Likewise, depression can also alter cognitive function, notably executive function. As MS progresses, the development of depressive symptoms in patients becomes more common. The objective of the study was to determine if there was a correlation between cognitive impairment and severity of depression in patients with MS.

Method: Participants with MS were administered tests for cognitive function, including the Montreal Cognitive Assessment (MoCA), a measure of cognitive impairment; Symbol Digit Modalities Test (SDMT), a measure of information processing speed, attention, and working memory; and the King-Devick Test, which measures saccadic dysfunction and attention. In addition, participants completed the Center for Epidemiological Studies Depression Scale (CES-D), a measure of depressive symptoms. The research cohort was broken into 2 groups (cognitive impairment or no cognitive impairment) based on SDMT T-scores, which were calculated using published norms that account for age and education. The SDMT has been well validated as a measure of cognitive decline in people with MS. The groups were compared using ANOVA to determine if they differed based on depression scores. A correlation analysis also measured the relationship between cognitive performance and depression symptomology.