

Department of Neurology and Psychiatry, Faculty of Medicine, Alexandria University, Alexandria, Egypt

The cervical spinal cord is one of the main sites affected in multiple sclerosis (MS). The objectives of this research were to identify the prevalence of cervical cord affection in a sample of Egyptian MS patients, and to define the predilection sites of affection in relapsing-remitting multiple sclerosis (RRMS) and primary progressive multiple sclerosis (PPMS).

This was a chart review study conducted on MS patients recorded at the MS unit in Alexandria university hospital, Egypt. All patients' charts with cervical spine Magnetic Resonance Imaging (MRI) were eligible for recruitment to this study.

After exclusion of incomplete records, 246 patients' records were included (237 RRMS and 9 PPMS). Cervical cord lesions (detected on MRI T2 sequence) were positive in 54.8% of RRMS patients (n=131) and 55.6% of PPMS (n=5). C3 was the most common cervical cord segment affected (62% of all patients), followed by C4 (56%) and C2 (54%). C1, C5, C6 and C8 were affected in 6%, 19.4%, 16.1%, and 10.1% of patients, respectively. C8 was the least affected site (only 1.8% of patients). Of the studied patients, 36.3% had more than 1 cervical cord lesion. The mean number of cord lesions was 1.08 ± 1.16 (ranging from 0 to 5 lesions). There was no statistically significant difference between RRMS and PPMS as regards the cervical cord predilection sites, the number of cervical cord lesions and the lesion multiplicity ($P > 0.05$).

Cervical cord lesions are less common among Egyptian MS patients than their counterparts reported in literature. C3 is the most common site affected and C8 is the least affected site.

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Routine Cognitive Processing Speed Assessment in Clinical Practice is Associated with Patient Reported Outcome, Employment, and Quantitative MRI

Gabrielle Macaron, Kunio Nakamura, Devon S Conway, Robert A Bermel, Jeffrey A Cohen, Daniel Ontaneda

Cleveland Clinic, Cleveland, United States

We have implemented a validated technology-enabled adaptation of the Symbol Digit Modalities Test (SDMT), the Processing Speed Test (PST) obtained via iPad®, into routine patient care. Our objective was to determine the relationship of PST scores to patient-reported outcomes (PROs), employment, and magnetic resonance imaging (MRI) metrics in a large clinical cohort.

Cross-sectional demographics, disease history, PST, PROs, and quantitative MRI data were collected from multiple sclerosis patients at a single site. Brain MRIs obtained +/- 90 days of PST and PROs collection were quantitatively analyzed via semi-automated methods to calculate T2 lesion (T2LV), thalamic (TV) and caudate volumes (CV), whole brain fraction (WBF), gray matter fraction (GMF), and cervical cross sectional cord area (CCSA). Spearman coefficients (ρ) were used to correlate PST with other parameters; significance was set at $p < 0.001$. Linear regression models were used to explore the contribution of PROs and MRI measures to the PST.

850 patients with complete PST and MRI data were included (mean age 47.6, standard deviation (SD) 11.4, disease duration 11.9, SD 9.2 years, PST score 47.3, SD 13.4). There were moderate correlations between PST score and Patient-Determined Disease Steps ($\rho = -0.42$), and the Quality of Life in Neurological Disorders sub-scores, mainly upper ($\rho = 0.44$) and lower extremity function ($\rho = 0.48$), cognition ($\rho = 0.30$), depression ($\rho = -0.32$), and social satisfaction ($\rho = 0.38$), $p < 0.001$. PST scores were correlated to WBF ($\rho = 0.49$), T2LV ($\rho = -0.45$), GMF ($\rho = 0.45$), TV ($\rho = 0.37$), CV ($\rho = 0.3$), and

CCSA ($\rho = 0.23$), $p < 0.001$. T2LV, WBF, self-reported upper extremity function, cognition and social participation were the strongest predictors of PST (Adjusted $R^2 = 0.51$, p -value < 0.001). There was significant effect modification by depression on the self-reported cognition-PST relationship. Employment was associated with PST independent of age and physical disability.

PST scores are associated with disease-related PROs, employment, and measures of focal and diffuse tissue injury. These characteristics support the use of PST as an outcome measure in clinical practice and trials.

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Phenotypic Features of Multiple Sclerosis in the Kazakh Population

Sharapkhanova Aksholpan, Kamenova Saltanat, Kuzhybayeva Karlygash

JSC 'National medical university', Almaty, Kazakhstan

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system that is most often the cause of disability among young people. During the examination of patients, phenotypic features were revealed among native population of Kazakhstan.

To determine clinical and magnetic resonance imaging (MRI) data of patients suffering from MS among native population and compare them with the MacDonald Criteria.

Only patients belonging to Kazakh nationality from Almaty, who have been under regular medical care in the MS unit from 2016 to 2019 with complete clinical and MRI were including.

The examination included 26 patients, of whom 19 were women, 7 were men. The ratio of women to men was 2.7:1. The mean age was 40 years. The age of the disease onset was 29.5 ± 12 years with an average recurrence rate of 1.2 ± 1.0 seizures per year. 85% of the patients had relapsing-remitting multiple sclerosis (RRMS), 11.5% patients had secondary progressive MS (SPMS) and 3.5% were diagnosed with primary- progressive (PPMS). The mean Expanded Disability Status Scl (EDSS) score was 3.6. Visual impairment (52%) was the most common manifestation. All patients had a negative aquaporin-4 antibody test. MRI showed a longitudinal extensive spinal cord lesions among most of the patients. The number of gadolinium-enhanced lesions of spinal cord is higher than the number of brain lesions with more prominent swelling, cavity formation and atrophy in the cervical spine. The length of the lesions was -2 or more segments extending to on average of 3.6 ± 3.3 vertebral bodies in length. The subcortical and periventricular lesions are more frequent than infratentorial ones.

Our study showed that MS in the Kazakh Population is more common among women than men, and is associated with higher EDSS scores, absence of family history for MS or other autoimmune diseases, a more common visula symptoms presentation, and longitudinal MRI rachiopathy.

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Multiple Sclerosis in Kazakhstan

Sharapkhanova Aksholpan

JSC 'National medical university', Almaty, Kazakhstan

This article examined the clinical characteristics of patients with multiple sclerosis (MS) in Almaty including the presence of disease activity, the duration of the disease, the frequency of exacerbations, the duration of the first remission, the severity of the neurological deficit according to the Expanded Disability Status Scale (EDSS).