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the Shank-foot coordination variability (p = 0.02 and p = 0.04, respectively).

**Conclusion(s):** Our results suggest that MS disease could affect the pattern and variability of inter-segmental coordination during walking. Therefore, examining and facilitating lower extremities inter-segmental coordination during walking could be an important factor in the development of rehabilitation interventions aimed at improving the gait pattern in patients with MS.

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**Association of Multiple Sclerosis and COVID-19 Infection: A Case Report**

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**Introduction:** Since the declaration of COVID-19 pandemic, several cases of demyelination of both peripheral and central nervous systems have been reported. The association of viral infection and the development of CNS demyelination has long been studied, and this link has recently been reported following SARS-CoV-2 infection as well.

**Material(s) and Method(s):** We report a case of a 36-year-old male who developed CNS demyelinating disease, that fulfilled the diagnostic criteria of multiple sclerosis (MS), 2 months after laboratory-confirmed infection with SARS-CoV-2.

**Result(s):** A 36-year-old male developed CNS demyelination, 2-months following a laboratory-confirmed SARS-CoV-2 infection, that fulfilled the revised 2017 McDonald diagnostic criteria for MS. He presented with ataxia, and MRI showed multiple demyelinating lesions in the brain, and positive oligoclonal bands in CSF.

**Conclusion(s):** To our knowledge, this is the second case report of MS in association with COVID-19 infection, and the first case from Middle East and North Africa (MENA) region. This case report adds to the growing body of evidence of a probable causal relationship between SARS-CoV-2 infection and the development of MS. SARS-CoV-2 could potentially trigger a demyelinating process, through an acute or delayed immune-mediated CNS inflammatory response.

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**Cognitive Impairment in Neuromyelitis Optica Spectrum Disorder and Brain Parenchyma Volume by Transcranial Sonography**

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**Introduction:** Cognitive impairment in neuromyelitis optica spectrum disorder (NMOSD) is not uncommon occurring independent from attacks and lesions. It presents in about 30-70% of NMOSD patients. Psychiatric symptoms may be initial manifestation of NMOSD, and depression is not uncommon. NMOSD patients showed global brain atrophy however it is not associated with brain or spinal lesions. Transcranial sonography (TCS) is a reliable method for assessment of third ventricular diameter and its enlargement can be used as a marker of brain atrophy and cognitive impairment. The aim of the study is to assess the cognitive functions in NMOSD and its relation to brain atrophy using transcranial sonography (TCS) for brain parenchyma.

**Material(s) and Method(s):** This is an observational, case-control study, conducted on 42 subjects, 23 patients with NMOSD, and 19 healthy controls with matching age, sex and years of education. Participants were subjected to cognitive assessment using California verbal learning test 2nd edition (CWL-2), Controlled Oral Ward Association Test (COWAT) and Trail Making Test-B (TMT) (oral version) and neurosonographic assessment using B-mode TCS for brain parenchyma.

**Result(s):** The mean age of the patients with NMOSD was 35.1 ± 10.1 years with mean disease duration was 40.1 ± 51.6 months. While mean age of the healthy control was 29.8 ± 6.8 years. Female to male ratio was 21:2 and 15:4 for patients and control respectively. Mean years of education was 8.8 ± 4.5 years and 10.7 ± 0.8 years for the patients and healthy control respectively. Mean of basic EDSS for the patient was 5.22 ± 1.5. Cognitive performance was significantly worse in NMOSD group compared to healthy control. CVLT-II showed that total recall, short-delay free-recall, short-delay cued-recall, long-delay free-recall and long-delay cued-recall were significantly worse in patients with NMOSD, p value <0.0001, <0.0001, <0.0001, <0.0001 and <0.0001. Trail making test showed that patients with NMOSD had worse executive functions and longer processing speed with p value <0.0001. COWAT, either category or letter, showed no statistically significant difference between patients with NMOSD and healthy control. As regard brain atrophy, assessed by TCS, diameter of the 3rd ventricle was significantly wider among patients with NMOSD than in healthy control with p value 0.03. Rt and Lt thalami were significantly smaller in patients with NMOSD than in healthy control with p value 0.003 and 0.03 respectively. More patients with NMOSD had interrupted median raphé than healthy control with p value 0.03. In NMOSD group, there was a statistically significant negative correlation between EDSS and scores of CVLT-II (total recall, short-delay free-recall, short-delay cued-recall, long-delay free-recall and long-delay cued-recall) as well as COWAT-letters. There was significant positive correlation between EDSS and TMT-B. No significant correlation was found between EDSS and diameter of 3rd ventricle. There was significant positive correlation between diameter of frontal horns and TMT-B. A significant negative correlation was found between diameter of 3rd ventricle scores of COWAT-letter and as well as CVLT-II total recall.

**Conclusion(s):** Patients with NMOSD had poorer cognitive functions than healthy control. Moreover, they had more brain atrophy than healthy control.

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**Clinical, Evolutionary and Etiological Particularities of Inflammatory Optic Neuropathies: An Algerian Population**

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**Introduction:** Inflammatory optic neuropathies (ION) represent frequent neuro-ophthalmological emergencies, sources of severe functional handicap. They often pose an etiological problem.

**Objectives:** To study the clinical, radiological, etiological and evolutionary particularities of ION in Algerian patients.

**Material(s) and Method(s):** This is a retrospective study of 23 patients, hospitalized at the Neurology Department of the CHU Mustapha of Algiers, over a period of 6 years (from January 2015 to June 2021). All these patients benefited from an exhaustive etiological assessment. Any non-inflammatory cause was excluded as well as any patient whose etiology was multiple sclerosis (MS).

**Result(s):** A clear female predominance was observed in this series (21F/2H). The etiologies identified were seropositive neuromyelitis optica (NMO) (10 patients), seronegative NMO (06 patients), idiopathic forms (04 patients), Mogopathies (02 patients) and 01 form linked to an optic nerve glioma. Radiologically, optic nerve lesions with contrast were found in 9 patients whose causes varied between NMO, MOG and