



## Abstracts

### Multiple Sclerosis and Related Disorders 37 (2020) 101526

#### Combined Use of Clinical, Lesion Topography, and Thalamic Volume Helps Differentiating Multiple Sclerosis from its Mimickers

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Early diagnosis of multiple sclerosis (MS) is important. Non-specific white matter changes usually confound earlier diagnosis. Cross-sectional, global and regional studies have shown that brain volume estimates are of diagnostic and prognostic relevance to the management of the disease; however, it did not reach an individual patient level of precision.

We aimed to use both conventional (subjective lesion count) and advanced (brain volume and thalamic volume) magnetic resonance imaging (MRI) measures to investigate the ability of these measures to differentiate MS from other mimickers.

Seventy MS patients and seventy-two age- and sex-matched healthy controls were recruited for this study. A third group of patients diagnosed with MS mimickers who presented with symptoms that might be attributed to MS, and had multiple white matter lesions was also included. Whole brain volume and thalamic volume were evaluated for all groups using FSL software pipelines (SIENAX and FIRST respectively). Z scores were calculated for brain and thalamic volume from healthy controls group and two standard deviations below the mean were considered the cut-off value for comparison.

Brain and thalamic volumes differed significantly between the study groups. Brain volume correlated significantly with thalamic volume in healthy controls ( $p < 0.00$ ,  $r = 0.59$ ) and MS group ( $p < 0.00$ ,  $r = 0.76$ ), but not in the MS mimickers group ( $p = 0.26$ ,  $r = 0.27$ ). A significantly low brain volume was observed in 7 MS patients (10%) and a significantly low thalamic volume was observed in 15 MS patients (21%). Only one subject from MS mimickers group showed a significant low brain volume (5%); otherwise no significant thalamic atrophy was observed in this group.

Thalamic and brain atrophy occur early in MS. Non-specific white matter changes do not contribute significantly to brain volume changes. Hemispheric volume changes may occur in MS mimickers but not particularly thalamic atrophy. Cross-sectional volumetric evaluation may add some valuable information in distinguishing MS patients from common radiological mimickers of the disease.

doi: [10.1016/j.msard.2019.11.001](https://doi.org/10.1016/j.msard.2019.11.001)

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#### Demographic, Clinical and Paraclinical Characteristics of Multiple Sclerosis Mimickers Among a Sample of Egyptian Patients

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Multiple sclerosis (MS) is a chronic autoimmune disease which is the main cause of non-traumatic disability among young and middle-aged adults. The diagnosis of MS is not often feasible, whereas many disorders are mimicking MS.

This study was implemented to identify the difference in demographics, clinical, and paraclinical characteristics of MS mimickers in order to ensure early diagnosis and adequate treatment of MS patients.

All patients with clinically suspected MS and aged 18-60 years old were included. Those patients were divided based on McDonald's Criteria 2017 and the paraclinical assessment into two groups: patients with confirmed MS diagnosis and those diagnosed with MS mimickers.

In the current study, 515 patients with suspected diagnosis of MS were enrolled. Out of the, 400 (77.6 %) patients were diagnosed with MS and 115 (22.4%) patients did not fulfill the revised McDonald's criteria and thus were considered MS mimickers. The mimickers diagnoses included thirty cases (26.15%) migraine, twelve cases (10.4%) radiological isolated syndrome, eleven cases (9.6%) small vessel disease, ten cases (8.7%) psychogenic, eight cases (7%) neuromyelitis optica, five cases (4.3%) systemic lupus erythematosus, five cases (4.3%) Behcet's disease, five cases (4.3%) anterior ischemic optic neuropathy, four cases (3.5%) antiphospholipid syndrome, and four cases (3.5%) transverse myelitis.

Patients with suspected diagnosis of MS should be subjected to meticulous neurological assessment coupled with magnetic resonance imaging (MRI) and appropriate laboratory investigations to confirm a definite diagnosis.

doi: [10.1016/j.msard.2019.11.002](https://doi.org/10.1016/j.msard.2019.11.002)

### Multiple Sclerosis and Related Disorders 37 (2020) 101528

#### Prevalence of Minor Beta Thalassemia (MBT) in Patients with Multiple Sclerosis (MS) in Southern Iran

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