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Occurrence of Aquaporin 4 receptor antibodies in patients suggestive of Multiple Sclerosis

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Multiple Sclerosis (MS) and other related demyelinating diseases of the central nervous system are in a spectrum. The prognosis, course of the disease and the treatment of each entity are highly variable. Therefore, an early definitive diagnosis is critical. The presence of an objective biomarker: Aquaporin 4 receptor antibody (Anti-AQP4) in serum which is highly specific for Neuromyelitis Optica Spectrum Disorder (NMOSD) aids to exclude seropositive NMOSD from typical MS.

The objective of this study is to determine the occurrence of Anti-AQP4 antibody in a sample of patients, who were tentatively diagnosed as MS.

Eighty one tentatively diagnosed MS patients were included in the study during the period of 2012-2016. Their clinical and paraclinical data were collected and the Anti-AQP4 antibody was tested in the sera using a commercially available validated enzyme-linked immunosorbant assay (ELISA). Then the revised McDonald 2010 and Wingerchuk criteria were applied to categorize them into definite MS, possible MS and NMOSD.

Thirty one patients were classified as definite MS and another thirty one as possible MS. Seven fulfilled the criteria for seropositive NMOSD. Although the clinical features of the remaining twelve patients were suggestive of NMOSD, none of them fulfilled the criteria for a definitive diagnosis. Out of the 31 definitive MS patients, 21 (67.7%), 03 (9.6%), 01 (3.2%) and 06 (19.3%) were classified as relapsing and remitting MS, secondary progressive MS, primary progressive MS and clinically isolated syndrome respectively. Interestingly, 1 out of 31 (3.2%) possible MS patients was positive for Anti-AQP4 antibody. This patient clinically had bilateral optic neuritis with paraclinical features suggestive of MS.

The occurrence of Anti-AQP4 antibodies in Sri Lankan patients suggestive of MS is significantly low reflecting a better initial diagnostic accuracy by the clinicians. However, some NMOSD patients have still been misdiagnosed as MS. This drawback should have been overcome if Anti-AQP4 antibody was tested, especially in borderline MS patients. A significant proportion of Sri Lankan NMOSD patients are positive for Anti-AQP4 antibody which re-confirms its high specificity. Seropositive possible MS patients and the twelve seronegative patients suggestive of NMOSD may require further follow up and neuroimaging studies to arrive at a definitive diagnosis.

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