



## **MULTIPLE SCLEROSIS AND NEUROMYELITIS OPTICA: A CASE-CONTROL STUDY OF SERUM OXIDATIVE BURDEN AND VITAMIN D LEVELS**

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Oxidative burden arising from an imbalance of oxidant-antioxidant balance, and lower vitamin D levels has been identified as potential risk factors in demyelinating diseases such as Multiple sclerosis (MS) and Neuromyelitis Optica (NMO) which are of autoimmune origin. The current study explored the oxidative burden of MS and NMO patients based on oxidative stress, antioxidant parameters and serum vitamin D levels. Neutrophil-Lymphocyte Ratio (NLR), Total protein (TP), Nitric oxide (NOx) and Lactate dehydrogenase (LDH) were the oxidative parameters tested and the antioxidant parameters: Total antioxidant status (TAS) and Catalase (CAT), and Vitamin D were measured. The study consisted of 2 test groups: MS, and NMO, 2 control groups: disease controls (OND) and healthy controls (HC) (15 participants/group). While levels of NLR ( $p>0.05$ ), TP ( $p<0.05$ ) and NOx ( $p<0.05$ ) were higher in MS patients, in contrast the levels of LDH ( $p>0.05$ ), TAS ( $p<0.05$ ) and CAT ( $p>0.05$ ) were higher in NMO patients. Vitamin D levels of MS and NMO patients did not show a difference and levels were similar to HC. Thus, the higher oxidative burden was evident in MS patients than NMO patients and vitamin D might not be a risk factor in the Sri Lankan context. Further studies on the underlying mechanisms of the oxidative burden would be useful to implement antioxidant therapy to treat these diseases.

**Keywords:** Multiple Sclerosis, Neuromyelitis Optica, Oxidative stress, Antioxidants, Vitamin D

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