

## THESES

### IMMUNE SYSTEM ACTIVATION PARAMETERS IN THE NERVOUS SYSTEM INFLAMMATORY RESPONSE OF PATIENTS WITH NEUROMYELITIS OPTICA DIAGNOSIS (ABSTRACT)\*. THESIS. RIO DE JANEIRO, 2007.

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Neuromyelitis optica (NMO) is an inflammatory, demyelinating disease of the central nervous system (CNS) characterized by the association of a serious acute or subacute myelitis and unilateral or bilateral optic neuritis. NMO patients usually have a worse clinical presentation and more deficits after each bout, being distinct from patients with multiple sclerosis (MS) by the symptomatic stereotypy, although fulfilling the McDonald's criteria for MS. Neuropathologic studies demonstrated an association among demyelinating lesions in NMO and peri-vascular deposits of immunoglobulin, local activation of complement cascade and eosinophilic infiltration. Humoral markers would be therefore implicated in the pathogenesis of NMO.

The present study aimed to analyze the immunological parameters of NMO patients from the out-patient unit of demyelinating diseases at Hospital Universitário Clementino Fraga Filho, Rio de Janeiro Federal University (HUCCF-UFRJ) and Santa Casa da Misericórdia do Rio de Janeiro (SCMRJ), Brazil.

NMO diagnosis was established based on Wingerchuck et al. (1999) criteria. Production of IgG and IgA antibodies to antigens of myelin basic protein (MBP),

proteolipid (PLP) 95-116, myelin oligodendrocyte glycoprotein (MOG) 92-106, and the cytokines interleukin-4 (IL-4) and interferon- $\gamma$  (INF- $\gamma$ ) were assessed by Elisa assay.

The cohort was formed by twenty-eighth NMO patients, twenty-one females, seven males age ranged from 25 to 62 years old. A control group was formed by twenty-six healthy patients, fifteen females, eleven males age ranged from 18 to 43 years old. NMO patients had significant high levels of reactive immunoglobulins of isotypes IgG to MOG 92-106 ( $p < 0.0001$ ), PLP 95-116 ( $p = 0.0002$ ) and MBP ( $p < 0.0001$ ), and solely IgA to MBP ( $p < 0.0001$ ). Increased production of IL-4 ( $p = 0.0084$ ) indicates an important role for this cytokine in the activation of Th2 regulatory cells and of the IgA producers B lymphocyte. However, INF- $\gamma$  ( $p = 0.61$ ) levels were similar to healthy controls.

Our results indicate that activation of humoral immunity with increased production of reactive immunoglobulins for some encephalitogenic myelin antigens play an important role in the pathophysiology of NMO.

**KEY WORDS:** neuromyelitis optica, pathophysiology, immunology.

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### STRUCTURAL CHANGES OF THE TEMPORAL POLE IN HIPPOCAMPAL SCLEROSIS: STUDY BASED ON THE FLAIR SEQUENCE AND ON VOLUMETRY BY MAGNETIC RESONANCE (ABSTRACT)\*. THESIS. SÃO PAULO, 2007.

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**Purpose:** To examine temporal pole (TP) signal and quantitative changes in temporal lobe epilepsy (TLE) patients with hippocampal sclerosis (HS) using coronal fluid-attenuated inversion-recovery (FLAIR) and volumetric MRI sequences and investigate the relationship between these changes and clinical parameters.

**Method:** We studied 120 patients with TLE and uni or bilateral HS detected by MRI and 30 age and sex-

matched healthy control subjects. Coronal FLAIR images of TP were independently assessed by visual analysis, focusing gray/white matter demarcation loss and classifying this temporal pole signal abnormality (TPA) according to regional involvement in anteromedial and/or lateral. We have also analyzed quantitatively the volumes of the TP from patients and controls.

**Results:** Sixty-one (51%) of 120 patients had left