

ANALYSIS OF NEUROINFLAMMATORY BIOMARKERS IN HTLV-1-ASSOCIATED NEUROLOGICAL DISORDERS

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Background:

HTLV-1-associated myelopathy (HAM) is the main neurological inflammatory disease in the HTLV-1 infection. In addition, around 75-80% of the individuals may present brain white matter lesions. Early diagnosis of inflammation benefits the candidates for immunosuppression. This study aims to evaluate the neuroinflammatory biomarkers to the early diagnosis of central nervous system infection.

Methods:

Clinical and laboratory data were collected from the medical records of 83 patients: A. 25 HAM; B. 14 HTLV-1-seropositive non-HAM (asymptomatic carriers and unspecific neurological symptoms); C. 20 HTLV-1-seronegative with other inflammatory neurological diseases (OIND); D. 24 HTLV-1-seronegative with non-inflammatory neurological diseases (NIND). Cell count and protein concentration in cerebrospinal fluid (CSF), blood-CSF barrier, intrathecal synthesis of total and specific IgG, neopterin and CXCL-10 in paired CSF/serum were studied. In addition, HTLV-1 seropositive patients performed brain magnetic resonance imaging.

Results:

We found higher neopterin in CSF in HAM (A) and in OIND (C) compared to groups B and D; higher cell count, protein and CXCL-10 in CSF in the OIND (C) in comparison to other groups (A, B and D) ($p < 0.05$). Regarding HTLV-1-seropositive patients, although inflammatory CSF was found in 43% of non-HAM patients (B), HAM was associated with higher CSF cell count, frequency of intrathecal synthesis of anti-HTLV-1 antibodies, neopterin in CSF and CXCL-10 in both serum/CSF ($p < 0.05$). Both groups (A and B) had higher neopterin and CXCL-10 in CSF than in serum suggestive of intrathecal synthesis. In the HTLV-1 infected individuals, white matter brain lesions were associated with higher cell count and neopterin in CSF ($p < 0.05$).

Conclusions:

Neopterin and CXCL-10 in CSF represent accurate neuroinflammatory biomarkers. In addition, the demonstration of intrathecal synthesis of antibodies anti-HTLV-1 is a more specific biomarker of HAM. The association between CSF inflammation and brain white matter lesions may indicate an inflammatory origin of these alterations, which occurs also in non-HAM patients.

Disclosure of Interest Statement:

Nothing to disclose.