

Use of Western blot test for analysis of cerebrospinal fluid in HAM/TSP (Abstract)*. Dissertation. Rio de Janeiro, 2009.

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Introduction: Human T-lymphotropic virus type 1 (HTLV-1) is associated with adult T-cell leukemia (ATL) and with a chronic neurological disease, HTLV-1 – associated myelopathy or Tropical spastic paraparesis (HAM/TSP). In 1988, based on studies of Osame and colleagues, the World Health Organization established the clinical and laboratory criteria for the diagnosis of HAM/TSP. The laboratory diagnosis is based on detection of antibodies anti-HTLV-1 in serum and cerebrospinal fluid (CSF). It is important to demonstrate the synthesis of intrathecal antibodies

anti-HTLV-1, considering that it represents a conclusive evidence of the immune response against HTLV-1 in the central nervous system.

Objective: The objective this study was to evaluate the test western blot in sense of to demonstrate intrathecal synthesis of antibodies against HTLV-1, as a support for the diagnosis of HAM/TSP.

Method: Paired CSF and serum samples (diluted to the same IgG concentration of the CSF) were selected from 14 HTLV-1 seropositive patients followed up at the outpatient Neuroinfection Unit of the Gaffrée & Guinle University Hospital (HUGG) diagnosed as having HAM/TSP. In addition, samples from 16 patients with other neurological diseases presenting negative serology for HTLV-1 were also analyzed. All were screened for the presence of HTLV-1 antibodies by ELISA and western blot in serum. The intrathecal synthesis of specific antibodies was evaluated by western blot (HTLV-BLOT 2.4). The presence of reactive bands more intense in CSF than in serum, or bands visualized only in the CSF was considered indicative of intrathecal synthesis of antibodies against HTLV-1 proteins. All 14 paired (serum and CSF) samples from patients with HAM/TSP presented evidence of intrathecal synthesis directed against at least one viral protein of HTLV-1. Concerning patients with other neurological diseases, no reactive bands were observed in the 16 paired samples studied.

Conclusion: The test presented sensitivity, specificity, positive and negative predictive values of 100%. Intrathecal synthesis antibodies anti-HTLV-1 were found mainly against the *env* (GD21 and RGP46-I) and *gag* (p24) proteins in 93% (13/14) of the patients, respectively. Reproducibility was obtained by testing the samples of a patient with HAM/TSP in another laboratory of other hospital (HEMORIO), using the same method. This analysis showed higher sensitivity and specificity in the detection of intrathecal synthesis of specific antibodies against HTLV-1 in patients with HAM/TSP, in comparison to other studies. This test demonstrated to be a useful tool as a laboratory support for the diagnosis of HAM/TSP. Likewise the criteria of positivity by using WB in serum, the authors suggest the demonstration of intrathecal synthesis of antibodies against two viral proteins (*env* and *gag*) as a confirmatory laboratory test for the diagnosis of HAM/TSP.

Key words: HTLV-I, cerebrospinal fluid, Western blot.

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