BMC Proceedings

Oral presentation

HTLV-1: epidemiology and pathogenesis of tropical spastic paraparesis/HTLV-1 associated myelopathy

Antoine Gessain

Address: Unité d'Epidémiologie et Physiopathologie des Virus Oncogènes, CNRS URA 3015 and Department of Virology, Institut Pasteur, 75724 Paris Cedex 15, France

Email: Antoine Gessain - agessain@pasteur.fr

from Infectious diseases of the nervous system: pathogenesis and worldwide impact
Paris, France. 10–13 September 2008

Published: 23 September 2008

BMC Proceedings 2008, **2**(Suppl 1):S17

This abstract is available from: http://www.biomedcentral.com/1753-6561/2/S1/S17

The association between the oncogenic human retrovirus HTLV-1 and a form of tropical spastic paraparesis (TSP) of unknown etiology (frequent in French West-Indies) was demonstrated by our laboratory in 1985. A year later, the association of HTLV-1 with a chronic spastic myelopathy was documented in Southern Japan, and this clinical entity was named HTLV-1 associated myelopathy (HAM). It was then recognized that HTLV-1 associated TSP and HAM were the same disease, the hybrid term TSP/HAM was adopted and WHO diagnostic criteria were established.

TSP/HAM is a chronic spastic paraparesis with signs of bilateral pyramidal tract lesions and minor sensory signs. The onset is insidious with gait disturbance, the evolution is slowly progressive with no remission and after 10 years of evolution, roughly 50% of the patients are wheel chaired. The incubation period, between the primary infection and the onset of the myelopathy signs, ranges usually from years to decades, but TSP/HAM also developed within 3.3 years in 50% of the post transfusion-associated cases.

Biologically, high levels of antibodies, directed against HTLV-1, are present both in blood and CSF with intrathecal production of specific antibody index. A high HTLV-1 proviral load is frequently observed in the PBL. Multiple spotty high intensities in deep and sub-cortical areas on T2-weighted images are the most frequent findings in brain MRI. A mild atrophy of the thoracic spinal cord can also be observed. On a pathological point of view, there is a chronic inflammation with perivascular lymphocytic cuffing and mild parenchymal lymphocytic infiltrates. The cells are mostly $CD4^+$ in early disease and mostly $CD8^+$ in latter disease. Pyramidal tract damage with myelin and axonal loss, mainly in the lower thoracic spinal cord are observed.

The pathogenesis of TSP/HAM is still poorly understood and viral and host factors as the proviral load and the immune response are considered to play a major role in disease progression. At least three mechanisms have been proposed to explain the HTLV-1 role in TSP/HAM development.

The long-term prognosis of TSP/HAM remains severe with a chronic evolution of a progressive disabling disorder without remission. Globally, few short-term benefits of therapeutic regimens have been observed, especially in early disease, but no treatment has been successful in chronic advanced disease. Failure to detect any clinical improvement is believed to be due to irreversible central nervous system damage in such patients. New controlled studies of both antiviral and anti-inflammatory agents are urgently required.