

Tau Platelets Correlate with Regional Brain Atrophy in Patients with Alzheimer's Disease

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Abstract

Background: Intracellular neurofibrillary tangles are part of the core pathology of Alzheimer's disease (AD), which are mainly composed of hyperphosphorylated tau protein.

Objectives: The purpose of this study is to determine whether high molecular weight (HMW) or low molecular weight (LMW) tau protein levels, as well as the ratio HMW/LMW, present in platelets correlates with brain magnetic resonance imaging (MRI) structural changes in normal and cognitively impaired subjects.

Methods: We examined 53 AD patients and 37 cognitively normal subjects recruited from two Memory Clinics at the Universidad de Chile. Tau levels in platelets were determined by immunoreactivity and the MRI scans were analyzed using voxel-based morphometry in 41 AD patients.

Results: The HMW/LMW tau ratio was statistically different between controls and AD patients, and no associations were noted between HMW or LMW tau and MRI structures. In a multivariate analysis controlled for age and education level, the HMW/LMW tau ratio was associated with reduced volume in the left medial and right anterior cingulate gyri, right cerebellum, right thalamus (pulvinar), left frontal cortex, and right parahippocampal region.

Conclusions: This exploratory study showed that HMW/LMW tau ratio is significantly higher in AD patients than control subjects, and that it is associated with specific brain regions atrophy.

Determination of peripheral markers of AD pathology can help understanding the pathophysiology of neurodegeneration in AD.

Palabras clave

Palabras clave de autor: [Alzheimer's disease](#); [medial temporal lobe atrophy](#); [non-invasive biomarkers](#); [tau variants](#)

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