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BIOMARKERS

POSTER PRESENTATION

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BIOMARKERS (NON-NEUROIMAGING)

Exploring Peripheral Blood Biomarkers for Dementia Diagnosis in Latin American Populations

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Abstract

Background: Dementia, encompassing Alzheimer's disease (AD) and frontotemporal dementia (FTD), poses a substantial public health challenge in Latin America. Barriers such as a shortage of healthcare professionals, limited medical accessibility, and underdiagnosis contribute to the complexity. While biomarkers aligned with the ATN framework (Amyloid, Tau, Neurodegeneration) have revolutionized diagnosis, their cost limits adoption in Latin America. Existing research focuses predominantly on North American or European cohorts, leaving a significant gap for the region. Our groundbreaking study aims to investigate, for the first time, ATN-related proteins in AD, FTD, and control subjects using blood samples from the ReDLat cohort. This research addresses critical gaps in dementia diagnosis specific to Latin America, guided by insights from the ATN framework.

Method: We enrolled 500 participants (AD, FTD, and healthy controls-HC) from Argentina, Chile, Colombia, Mexico, and Peru through the Multi-Partner Consortium to Expand Dementia Research in Latin America (ReDLat). Plasma samples were collected in EDTA tubes, aliquoted, shipped on dry ice, and stored at -80°C following standard methods. We assess the plasma levels of Aβ40, Aβ42, p-tau181, and NfL across groups (AD, FTD, HC) using Lumipulse G600II from Fujirebio, an advanced automated system which detects proteins via chemiluminescence.

Result: Our analysis revealed a significant decrease in the Aβ1-42/40 ratio between AD and FTD patients compared to HC. Additionally, we observed a significant increase in p-tau181 levels in both AD and FTD patients relative to HC, with a significant

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difference between AD and FTD. NfL levels were significantly higher in AD and FTD patients compared to HC.

Conclusion: Our findings demonstrate substantial differences in Aβ1-42/40 ratio, phosphorylated Tau, and NfL levels between AD, FTD, and control subjects. These distinct biomarker profiles hold promise for distinguishing between various forms of dementia and healthy individuals. Importantly, our study addresses the critical gap in dementia research within LA populations, offering valuable insights into the potential impact of regional factors on biomarker dynamics.