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Associations between neuropsychiatric symptoms and ADRD serum biomarkers in Mexican American and non-Hispanic white adults with mild cognitive impairment

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Associations between neuropsychiatric symptoms and ADRD serum biomarkers in Mexican American and non-Hispanic white adults with mild cognitive impairment

Sunday, July 16, 2023 : 12:00 AM - 4:55 PM

Monday, July 17, 2023 : 12:00 AM - 4:55 PM

Tuesday, July 18, 2023 : 12:00 AM - 4:55 PM

Wednesday, July 19, 2023 : 12:00 AM - 4:55 PM

Theme

Biomarkers

Abstract

Background: Mild cognitive impairment (MCI) is a heterogenous diagnostic category with trajectories ranging from reversion to unimpaired cognition to progression to dementia. Neuropsychiatric symptoms such as depression and irritability are common and influence quality of life of patients and caregivers. The role of neuropsychiatric symptoms on disease biology, presentation, and course remains poorly understood. The goal of this study was to evaluate the associations between neuropsychiatric symptoms and serum ADRD biomarkers in Mexican American and non-Hispanic white participants diagnosed with MCI.

Method: Participants from the Texas Alzheimer's Research and Care Consortium underwent a blood draw and clinical evaluation, including psychopathological and cognitive assessments. Diagnoses of MCI were adjudicated in consensus reviews. The presence and severity of neuropsychiatric symptoms were assessed by informant report using the Neuropsychiatric Inventory (NPI). Serum levels of total tau, neurofilament light (NfL), and glial fibrillary acidic protein (GFAP) were assessed using Simoa HD-X Analyzer. Associations between NPI total score and individual items with serum biomarker levels were assessed using linear regression adjusted for age and sex.

Result: A total of 425 participants (mean age: 71 ± 9 years, 62% female, 74% Mexican American) had a diagnosis of MCI and serum ADRD biomarkers (**Table 1**). Total NPI score was not associated with total tau (ß=0.002, p=0.609), NfL (ß=0.001, p=0.658), or GFAP (ß=0.001, p=0.777). However, endorsement of appetite changes was associated with higher NfL (ß=0.077, p=0.006) and GFAP (ß=0.088, p=0.002) levels. Stratified analyses indicated associations of appetite changes with serum NfL (ß=0.108, p=0.002) and GFAP (ß=0.095, p=0.003) in Mexican Americans, but not in non-Hispanic whites (NfL: ß=0.022, p=0.633, GFAP: ß=0.102, p=0.066).There were no other significant associations between individual items on the NPI with serum biomarkers (p>0.05, Bonferroni adjustment p±0.003).

Conclusion: Within Mexican American adults with MCI, changes in appetite were associated with higher serum NFL and GFAP levels. As elevations in circulating NfL and GFAP levels are associated with ADRD pathology and accelerated disease progression,

appetite changes, a non-invasive and easily discernible behavioral phenotype, may predict higher likelihood of worsening cognitive course. Future longitudinal studies will be necessary to confirm predictive utility of appetite changes for disease progression.

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