

Plasma AT(N) Biomarkers Predict Mild Cognitive Impairment with High Accuracy in Midlife Hispanic/Latino Adults

A Pilot Longitudinal Cohort Study

P3-14

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KEY TAKEAWAY: In 138 midlife Hispanic/Latino adults, plasma AT(N) biomarkers predicted probable MCI with high accuracy (AUC = 0.868). Vascular comorbidity burden modified biomarker effects, identifying AD-predominant vs. vascular-predominant MCI subtypes and a 0–6 risk score to enable scalable community screening.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES																																																								
The disparity Hispanic/Latino adults face higher Alzheimer’s disease (AD) risk, yet remain markedly underrepresented in research. The promise Plasma AT(N) biomarkers, amyloid (A), tau (T), neurodegeneration (N) offer scalable, minimally invasive screening. But studies focus on older, non-Hispanic White populations. The gap Mild Cognitive Impairment (MCI) is the optimal intervention window. Whether plasma AT(N) biomarkers reliably detect MCI in midlife Hispanic/Latino adults — when prevention is most actionable — is unknown. Objectives - Do plasma AT(N) biomarkers predict probable MCI (pMCI) in midlife Hispanic/Latino adults? - Do vascular comorbidities modify these associations?	Design & sample Community-based longitudinal pilot study of 138 midlife Hispanic/Latino adults (mean age 48 ± 12.5 years; 51% female). Measures Plasma Aβ42/40, pTau181, neurofilament light (NfL); vascular comorbidities; comprehensive cognitive assessment across six domains. Analysis Logistic regression tested incremental predictive value: <table><caption>Table 1. Participant Characteristics by Cognitive Status</caption><tr><th>Characteristic</th><th>CU (N=96)</th><th>pMCI (N=42)</th><th>p-value</th></tr><tr><td colspan="4">Demographics</td></tr><tr><td>Age, years (mean ± SD)</td><td>46.0 ± 12.7</td><td>50.3 ± 10.7</td><td>0.060</td></tr><tr><td>Female, n (%)</td><td>48 (50.0%)</td><td>22 (52.4%)</td><td>0.793</td></tr><tr><td>Education, years (mean ± SD)</td><td>11.4 ± 4.1</td><td>8.2 ± 4.7</td><td><0.001***</td></tr><tr><td colspan="4">Vascular Comorbidities</td></tr><tr><td>Hypertension, n (%)</td><td>47 (49.0%)</td><td>20 (47.6%)</td><td>0.882</td></tr><tr><td>Diabetes, n (%)</td><td>42 (43.8%)</td><td>21 (50.0%)</td><td>0.493</td></tr><tr><td>Dyslipidemia, n (%)</td><td>76 (79.2%)</td><td>38 (90.5%)</td><td>0.095</td></tr><tr><td>Comorbidity count (mean ± SD)</td><td>1.7 ± 0.9</td><td>1.9 ± 0.8</td><td>0.242</td></tr><tr><td colspan="4">Plasma Biomarkers (z-scores)</td></tr><tr><td>Aβ42/40 ratio</td><td>-0.202 ± 0.864</td><td>0.183 ± 1.085</td><td>0.028*</td></tr><tr><td>pTau181 (pg/mL)</td><td>0.000 ± 1.101</td><td>0.007 ± 0.719</td><td>0.975</td></tr><tr><td>Neurofilament Light (pg/mL)</td><td>-0.037 ± 1.026</td><td>0.034 ± 0.940</td><td>0.699</td></tr></table> Table 1. Participant characteristics by cognitive status. Values are mean ± SD or n (%); independent t-tests and chi-square tests. *p<0.05, ***p<0.001.	Characteristic	CU (N=96)	pMCI (N=42)	p-value	Demographics				Age, years (mean ± SD)	46.0 ± 12.7	50.3 ± 10.7	0.060	Female, n (%)	48 (50.0%)	22 (52.4%)	0.793	Education, years (mean ± SD)	11.4 ± 4.1	8.2 ± 4.7	<0.001***	Vascular Comorbidities				Hypertension, n (%)	47 (49.0%)	20 (47.6%)	0.882	Diabetes, n (%)	42 (43.8%)	21 (50.0%)	0.493	Dyslipidemia, n (%)	76 (79.2%)	38 (90.5%)	0.095	Comorbidity count (mean ± SD)	1.7 ± 0.9	1.9 ± 0.8	0.242	Plasma Biomarkers (z-scores)				Aβ42/40 ratio	-0.202 ± 0.864	0.183 ± 1.085	0.028*	pTau181 (pg/mL)	0.000 ± 1.101	0.007 ± 0.719	0.975	Neurofilament Light (pg/mL)	-0.037 ± 1.026	0.034 ± 0.940	0.699	Plasma Aβ42/40 was significantly elevated in pMCI vs. cognitively unimpaired (CU) (mean difference = 0.385 SD, p = 0.028, Cohen’s d = 0.41). pTau181 and NfL did not differ. Figure 1. ROC curves for models predicting pMCI. Adding vascular comorbidities and plasma biomarkers to demographics raised the AUC from 0.755 to 0.868. Figure 2. Effect modification by vascular burden. Aβ42/40 odds ratios for pMCI, overall (OR = 2.25, 95% CI 1.15–4.40) and stratified by vascular comorbidity burden.	Figure 3. Combined risk score. A 0–6 point score (plasma biomarker risk + vascular comorbidities) showed a dose–response relationship with pMCI prevalence. Plasma AT(N) biomarkers achieve high accuracy in predicting probable MCI in midlife Hispanic/Latino adults (AUC = 0.868). Vascular comorbidity burden identifies distinct MCI subtypes requiring different interventions: - Low burden → AD-predominant pathology; AD-targeted therapies. - High burden → vascular-predominant mechanisms; vascular risk management. Risk scores enable scalable community screening for earlier detection and targeted prevention in underserved populations facing disproportionate dementia burden.	- Kornblith E, et al. Race/ethnicity and dementia incidence. JAMA. 2022;327:1488-1495. - Jack CR Jr, et al. Revised criteria for diagnosis and staging of AD. Alzheimers Dement. 2024;20:5143-5169. - Palmqvist S, et al. Clinical practice guideline: blood-based biomarkers. Alzheimers Dement. 2025;21:e70535. - Gottesman RF, et al. Midlife vascular risk and brain amyloid. JAMA. 2017;317:1443-1450. - Petersen KK, et al. Plasma biomarkers and cognition: HABS-HD. Alzheimers Dement (Amst). 2025;17:e12646. CONTACT Erica D Diminich, MS, PhD Assistant Professor Psychology, Public Health CSU Dominguez Hills ediminich@csudh.edu Funding: [Alzheimer’s Association / AACSF-20-682140] ALZHEIMER’S ASSOCIATION
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