The Journal ofClinical Psychiatry

Supplementary Material

- Article Title:Plasma NfL, p-tau181, and p-tau181/Aβ42 Ratio in Predicting Mild Behavioral Impairment in
Dementia-Free Multi-Ethnic Asian Older Adults With Mixed Pathology in a 5-Year Clinical
Cohort
- Authors: Yingqi Liao, MSc; Joyce R. Chong, PhD; Cheuk Ni Kan, PGDip; Xuhao Zhao, MPH; Yuek Ling Chai, PhD; Saima Hilal, PhD; Mitchell K. P. Lai, PhD; Christopher P. Chen, FRCP; and Xin Xu, PhD
- DOI Number: 10.4088/JCP.24m15558

LIST OF SUPPLEMENTARY MATERIAL FOR THE ARTICLE

- 1. Methods
- 2. <u>Table 1</u> Baseline Plasma Biomarker Levels and Incident MBI in the Imputed Dataset With Maximum NPI Values
- 3. <u>Table 2</u> Baseline Plasma Biomarker Levels and Incident MBI Over Follow-up in the Imputed Dataset With Maximum NPI Values

DISCLAIMER

This Supplementary Material has been provided by the authors as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Supplementary Materials

Supplementary Methods

Fifteen (4.9%) subjects' blood sample were collected at a different visit from their NPI assessments used for baseline MBI status.

Disama		NPI assessment time used for baseline MBI status			
Plasma biomarkers measure time		Baseline & Y1	Y1 &Y2	Total	
	Baseline	274	11	285	
	Y1	16	0	16	
	Y2	4	0	4	
	Total	294	11	305	

The blood biomarkers were measured in Dec 2021 for P-tau181 and NfL, and in Oct/Nov 2022 for Abeta42. The storage duration before biomarkers analyses varies among the participants. Correlation analyses showed that the storage duration has no/little impact on the biomarkers' concentrations (analyses performed in blood biomarkers measured using Baseline samples).



Note: The Figure (n=505) has HD264 removed (Plasma P-tau181/Ab42 ratio=4.951). The Spearman's rho is based on the entire cohort of n=506.

Note: The Figure (n=534) has HD304 removed (Plasma NfL=361 pg/mL). The Spearman's rho is based on the entire cohort of n=535.

Supplementary Table 1. Baseline plasma biomarker levels and incident MBI in the imputed dataset with maximum NPI values.

Variables	OR (95% CI)	P value			
Model 1 ^a					
Plasma P-Tau181 level (Log-transformed, pg/ml)					
P-Tau181 per unit increase	2.74 (1.08, 6.94)	0.03			
Model 2 ^b					
Plasma P-Tau181/Aβ42 ratio level (Lo	og-transformed) ^d				
P-Tau181/Aβ42 ratio per unit increase	1.81 (0.83, 3.95)	0.13			
Model 3 [°]					
Plasma NfL level (Log-transformed, p	og/ml)				
NfL per unit increase	3.35 (1.46, 7.68)	0.004			

Aβ42, amyloid beta 42; CI, confidence interval; NfL, neurofilament light; OR, odd ratio; P-Tau181, phosphorylated tau-181; pg/mL, picograms per millilitre; SD, standard deviation; SE, standard errors. In the imputed NPI maximum value dataset, incident MBI (n=144) and no incident MBI (n=90) were identified. All generalised estimation equations (GEE) models were conducted in individuals with available incident MBI status (n=234) adjusting for age, gender, years of education and baseline diagnostic groups. *Significant test results with p<0.05 are highlighted in bold.

a. Model 1: P-Tau181 level (log transformed), age, gender, years of education and clinical diagnosis at baseline.

b. Model 2: P-Tau181/Aβ42 ratio level (log transformed), age, gender, years of education and clinical diagnosis at baseline.

c. Model 3: NfL level (log transformed), age, gender, years of education and clinical diagnosis at baseline.

d. Number of available data for P-Tau181/A β 42 ratio was n=215.

Supplementary Table 2. Baseline plasma biomarker levels and incident MBI over follow-up in the imputed dataset with minimum NPI values.

Variables	OR (95% CI)	P value
Model 1 ^a		
Plasma P-Tau181 level (Log-transfor	med, pg/ml)	
P-Tau181 per unit increase	3.93 (1.01, 15.28)	0.05
Model 2 ^b		
Plasma P-Tau181/Aβ42 ratio level (Lo	og-transformed) ^d	
P-Tau181/A β 42 ratio per unit increase	3.12 (1.07, 9.09)	0.04
Model 3 ^c		
Plasma NfL level (Log-transformed, p	og/ml)	
NfL per unit increase	5.19 (1.69, 15.93)	0.004
AB42 amyloid beta 42: CL confidence in	terval: Nfl neurofilamen	t light [.] OR odd

Aβ42, amyloid beta 42; CI, confidence interval; NfL, neurofilament light; OR, odd ratio; P-Tau181, phosphorylated tau-181; pg/mL, picograms per millilitre; SD, standard deviation; SE, standard errors. In the imputed NPI minimum value dataset, incident MBI (n=58) and no incident MBI (n=177) were identified. All generalised estimation equations (GEE) models were conducted in individuals with available incident MBI status (n=235) adjusting for age, gender, years of education and baseline diagnostic groups.

- a. Model 1: P-Tau181 level (log transformed), age, gender, years of education and clinical diagnosis at baseline.
- b. Model 2: P-Tau181/Aβ42 ratio level (log transformed), age, gender, years of education and clinical diagnosis at baseline.
- c. Model 3: NfL level (log transformed), age, gender, years of education and clinical diagnosis at baseline.
- d. Number of available data for P-Tau181/A β 42 ratio was n=217.