



Clinical Factors Associated with Discordant Plasma p-tau217 and Established Alzheimer Disease Biomarkers

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INTRODUCTION

Plasma p-tau217 measures are used to support Alzheimer disease diagnosis and treatment decisions but may be discordant with established AD biomarkers.

False-positive (FP) plasma ptau217 results may lead to overtreatment

False-negative (FN) results may lead to missed or delayed use of disease-modifying therapies.

OBJECTIVES

To determine clinical and demographic factors associated with discordant p-tau217 results (referencing established AD biomarkers).

METHODS

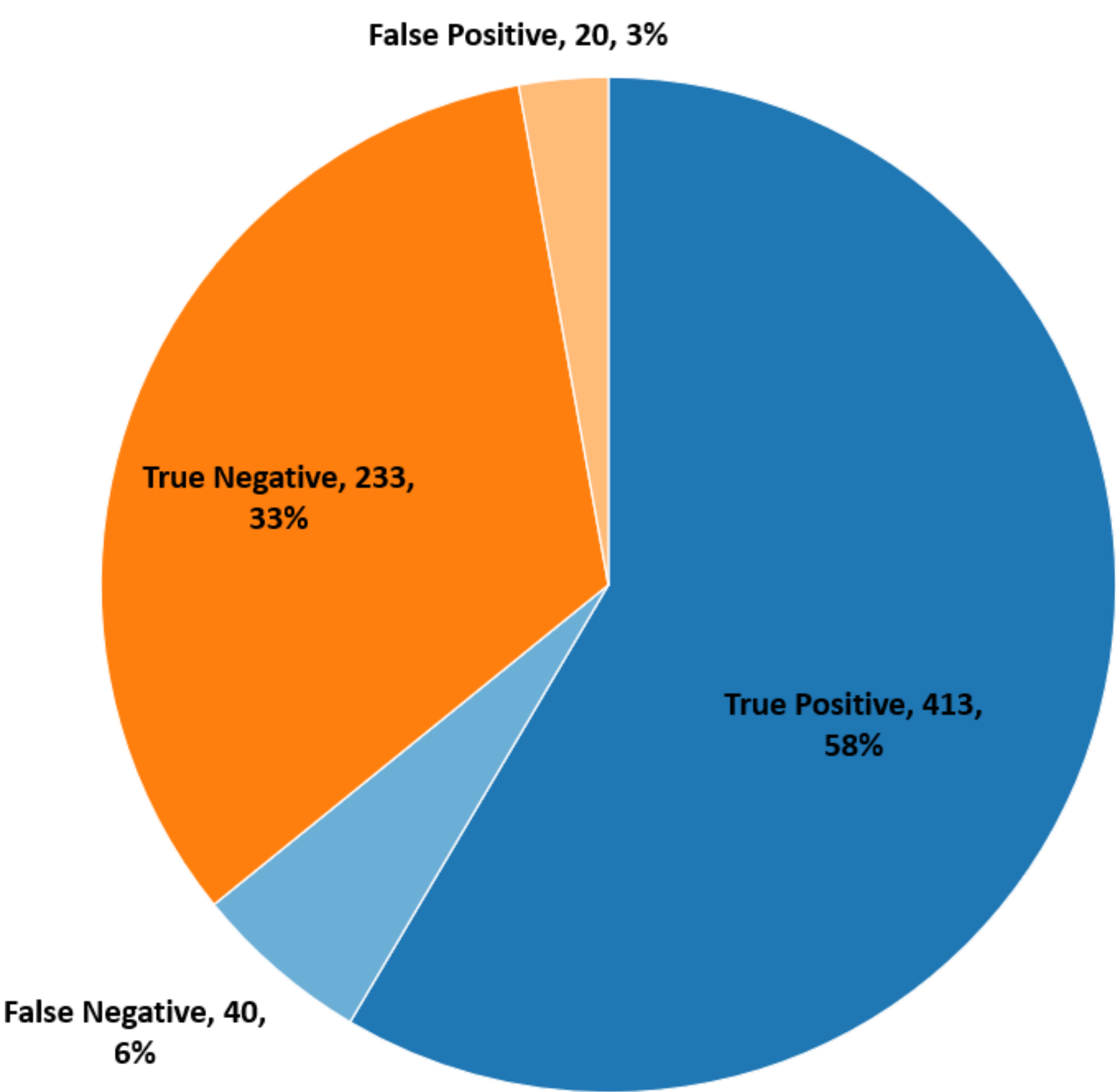
Participants enrolled in studies of memory and aging at Mayo Clinic with “positive” (>0.324 pg/mL) or “negative” (<0.186 pg/mL) plasma p-tau217 results and confirmatory amyloid-PET or CSF p-tau181/Aβ42 were included.

Plasma results were classified as true positive (TP), true negative (TN), FP, or FN. Variables were compared using univariate analyses; multivariable logistic regression evaluated independent associations with discordance.

RESULTS

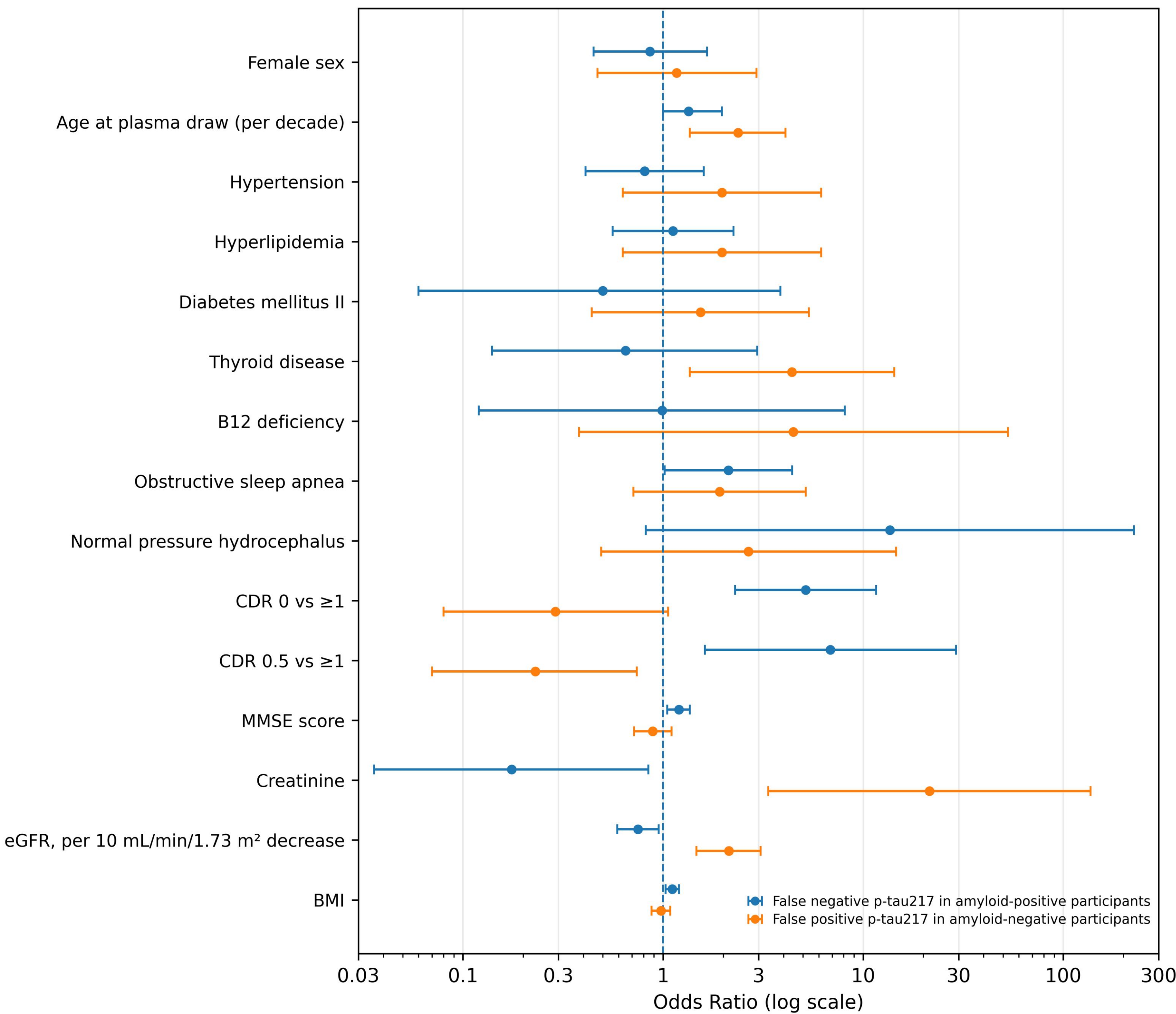
- 60/706 participants (8.5%) had discordant plasma p-tau217 results.
- False-negative results were more common than false-positive results: 5.6% vs. 2.8%, p=0.0067.

RESULTS



- Overall discordance was associated with older age (OR 1.61 per decade, 95% CI 1.23–2.14) and obstructive sleep apnea (OR 1.94, 95% CI 1.08–3.49).
- FN results, compared with TP results, were associated with earlier clinical stage, higher MMSE score, obstructive sleep apnea, higher BMI, higher eGFR.
- In age-adjusted multivariable models, independent predictors of FN results included BMI (OR 1.14, 95% CI 1.03–1.25), higher eGFR (OR 1.63, 95% CI 1.22–2.16), and earlier clinical stage (CDR ≤0.5).
- FP results, compared with TN results, were associated with older age, hypothyroidism, lower eGFR, and advanced clinical stage (CDR ≥1).
- In age-adjusted multivariable models, independent predictors of FP results included lower eGFR (OR 0.54, 95% CI 0.35–0.82), and advanced clinical stage (ORs 4.55-11, 11-0.22).

Clinical and Demographic Correlates of Plasma p-tau217 Biomarker Discordance.



CONCLUSIONS

Plasma p-tau217 results and established AD biomarkers were discordant in 8.5% of participants. Clinical stage and factors related to brain amyloid clearance, renal clearance, and volume of distribution were associated with discordant results. These insights may inform mechanisms of discordance and identify patients who require confirmatory biomarker measures.

REFERENCES & ACKNOWLEDGEMENTS

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