

The Relationship Between Ptau217 And Tau Pet Visual Read Positivity Categories In Cognitively Normal Individuals

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Introduction

While pTau217 is an excellent marker, by the time it is unambiguously positive, tau PET status may also be elevated (Rea Reyes et al. *Alzheimers Dement.* 2025;21(2)). Establishing this relationship is critical for evaluating the utility of plasma biomarkers in early disease detection, risk stratification, and secondary prevention trials.

Aim

The aim of the current study was to examine the association between pTau217 levels and tau PET positivity in cognitively unimpaired (CU) participants.

Methods

- We included 807 participants from the Wisconsin Registry for Alzheimer's Prevention and the Wisconsin ADRC
- The interval between assessments was limited to a maximum of two years and we used the most recent [F-18]Florquinetau PET scan.
- Participants were categorized as ALZpath plasma pTau217 negative, intermediate positive or strongly positive using locally determined cutoffs (95% sensitivity and specificity for [C-11]PiB PET visual read positivity).
- We report on the prevalence of tau PET positivity (T+: Medial temporal lobe only (MTL), neocortex only (Neo) or MTL and Neo) across these plasma concentration levels and diagnosis.

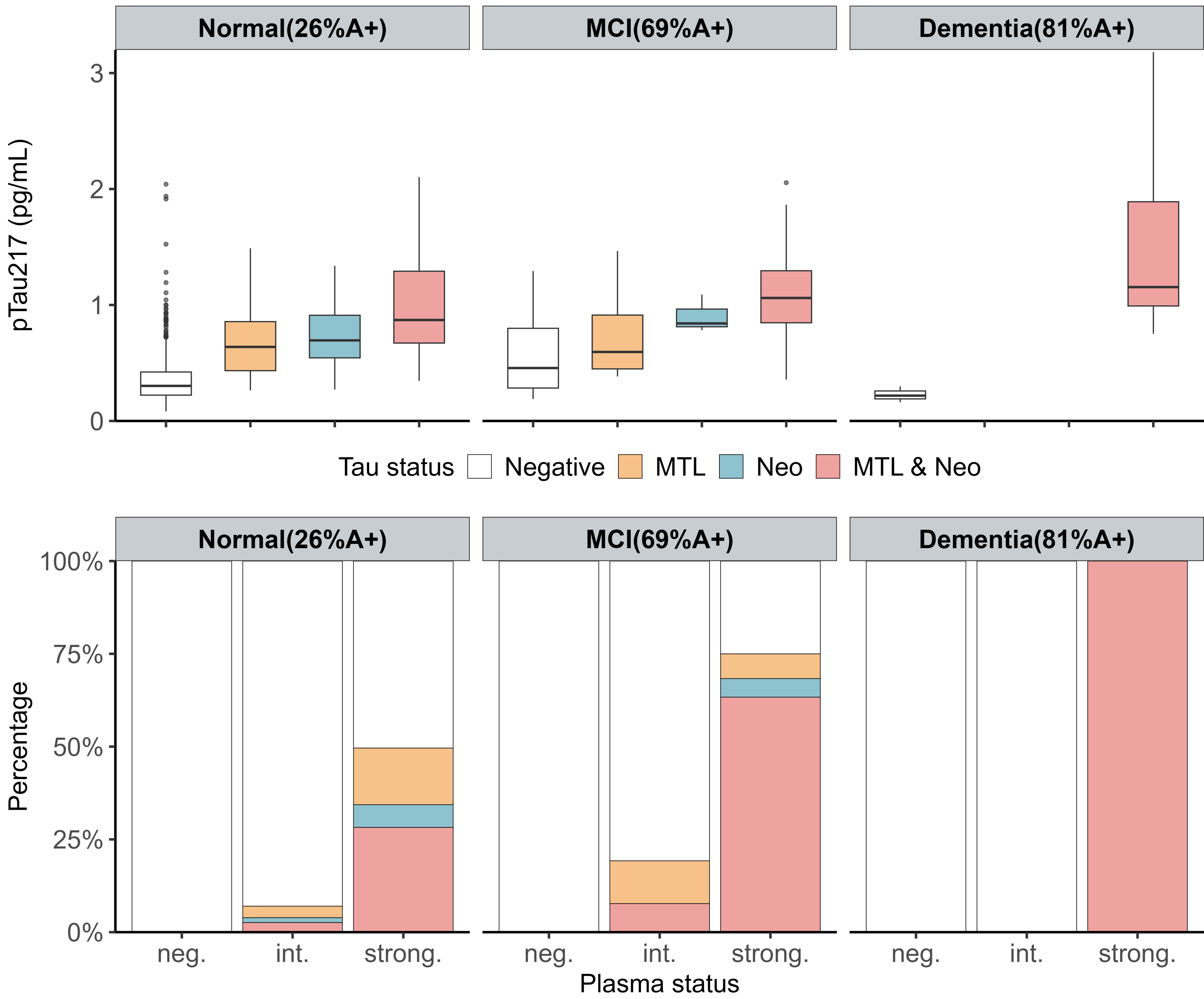
Results

Table 1: Participant characteristics

	All, n = 807	Negative (<=0.24 pg/ml), n = 189	Intermediate positive (0.24-0.59 pg/ml), n = 412	Strongly positive (> 0.59 pg/ml), n = 206
Cognitive status				
Normal Cognition, n(%)	700(86.7%)	184(97.4%)	385(93.4%)	131(63.6%)
MCI, n(%)	89(11.0%)	3(1.6%)	26(6.3%)	60(29.9%)
Dementia, n(%)	18(2.2%)	2(1.0%)	1(0.2%)	15(7.3%)
pTau217 levels (pg/ml), median[range]	0.35 [0.082-4.16]	0.19 [0.082-0.24]	0.34 [0.24-0.59]	1.03 [0.59-4.2]
Amyloid PET positive, n(%)				
Tau PET positive				
MTL, n(%)	39(4.8%)	0(0.0%)	15(3.6%)	24(11.7%)
NEO, n(%)	16(2.0%)	0(0.0%)	5(1.2%)	11(5.3%)
MTL&NEO, n(%)	102(12.6%)	0(0.0%)	12(2.9%)	90(43.7%)

MCI: Mild Cognitive Impairment; MTL: Medial temporal lobe; NEO: Neocortex

Figure 1: Plasma pTau217 concentration and levels across diagnosis and A/T status A+: amyloid positive



Results

Participant characteristics are given in **Table 1**. The mean age at the first tau PET scan was 69.5 years (SD7.6). 68% of participants were female, 38% were APOE e4 carrier and 17% of participants is URP.

123/206(60.7%) participants with strongly positive pTau217 levels were T+ across all T+ categories. When further stratifying by diagnosis, we found that 65/131(49.6%) CU participants, 45/60(75.0%) MCI participants and all 15(100%) participants with dementia with strongly positive pTau217 levels were T+ across all categories (**Figure 1**).

Conclusions

Plasma pTau217 status was strongly associated with tau PET positivity, with 50% of strongly pTau217 positive, CU participants also being tau PET positive. This may have important implications for secondary prevention treatment.

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