



Plasma P-tau 217 Correlation with Event Related Potentials in Cognitively Impaired From a General Neurology Clinic

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Background

We have previously demonstrated the utility of Event-Related Potential (ERP) testing in a sample of patients with cognitive decline and positive Amyloid PET. In that study, we showed that P3B latency and possibly P3A amplitude and EEG Peak Alpha Frequency (PAF) could be helpful in following amyloid PET scan positive patients with cognitive decline, while median reaction time (MRT) could be helpful in distinguishing positive and negative amyloid patients. P-TAU 217 has been demonstrated to correlate with Alzheimer's pathology as well as with progression of brain atrophy

Methods

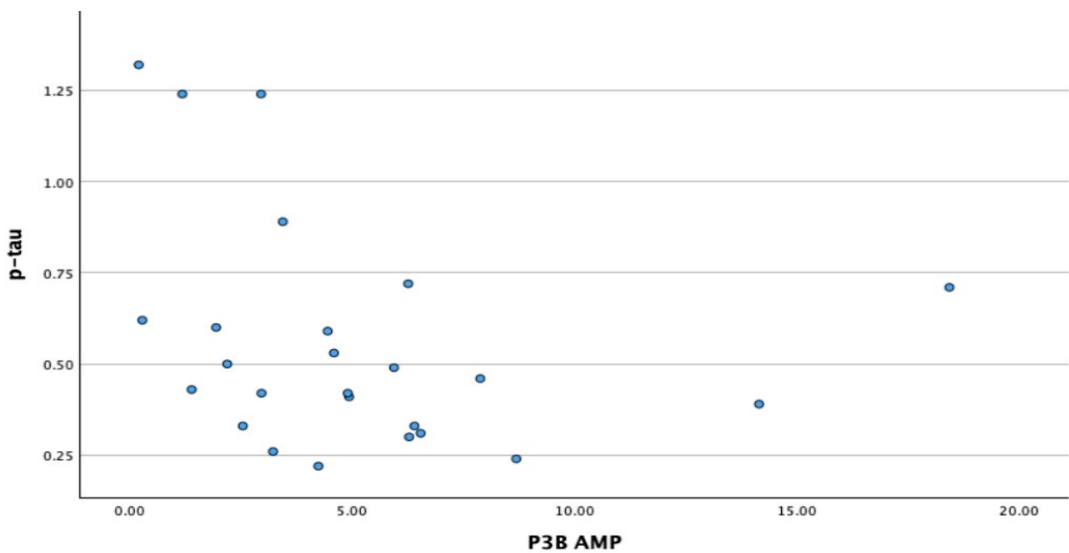
In the current study, a group of approximately 100 patients with cognitive decline seen at a general neurology clinic underwent ERP testing and plasma p-TAU 217 levels assessment. Correlation with degree of cognitive impairment was performed. Brain MRI and, when available amyloid, brain PET were also obtained together with Apo E genotyping, Neurofilament and Glial Fibrillary Acidic Protein.

Results

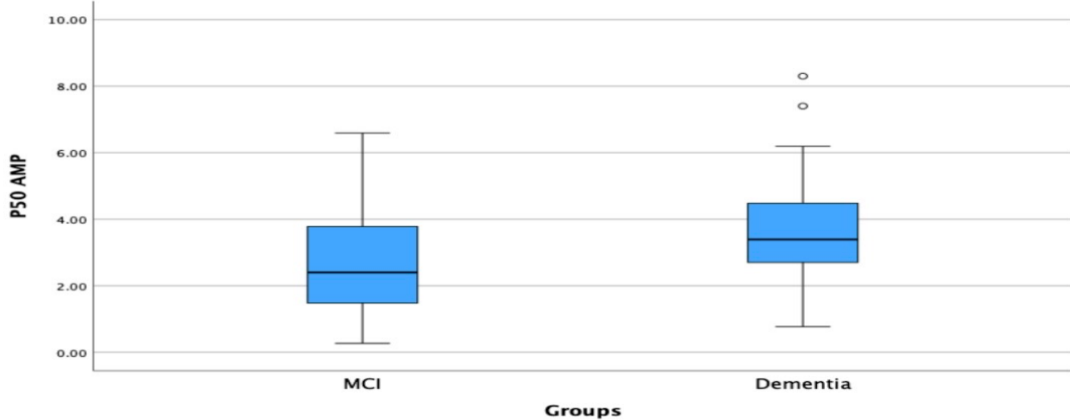
We found a significant difference for p-Tau 217 between patients with MCI and dementia and a statistically significant negative correlation between p-Tau 217 and P3b amplitude ERP response suggestive of impaired working memory and attention. We noted a correlation between prolonged P3b latency and Amyloid positivity. There was no difference amongst genders . Apo E4 was twice as frequent in cases with abnormal p-tau 217 levels. There was a significant correlation between p-Tau 217 and GFAP and Neurofilament with ERP P3a latency. And almost significant between p-Tau 217 and Neurofilament. We also noted a strong correlation between abnormal p-Tau 217 and positive Amyloid brain PET.

			PETAMY		Total
			Negative	Positive	
ptauGroup0Normal1	Normal	Count	7	4	11
		% within ptauGroup0Normal1Ab	63.6%	36.4%	100.0%
	Abnormal	Count	5	43	48
		% within ptauGroup0Normal1Ab	10.4%	89.6%	100.0%
Total		Count	12	47	59
		% within ptauGroup0Normal1Ab	20.3%	79.7%	100.0%

Correlation between abnormal p-tau 217 and amyloid PET



Correlation between p-Tau 217 and P3b amplitude



Higher P50 amplitude in dementia compared with MCI

Conclusion

ERP maybe helpful in assessing and monitoring patients with cognitive decline along with p-Tau 217, GFAP and Neurofilament levels.