#2977 Cognitive performance and affective symptoms in patients undergoing clinical Amyloid PET Imaging

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Objectives:

The typical onset of Alzheimer's Disease (AD) is characterised by episodic memory impairment. However, AD pathology can present with atypical clinical features and/or mixed aetiologies, which often lead to diagnostic uncertainty. Biomarker evaluation using amyloid PET imaging (API) in this group is guided by published appropriate use criteria (Johnson et al., 2013). A large proportion of these patients is also referred for clinical neuropsychological assessment. Here, we investigate the cognitive profiles and affective symptoms of memory clinic patients who are referred to both API and neuropsychological assessment as part of their diagnostic assessment.

Methods:

From a larger group of 396 patients that underwent clinical API between December 2013 and June 2019 at the Imperial Memory Clinic, we included individuals who also had a formal neuropsychological assessment (minimum of 4 domains) within 18 months of API and who received subsequent follow-up at our clinic. Referrals to API were in line with the appropriate use criteria andtook place after multidisciplinary team discussion. A total of 107 patients, 47 amyloid-positive (Aβ-pos) and 60 amyloid-negative (Aβ-neg), were included. The Aβ-neg group was further divided into 'progressive' (progAβ-neg, n=26) and 'stable' (stableAβ-neg, n=34), based on the presence or absence of documented clinical progression and/or concomitant neurological condition.

Results:

The three groups were comparable for age and premorbid IQ, while there was a lower proportion of females in the stableAβ-neg group **(Table 1).** ANCOVA models (with age, sex and premorbid IQ as covariates, and group as fixed factor) revealed that the Aβ-pos group performed worse than both negative groups in the domains of visuospatial and working memory **(Figure 1).** The Aβ-pos group differed from the stableAβ-neg but not the progAβ-neg group on a measure of episodic memory **(Figure 1).** The Hospital Anxiety and Depression scale (HADS) was administered to 85 patients (36 Aβ-pos, 20 progAβ-neg, 29 stableAβ-neg): non-parametric testing revealed higher levels of depressive symptoms in the stableAβ-neg group than in the Aβ-pos group **(Figure 2a).** Notably, a significant proportion of patients reported clinical levels (HADS≥8) of anxiety and depression across all groups **(Figure 2b).**

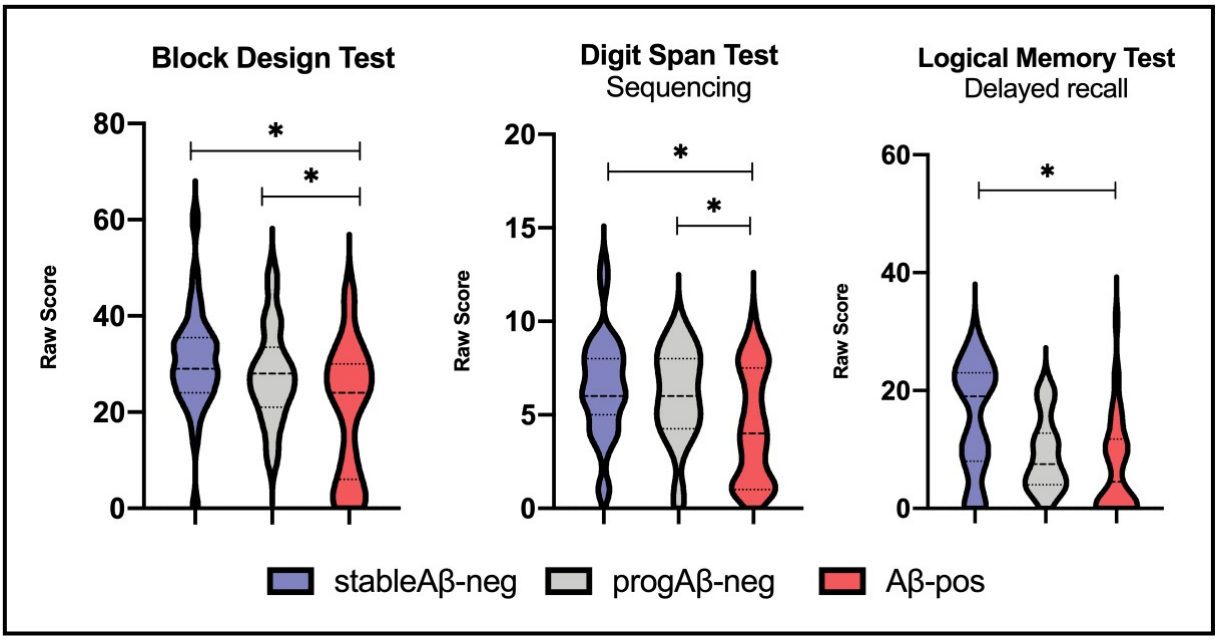
Conclusions:

In a memory clinic cohort undergoing clinical amyloid PET imaging and neuropsychological assessment, visuospatial dysfunction and working memory impairment were better indicators of Alzheimer's pathology than episodic memory dysfunction. Moreover, in this group we found a high prevalence of anxiety and depressive symptoms regardless of amyloid status.

Table 1 Demographic and general characteristics of the study sample.

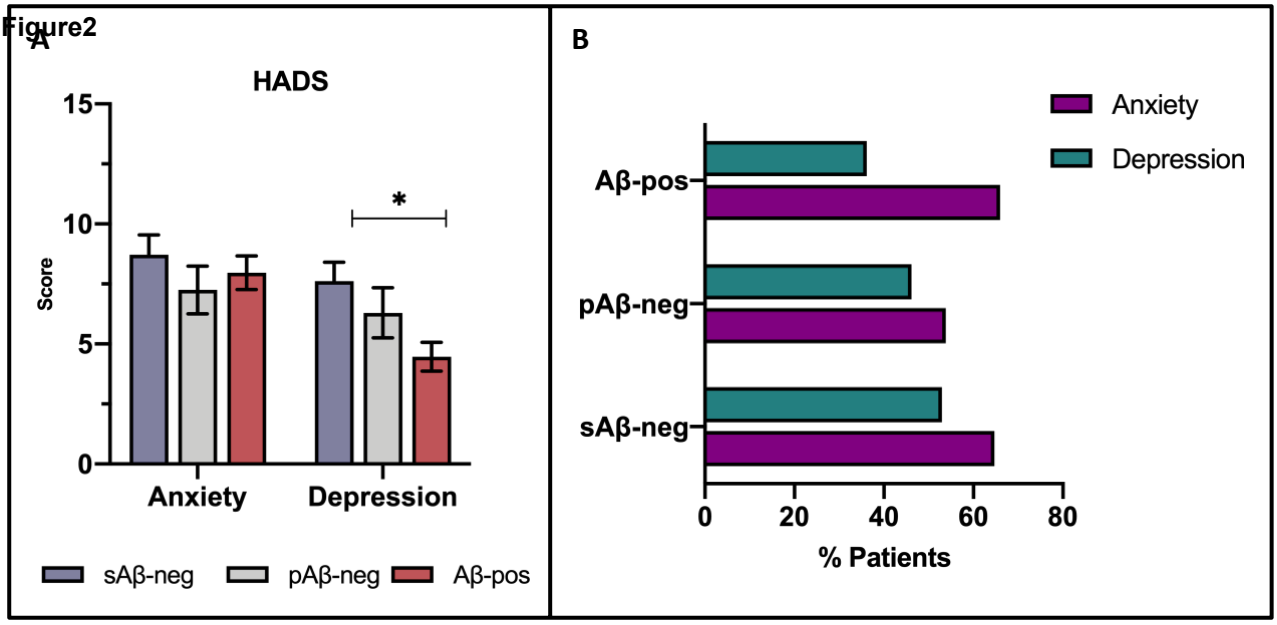
	Aβ-pos	stable Aβ-neg	prog Aβ-neg
Age years, *mean±SD*	66.57±8.84	68.03±10.48	66.58±8.71
Premorbid IQ, *mean±SD*	101.27±12.3	101.93±13.45	100.96±11.95
Gender, *%female*	61.70%	29.4%	50%

Figure 1



Unadjusted mean raw scores for cognitive measures included in analysis. *adjusted p<.05

Figure 2



(A) Unadjusted mean raw anxiety and depression scores as measured by the HADS. *adjusted p <.05

(B) Proportion of patients with clinically significant levels (HADS≥8) of anxiety and depression.