CLINICAL MANIFESTATIONS

POSTER PRESENTATION

How knowledge of elevated amyloid impacts neuropsychological performance in cognitively normal older adults: Findings from the REVEAL SCAN Study

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Abstract

Background: Alzheimer's disease (AD) prevention trials enroll cognitively unimpaired persons with AD biomarkers. The REVEAL-SCAN trial tested whether knowledge of elevated amyloid affects these persons' cognitive test performance.

Method: Cognitively unimpaired adults age 65-80 with a first degree relative with AD, intact cognitive and functional status, and no unstable psychiatric or medical conditions received an AD dementia risk estimate and random assigned to either learn their amyloid (18F-amyvid) PET scan result (D+) or to learn it 6 months later (D-). At 6 weeks and 6-months post-disclosure, participants completed the ADCS-PACC battery, a composite of 4 measures: Free and Cued Selective Reminding Test (free portion only), Logical Memory IIa test, Digit-Symbol Substitution test, and Mini Mental State Exam. Scores from each test are standardized to a common Z-score metric and a composite score is calculated by summing these standardized Z-scores. We hypothesized that follow-up ADCS-PACC scores would be lower among elevated (A+) disclosed participants (D+) than elevated (A+) nondisclosed (D-) participants.

Result: 315 participants were randomized (84 elevated (41 A+D+/43 A+D-), 231 not elevated (118 A-D+, 113 A-D-)). We report analyses comparing PACC scores between A+D+ and A+D-. Table 1 shows no statistically significant between group differences in participant characteristics. Both before and after multiple imputation and dropping outliers that were >2 SD from the mean, PACC scores did not differ between groups at baseline. Linear regression mixed-effects with repeated measures model (MMRM) adjusted for baseline PACC scores and time point showed that estimated mean scores at 6-week and 6-month did not differ between A+/D+ and A+D- participants (Model 1: D+ estimated mean 0.35, 95% CI: -0.13 to 0.84, compared to D- estimated mean 0.84, 95% CI: 0.38 to 1.31). The effect of disclosure on follow-up PACC scores remained nonsignificant after additionally adjusting for gender, race, education, and completion of follow-up testing during COVID (Model 2: D+ estimated mean -0.38, 95% CI: -1.10 to 0.33, compared to D- estimated mean 0.06, 95% CI -0.65 to 0.78).

Conclusion: Knowledge of elevated amyloid among cognitively unimpaired individuals does not change performance on measures of cognition. Inspection of the variance suggests a dampening of practice effect.

TABLE 1

Table 1. Baseline Participant Characteristics (Elevated Amyloid)

Characteristic	A+/D+ (41)	A+/D- (43)
Female, n (%)	30 (73.2%)	30 (69.8%)
African American, n (%)	10 (24.4%)	8 (18.6%)
Bachelor's degree or higher, n (%)	31 (75.6%)	33 (76.7%)
Age ≥ 70, n (%)	25 (61.0%)	27 (62.8%)
Baseline PACC		
Raw score prior to imputation, mean (95% CI)	-0.59 (-1.55 to 0.37)	-0.77 (-1.71 to 0.17)
Imputed with outliers removed, mean (95% CI)[a]	-0.11 (-0.60 to 0.38)	-0.38 (-0.84 to 0.08)

[a]Across 40 imputations, between 4.8% to 6.7% were dropped at each time point as outliers

TABLE 2

Table 2. MMRM Models (parameter estimates and 95% CI)

Characteristic	Model 1	Model 2
Disclosure vs non-disclosure (ref)	-0.49 (-1.16 to 0.19)	-0.45 (-1.10 to 0.21)
Baseline PACC, continuous	0.62 (0.50 to 0.74)	0.53 (0.40 to 0.66)
Time point 6m vs 6wk (ref)	0.10 (-0.28 to 0.48)	0.24 (-0.17 to 0.65)
COVID period visit vs prior to pandemic (ref)		-0.75 (-1.58 to 0.09)
Male vs Female (ref)		-0.85 (-1.61 to -0.10)
African American vs Non-African American (ref)		-0.46 (-1.32 to 0.39)
Bachelor's degree or higher vs less than Bachelor's (ref)		0.61 (-0.24 to 1.47)
Age ≥ 70 vs <70 years old (ref)		-0.32 (-1.01 to 0.38)