Differences in florbetapir deposition by race, age, gender, and ApoE status: The ARIC-PET Study

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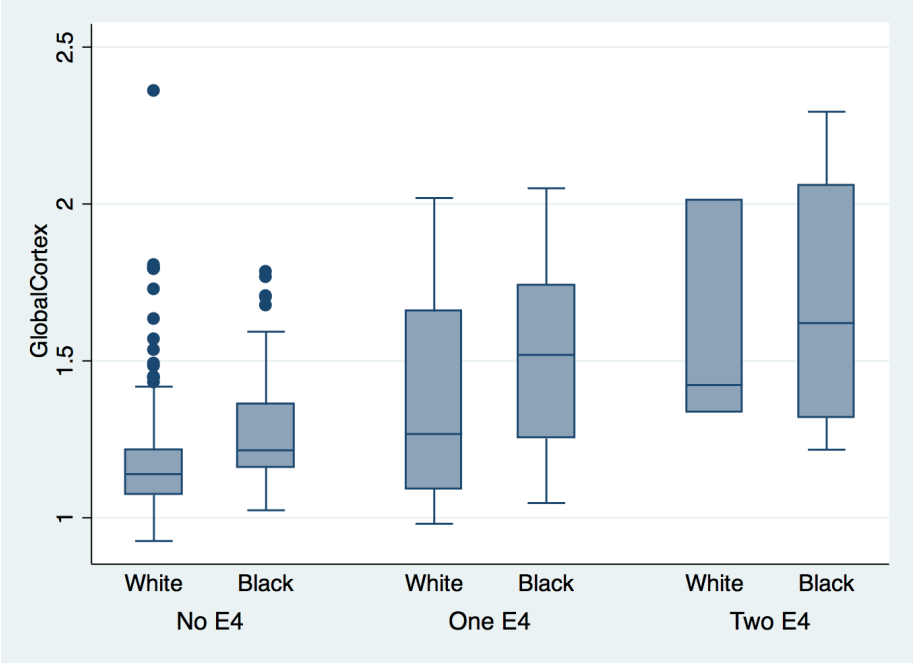
Objective: The purpose of this study is to evaluate differences in florbetapir deposition among nondemented older adults in the Atherosclerosis Risk in Communities (ARIC)-PET study, to determine if deposition varies by age, race, gender, and apoE genotype.

Methods: 302 ARIC-PET participants, ages 67-89, were imaged using florbetapir PET, at three sites (Washington County, MD; Forsyth County,NC; and Jackson, MS). Standardized Uptake Value Ratios (SUVR) were calculated using the cerebellum as reference region. Calculations were made in separate regions of interest (ROI's), with a composite global cortical SUVR calculated. Age, race, sex, and apoE genotype (number of ε4 alleles) were evaluated in a multivariable linear regression model.

Results: 111 of participants (36.8%) were African-American, and 164 (54%) were female. Only 2.4% of participants had a 44 apoE genotype, with 28.5% having a 24 or 34 genotype. Median global cortical SUVR was 1.2 (IQR 1.1-1.4). In multivariable models, increasing age was significantly associated with higher global cortical SUVR (β=0.08 per 10 yrs, 95% CI 0.03-0.13), as was African-American race (β=0.10, 95% CI 0.04-0.16), with no difference by gender. One ε4 allele was associated with 0.21 points higher global SUVR (95% CI 0.15, 0.28), with even higher SUVR observed with two ε4 alleles (β=0.39, 95% CI 0.21-0.58). Results were nearly identical for separate ROI's including the precuneus and posterior cingulate. Differences in SUVR by race and apoE genotype had an additive effect (Figure).

Conclusion: Florbetapir uptake increases with age and with more ε4 alleles, in this community-based non-demented cohort. Independent of age, gender, and number of apoE ε4 alleles, higher SUVR was associated with African-American race. The increase in SUVR in association with African-American race was equivalent to the amount of increase in SUVR associated with a 12-year increase in age. Reasons for and consequences of these differences by race warrant further study.

Figure. Boxplots of florbetapir SUVR for a composite global cortex measurement* by race and ApoE genotype; number of ε4 alleles is presented.



* Average of: orbitofrontal cortex, prefrontal cortex, superior frontal cortex, lateral temporal lobe, parietal lobe, precuneus, occipital lobe, anterior cingulate, posterior cingulate