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NEUROIMAGING

Older African Americans with the ABCA7-80 high-risk genotype have diminished slow oscillation power during non-REM sleep

Payton G. White | Miray Budak | Alyssa Arnasalam | Mustafa Sheikh | Bernadette A. Fausto | Mark A. Gluck

Rutgers University–Newark, Newark, NJ, USA

Correspondence
Payton G. White, Rutgers University–Newark, Newark, NJ, USA.
Email: pw352@newark.rutgers.edu

Abstract

Background: African Americans are among the most vulnerable demographic groups to both sleep deficiencies and Alzheimer's disease (AD)3. ABCA7-80 (rs115550680) known as adenosine triphosphate (ATP)-binding cassette member 7, plays a role in the transport of amyloid precursor protein, clearance of cellular Aβ, and lipid metabolism: three processes associated with late-onset AD2. Slow oscillations, which characterize non-REM sleep, are implicated in waste clearance and memory consolidation in the brain1. The present study investigated the putative association between ABCA7-80 risk on non-REM slow wave oscillations among cognitively unimpaired older African Americans.

Method: Participants were drawn from the ongoing longitudinal study, Pathways to Healthy Aging in African Americans conducted at Rutgers University–Newark. 75 participants, ages 60-87 years old completed a saliva test for genotyping and underwent at-home sleep monitoring over two nights using the DREEM 3 Headband. MANCOVA statistical analysis was performed on the sample data.

Result: Individuals with the ABCA7-80 high-risk allele, had significantly lower frontal slow oscillation relative power than individuals with the non-risk allele ($F = 2.175$, $\eta 2 = 0.137$, $p = 0.084$).

Conclusion: This preliminary data shows that individuals who have the ABCA7-80 high-risk genotype may have lower slow oscillation relative power. This holds importance for AD in African Americans as there is evidence that ABCA7-80 is more relevant for cognitively unimpaired older African Americans.