not significantly associated with rate of amyloid accumulation over several years. These preliminary results are in line with mechanistic hypotheses suggesting that mTBI may not affect rate of Aβ accumulation. Limitations of the current study include a relatively small sample size, a generally healthy sample with low variance in Aβ burden and number of mTBI, and limited information regarding circumstances of mTBI, potential unreported exposures to mTBI (e.g., in sports), and symptomatology of past mTBI. We are currently collecting a more detailed mTBI history and scanning participants at 8 years post-baseline to test additional convergent hypotheses regarding remote effects of mTBI on Aβ accumulation.

P4-569 APOE GENETIC VARIANTS ARE ASSOCIATED WITH STRESS HORMONE LEVELS IN YOUNG ADULTHOOD

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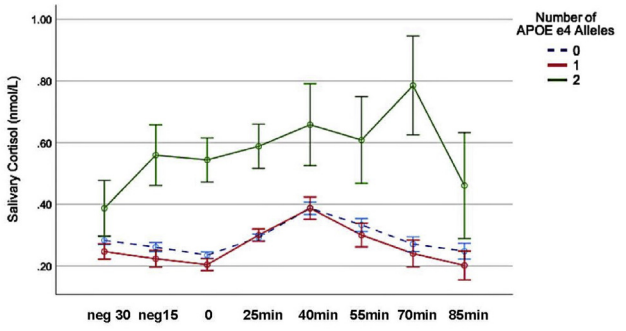
Background: Numerous studies show that sensitivity to stress increases the risk for Alzheimer's disease (AD), with mechanisms related to increased glucorticoid exposure presumed to underlie this association. Meanwhile, the mechanisms by which the single largest genetic risk factor for sporadic AD—the apolipoprotein E (APOE) ε4 allele— is thought to increase AD risk via its role in factors associated with regulating lipid transport. We propose that this gene may also exert its effects on AD risk by influencing glucocorticoid activity. Although the presence of APOE ε4 is associated with increased stress hormone (cortisol) levels in older adults and in those with AD, such findings might be attributable to the effects of incipient AD on stress hormone levels. We hypothesized that if variants in the APOE gene pose a risk for AD due to mechanisms related to glucocorticoid activity, then this association should be evident much earlier in the lifespan. **Methods:** In 413 healthy adults (18 – 29 years; 279 women), we measured salivary stress hormones at 3 time points before and 5 time points after an acute stressor (the Trier Social Stress Test). After excluding 9 individuals with the APOE 2/4 genotype, we compared salivary cortisol levels among three groups based on number of APOE ε4 alleles (0, 1, or 2) in a repeated-measures analysis of covariance controlling for sex and race. We also analyzed various parameters of the cortisol stress response, including area under the curve, and change in cortisol in response to stress. **Results:** Individuals who were homozygous for the APOE ε4 allele (n=8) had higher cortisol levels at baseline and following the acute stressor than did those with either 1 (n=90) or 0 (n=306) ε4 alleles (F=4.49; p=.01); individuals with 1 APOE ε4 allele did not differ from those with 0 ε4 alleles (see Figure). **Conclusions:** Results from this study suggest that the increased AD risk conferred by the APOE ε4allele may be related to its influence on stress hormones, which can be appreciated even in young adulthood. These findings support targeting glucocorticoid activity in AD risk prevention efforts, and beginning those efforts early.

Figure. Cortisol Response to the Trier Social Stress Test by Number of APOE e4 Alleles



P4-570 REPEATED BASELINE EEG MEASURES ARE EFFECTIVE FOR DISCRIMINATION OF AMNESTIC FROM NON-AMNESTIC MCI PATIENTS

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Background: Age and disease related cognitive declines have important socioeconomic implications. Differentiating between amnestic (those with highest risk of Alzheimer's disease) from non-amnestic elderly with mild cognitive impairment (MCI) is vital for elucidating the underlying mechanisms for accelerated cognitive decline and potentially guiding interventions for preventing or slowing MCI. We propose a novel approach for differentiating between different MCI subgroups by using repeated electrophysiological recording prior to and following visuospatial cognitive stimulation. **Methods:** Forty-one consensus MCI diagnosed community dwelling African American older participants (28 amnestic, 13 non-amnestic MCI) over age 60 years received two resting EEG (eyes closed) recordings between which participants engaged in a visual motion direction discrimination task (known to reflect integrity of the hippocampus) for approximately 20 minutes. The outcome measures were % changes of spectral power between pre/post EEGs. **Results:** There was a decrease in spectral power of eyes-closed EEG across the frequency ranges at post as compared pre-EEG recording: aMCI showed the greatest decrease of baseline EEG spectral power at the theta (4-8 Hz) across all the ROIs – 4 - 12% ($p<.005$), and posterior occipital ROIs at beta range (12-30 Hz) – 4 - 6% ($p<.05$), while no-aMCI showed significant % change of spectral power at frontal theta range (4-8 Hz) ($p = .04$). The significant % decrease between the two groups was observed at frontal theta ROI (aMCI = 13%, No-aMCI = 4%; $p < .05$). Multiple regression showed that % decrease in frontal and right temporal theta significantly predict group membership between amnestic and non-amnestic MCI patients ($R^2 = 23\%$, $p = .006$). **Conclusions:** Our preliminary results demonstrate that EEG reactivity, defined as % change in repeated eyes-closed baseline EEG after short visual cognitive stimulation, showed distinct, significant decreases in amnestic MCI as compared to non-amnestic participants primarily in frontal theta and beta frequency range. Baseline EEG reactivity findings are novel and promising in terms of differentiating between different subtypes of MCI, as well as older adults who are most at risk for accelerated cognitive decline and Alzheimer's disease.