(r=-0.168, p=0.03). Steeper cortisol slope was related to a more severe level of anxiety symptoms (r=0.36, p=0.009) and higher frequency of insomnia (r=0.292, p=0.011). We found that cortisol slope was associated with neuropsychiatric symptoms in PLWD. Future research is needed to examine the mechanisms underlying the relationships.

ASSOCIATION BETWEEN EVENING LIGHT EXPOSURE AND SUBJECTIVE SLEEP MEASURES AMONG PEOPLE LIVING WITH DEMENTIA

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Excessive light exposure before bedtime can disrupt one's circadian rhythm and can lead to poor sleep. The purpose of this study was to describe the relationship between evening light exposure and subjective sleep measures in people living with dementia (PLWD). We conducted secondary data analysis using the baseline data from Healthy Patterns Clinical Trial (N=137). We used Actiwatch Spectrum Plus to collect light data over three consecutive days. We defined evening light exposure as the average white light intensity for 4 hours before sleep. Sleep measures included Epworth Sleepiness Scale and PROMIS Sleep-Related Impairment. We used univariate regression analysis. We found that that greater evening intensity of light exposure was associated with higher daytime sleepiness (β=0.209, p=0.015) and more sleep impairment (β=0.228, p=0.014). The results of our study suggest that exposure to bright light during evening can disturb nighttime sleep and increase daytime sleepiness in PLWD.

Session 4040 (Symposium)

CONTRIBUTION OF SENSORY FUNCTION TO PRECLINICAL INDICATORS OF PHYSICAL AND COGNITIVE FUNCTIONING WITH AGING

Chair: Yuri Agrawal
Co-Chair: Jennifer Schrack
Discussant: Bonnielin Swenor

There are well established associations between sensory loss and physical and cognitive deficits with aging, but gaps remain in our understanding of the associations between sensory function and early preclinical indicators of physical and cognitive decline. This symposium will present data from the Baltimore Longitudinal Study of Aging (BLSA) on a series of studies investigating the links among sensory function, motor function, and physical and cognitive outcomes in older adults. In the first study, Dr. Gross will present an operational definition of early cognitive impairment (ECI) based on a combination of two cognitive measures – the Card Rotations test and the California Verbal Learning Test Immediate Recall – to predict progression to MCI/AD. In the second study, Dr. Cai will evaluate the relationship between multisensory impairment (in vision, hearing, olfaction, proprioception and vestibular function) and the algorithmic definition of ECI. In the third study, Dr. Armstrong will evaluate the association between multisensory impairment and another biomarker of ECI or preclinical AD, specifically PET-PiB deposition. In the

fourth study, Dr. Schrack, will present the joint contribution of multisensory (hearing and vision) impairment and motor function (gait speed) on risk of incident MCI/AD in longitudinal analyses. Finally, Dr. Martinez Amezcua will present the longitudinal association between hearing and vestibular function and decline in higher level physical function and endurance performance. Taken together, these studies present compelling data about the contribution of sensory function to preclinical indicators of physical and cognitive functioning with aging.

DERIVATION AND VALIDATION OF AN ALGORITHMIC CLASSIFICATION OF EARLY COGNITIVE IMPAIRMENT

Alden Gross,[1] Yang An,[2] Frank Lin,[3] Luigi Ferrucci,[4] Jennifer Schrack,[1] Yuri Agrawal,[5] and Susan Resnick,[4] *1. Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, United States, 2. NIA, Baltimore, Maryland, United States, 3. Johns Hopkins University, Johns Hopkins University, Maryland, United States, 4. National Institute on Aging, Baltimore, Maryland, United States, 5. Otolaryngology, Baltimore, Maryland, United States*

The long prodromal period for dementia pathology demands valid and reliable approaches to detect cases before clinically recognizable symptoms emerge, by which time it may be too late to effectively intervene. We derived and compared several algorithms for early cognitive impairment (ECI) using longitudinal data on 1704 BLSA participants. Algorithms were based on cognitive impairment in various combinations of memory and non-memory tests, and the CDR. The best-performing algorithm was defined based on 1SD below age-and race-specific means in Card Rotations or California Verbal Learning Test immediate recall, two tests that in prior work show the earliest declines prior to dementia onset. While this ECI algorithm showed low concordance with concurrent adjudicated MCI/dementia (AUC: 0.63, sensitivity: 0.54, specificity: 0.73), it was among the best predictors of progression to MCI/dementia (HR: 3.65, 95% CI: 1.69,7.87). This algorithm may be useful in epidemiologic work to evaluate risk factors for early cognitive impairment.

SENSORY IMPAIRMENT AND ALGORITHMIC CLASSIFICATION OF EARLY COGNITIVE IMPAIRMENT IN MIDDLE-AGED AND OLDER ADULTS

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Sensory function has been linked to cognitive impairment and dementia, but the link between multiple sensory impairments and early cognitive impairment (ECI) is unclear. Sensory function (vision, hearing, vestibular, proprioception, and olfaction) was measured in 390 BLSA participants (age=75±8 years; 57% women; 69% white) from 2012 to 2018 over a mean

3.6 years. ECI was defined based on 1 standard deviation below age-and race-specific means in Card Rotations or California Verbal Learning Test immediate recall. Cox proportional hazard models examined the risk of ECI for each sensory impairment and across categories of impairments. Vision impairment (vs. no vision impairment) was associated with a 70% greater risk of ECI (HR=1.70, p=0.05). Participants with 1 or ≥2 sensory impairments had triple the risk of ECI (HR=3.74 and 3.44, p=0.008 and 0.02, respectively) compared to those without impairment. Future studies are needed to examine whether treatment for sensory impairments can modify these risks.

SENSORY IMPAIRMENT AND BETA-AMYLOID DEPOSITION IN THE BALTIMORE LONGITUDINAL STUDY OF AGING

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Studies have demonstrated a link between sensory impairment and dementia risk, but little is known about the presence of beta-amyloid plaques in individuals with single and multisensory impairments. Sensory function (combinations of vision, hearing, vestibular function, and proprioception) and amyloid PET imaging were measured in 170 BLSA participants (age=78± 9 years; 53% women; 77% white; 28% amyloid positive) from 2012 to 2019. Log-binomial regression models were used to examine the prevalence ratios (PR) of amyloid positivity for individual sensory impairments and across categories of impairments. While crude associations indicate associations of vision impairment (PR=1.72, p=0.04) and impairments in all four senses (PR=2.38, p=0.03) with amyloid positivity, these associations were insignificant after adjusting for age, sex, race, and education. There were no other crude and adjusted associations. These results suggest sensory impairments may be related to dementia independent of AD pathology. Future studies with larger sample sizes are warranted.

MOTOR AND SENSORY FUNCTION AS PREDICTORS OF MCI AND DEMENTIA IN THE BALTIMORE LONGITUDINAL STUDY OF AGING (BLSA)

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Motor and sensory impairments are linked with dementia risk, but whether there is a joint effect of deficits in motor and sensory function is unknown. We analyzed 649 BLSA participants (aged 72±11 years; 55% women; 68% white) who had concurrent baseline 6-meter usual gait speed and sensory function (vision, hearing) between 2012-2019. Mild cognitive impairment (MCI) and dementia were adjudicated during an average follow-up of 3 years. We examined the association between baseline gait speed, z-scored sensory function, and a gait*sensory interaction with risk of MCI/dementia using Cox proportional hazard models, adjusted for demographics and chronic conditions. Each .01 m/s faster baseline gait was associated with a reduced risk (HR:0.98 (0.96-0.99)) of MCI/dementia, and each 1 SD higher in hearing and vision z-score was associated with an increased risk (HR:1.84 (1.1-3.1)) increased risk. The was no significant interaction, suggesting motor and sensory impairments may be independently associated with MCI/dementia risk.

ASSOCIATION OF HEARING IMPAIRMENT WITH HIGHER LEVEL PHYSICAL FUNCTIONING AND WALKING ENDURANCE

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The longitudinal associations between hearing impairment and higher-level functional measures and the potential confounding role of vestibular function have not been assessed. We investigated these associations in 831 participants of the Baltimore Longitudinal Study of Aging (2012–2019). Hearing was measured using pure-tone audiometry and categorized using WHO standards. Physical function was assessed with the Health Aging and Body Composition Physical Performance Battery (HABCPPB, higher=better) and walking endurance with time to walk 400 meters. Multivariable regression models tested the hypotheses that participants with hearing impairment have poorer physical outomes. In a subset, we further adjusted for vestibular function. Hearing impairment was associated with decrements in higher-level physical performance and walking endurance, and faster decline over time, regardless of vestibular function. Among participants with any hearing impairment, hearing aid users were faster in the 400-m walk. Early screening for higher-level functional loss among older adults with hearing loss is warranted.

Session 4045 (Paper)

COVID-19 and Community Dwelling Adults

AGING THROUGH THE TIME OF COVID-19: HEALTHCARE ACCESS FOR OLDER ADULTS LIVING WITH CHRONIC CONDITIONS

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