

51.2% [ARIC]; ≥ 80 year-olds: 82.6% [BLSA] and 74.2% [ARIC]), followed by vision loss and olfactory loss. Hearing and vision impairments were more prevalent than hearing and olfactory losses as well as vision and olfactory losses in both age groups and studies. There were few people with deficits in all three senses (70-79 year-olds: 3.3% [BLSA] and 2.0% [ARIC]; ≥ 80 year-olds: 5.8% [BLSA] and 7.4% [ARIC]). Further research should investigate the potential impact of multisensory impairments on older adults.

USING GENETIC INFORMATION TO EXPLORE WHETHER PRECLINICAL ALZHEIMER'S DISEASE AFFECTS HEARING DIFFICULTY

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Underlying AD-related neurodegeneration or shared risk factors may influence hearing loss; in an innovative approach we tested whether genetic risk for AD also influences functional hearing loss. We studied 401,084 UK Biobank participants aged 40-70, with Caucasian genetic ancestry, and enrolled 2007-2010. Participants self-reported hearing difficulty and were followed for AD diagnosis until 2018. A genetic risk score for AD (AD-GRS) was calculated as a weighted sum of 23 AD risk variants. In age-, sex-, and genetic ancestry-adjusted models higher AD-GRS was associated with problem hearing in ages 60+ (OR= 1.03; 95% CI: 1.00, 1.05), but not ages <60 ($p > 0.05$). Using the AD-GRS as an instrumental variable for AD diagnosis, we estimated that incipient AD increased probability of difficulty hearing at enrollment by 45% (95% CI: 1%, 93%). Higher AD-GRS was associated with slightly higher odds of hearing difficulty in older adults. Genetics that predispose for AD also influence late-life hearing difficulty.

RETINAL MICROVASCULAR HEALTH: CAN THE EYE TELL US ABOUT THE BRAIN?

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Cognitive impairment caused by Alzheimer's and other dementias is linked to vascular damage in the brain. Early microvascular changes in the brain are difficult to detect but in the retina, they can potentially be seen using optical

coherence tomographic angiography. In cross-sectional analysis, associations between retinal vessel density (VD) and cognitive performance were assessed by regression analysis of cognitive function z-scores (for global function as well as language, memory and executive function domains) on VD, controlling for age, race and education. Among 177 participants without dementia (50% black; 67% female; mean age 78 years [range: 71-93 years]), the mean (SD) superficial vascular complex VD was 48.0% (7.2). Among the 191 eyes without eye disease, there were no significant associations of VD with global or domain specific cognitive function. Early changes in the eye related to systemic disease processes may not currently be detectable in healthy older adults with imaging data.

HEARING LOSS AND COGNITIVE DECLINE: CAUSAL EVIDENCE

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Age-related hearing loss (HL) has recently been associated with cognitive decline, dementia, and changes in brain structure. HL has near universal prevalence in later life (involving 80% of those over 80 years old) and is rarely treated (under 20% in the same age group). Dementia is also common in later life, carrying staggering societal implications, including a worldwide cost of over \$605 billion/year. Research establishing an association between HL and cognition has included cross-sectional and prospective studies. New data show a link not only in the earliest stages of HL but also in hearing ranges still considered normal. The current evidence for an independent association between HL and impaired cognition, including a possible causal connection, will be reviewed. Plausible mechanistic pathways will be discussed with an emphasis on brain imaging biomarkers of dementia. Finally, future avenues for research and policy change will be proposed.

DUAL SENSORY IMPAIRMENT AND COGNITIVE PERFORMANCE, MCI, AND DEMENTIA IN OLDER ADULTS: THE ARIC NEUROCOGNITIVE STUDY

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Dual sensory impairment (DSI) affects 11.3% of adults aged ≥ 80 years. Hearing and vision impairments are each associated with cognitive decline and dementia, but DSI's impact is unknown. All-cause dementia and mild cognitive impairment (MCI) were adjudicated using longitudinal cognitive information. Ten neurocognitive tests were summarized using latent variable methods. Hearing was measured using pure tone better-ear thresholds (0.5-4 kHz) and vision with better-eye presenting distance visual acuity and/or contrast sensitivity. In 881 adults (79 ± 4 years, 44% black, 64% female), DSI (vs. no hearing or vision impairment) was cross-sectionally associated with -0.17 standard deviations (SD) [95% confidence interval (CI): $-0.32, -0.02$] lower global cognitive score and an 87% increased odds (95% CI: 1.01, 3.45) of combined MCI/dementia, after full adjustment for demographic and clinical factors. Future longitudinal research should elucidate the mechanism underlying this association to determine if treatment can delay cognitive decline and MCI/dementia in older adults.

SESSION 7255 (SYMPOSIUM)

VACCINATION TO PROMOTE HEALTHY AGING: THE FIVE WS

Chair: Leonard Friedland

Discussant: Leonard Friedland

This symposium addresses the role of vaccination to promote healthy aging and the process of developing and maintaining the functional ability that enables wellbeing in older age. Adults age 65 and over are at increased risk of certain infectious diseases due to immunosenescence. Therefore, immunization of older adults against targeted infectious diseases, including pertussis, shingles, influenza, and pneumococcal disease, can help to reduce morbidity and premature mortality. Vaccines in development to protect against additional infectious diseases causing significant morbidity and mortality in older adults, such as respiratory syncytial virus, can further promote healthy aging. The population of older adults in the US is projected to grow significantly over the next 30 years, with a corresponding increase in the incidence and economic costs of vaccine-preventable diseases. Immunization of older adults is a proven, cost-effective strategy that is critical for reducing the public health impact and societal costs in an aging US population. Implementation of evidence-based recommended vaccines for older adults presents challenges, including financial barriers, addressing disparities and inequities in health care delivery for older adults, and overcoming vaccine hesitancy. We plan to review these topics and present data we have generated to support the value of vaccination in adults age 65 and over. Health Behavior Change Interest Group Sponsored Symposium.

VACCINATION IN OLDER ADULTS: THE WHO AND WHAT

Leonard Friedland, *GSK Vaccines, Philadelphia, Pennsylvania, United States*

Aging brings increased impact of infectious disease in terms of hospitalization, morbidity, and mortality. This increased susceptibility to infection results from immunosenescence, age-related changes in the immune system, anatomic and functional changes, and environmental exposure to infections. Adults age 65 and over are at increased risk of pertussis, shingles, influenza and pneumococcal disease, and evidence-based recommendations for vaccination are protect older adults against these diseases. Underlying medical conditions including end stage renal disease, chronic lung, heart and liver disease, diabetes and immunocompromised place adults age 65 and over at increased risk of infectious diseases, therefore evidence-based vaccine recommendations in older adults with additional risk factors are in place to protect against varicella, hepatitis A and B, meningococcal meningitidis and Haemophilus influenzae type b. Investigational vaccines are developed to protect against infectious diseases causing significant morbidity and mortality in older adults, for example, respiratory syncytial virus, to further promote healthy aging. Part of a symposium sponsored by the Health Behavior Change Interest Group.

VACCINATION IN OLDER ADULTS: THE WHEN AND WHERE

Sara Poston, *GSK Vaccines, Philadelphia, Pennsylvania, United States*

Despite the well-understood benefits of vaccination in older adults, national rates still fall below public health targets, especially among certain racial and ethnic groups. Recent scholarship examining healthcare use patterns in adults revealed that health care providers miss several opportunities to provide vaccination during regular healthcare encounters, including Medicare annual wellness visits. Several barriers to older adult vaccination have been identified, including lack of patient and provider understanding of the importance of vaccination, financial barriers to vaccines covered under Medicare Part D, and patient hesitancy about the safety and effectiveness of vaccines. Strategies to address these barriers will be discussed, including the use of national quality measures to strengthen incentives for adult vaccination. Part of a symposium sponsored by the Health Behavior Change Interest Group.

THE VALUE OF VACCINATION IN OLDER ADULTS: THE WHY

Philip Buck, *GSK Vaccines, Philadelphia, Pennsylvania, United States*

The incidence of vaccine-preventable diseases remains high among older adults in the US, despite longstanding immunization recommendations, and is projected to increase as the population ages. The impact of US population aging on the burden of four vaccine-preventable diseases (influenza, pneumococcal disease, shingles, and pertussis) was modeled over a 30-year time horizon, with cumulative direct and indirect costs increasing from \$378 billion over 10 years to