FROM THE ALZHEIMER’S ASSOCIATION INTERNATIONAL CONFERENCE 2017

NEW AND EXPANDED RISK FACTORS FOR COGNITIVE DECLINE AND ALZHEIMER’S DISEASE

– Verbal and sensory skills, hospitalization may predict future cognitive function –

LONDON, July 17, 2017 – Detection of dementia at the earliest stages has become a worldwide scientific priority because drug treatments, prevention strategies and other interventions will likely be more effective very early in the disease process, before extensive brain damage has occurred. Research results reported at the Alzheimer’s Association International Conference (AAIC) 2017 provide clues about associations between cognitive status in older people and several behavior and lifestyle factors, including verbal skill, hearing, and hospitalization.

“It is essential that we learn more about factors that indicate or impact risk for Alzheimer’s disease and other dementias, especially lifestyle factors that we can change or treat,” said Maria C. Carrillo, PhD, Alzheimer’s Association Chief Science Officer. “The Alzheimer’s Association is committed to advancing scientific research to identify simple and accessible ways to spot the signs of cognitive decline.”

Having trouble with memory does not mean you have Alzheimer's. That said, the Alzheimer's Association says early detection allows people with dementia and their families:

- A better chance of benefiting from treatment.
- More time to plan for the future.
- Increased chances of participating in clinical drug trials, helping advance research.
- An opportunity to participate in decisions about care, living options, financial and legal matters.

Hearing loss is associated with poor cognition and progression to mild cognitive impairment

Taylor Fields, a doctoral student in the Neuroscience Training Program within the University of Wisconsin School of Medicine and Public Health, and colleagues examined the prevalence of hearing loss in late middle-aged adults with a family history of Alzheimer’s, and the association between hearing loss and cognitive status and decline. The researchers found evidence for a link between hearing loss and mild cognitive impairment, a condition that can be a precursor to Alzheimer’s disease.

The scientists used data collected from 783 people enrolled in the Wisconsin Registry for Alzheimer's Prevention (WRAP), a longitudinal study group of people with a parental history of Alzheimer’s. Participants undergo periodic tests to evaluate their ability to remember, process, and learn information. Study volunteers self-reported whether they had been diagnosed with hearing loss. At the beginning of the study, all volunteers had normal test results for clinical tests of cognitive function, and all were assessed for progression to mild cognitive impairment.
Over the course of four years, 72 (9.2 percent) study participants reported being diagnosed with hearing loss. Relative to those who reported normal hearing, people in the study with hearing loss were:

● More likely to score significantly poorer on cognitive tests such as how quickly new information is processed, flexibility in thinking, and how the brain, eye, and hand coordinate during information processing.
● Roughly three times as likely to be characterized as having mild cognitive impairment.

“This study suggests that hearing loss could be an early indicator of worsening cognitive performance in older adults,” Fields said. “Identifying and treating hearing loss could have value for interventions aimed at reducing the burden of Alzheimer’s disease.”

**Verbal fluency predicts cognitive health**

In another analysis of participants in WRAP, Kimberly Mueller, PhD, of the Wisconsin Alzheimer’s Institute, University of Wisconsin School of Medicine and Public Health, and colleagues investigated whether people with very early memory declines also show changes in their everyday speech. The researchers found that subtle changes in everyday speech, such as the use of short sentences, more pronouns, and pauses like “um” and “ah,” correlated with early Mild Cognitive Impairment (eMCI), which can be a precursor to Alzheimer’s disease.

In the study reported at AAIC 2017, the scientists analyzed two speech samples, taken two years apart, from 264 participants in WRAP. Of these participants, 64 were identified as having eMCI based on cognitive testing over 8-10 years. The speech samples, averaging one minute long, were collected by asking the participants to describe a simple picture.

Study participants with eMCI declined faster on two measures of speech: content and fluency. The content of their speech was less specific, with a higher proportion of pronouns to nouns (e.g., “she,” “it,” “them”). Their fluency was more disrupted (more hesitations, word repetitions, and filled pauses (“um,” “uh”)). Also, those with eMCI used less complex syntax and shorter sentences, and took more time to express the same amount of content as the cognitively healthy group.

“Our study is the largest prospective, longitudinal study of spontaneous speech samples in a study group of this kind,” Mueller said. “We don’t know whether the eMCI group will go on to develop Alzheimer’s, so we will continue to follow them, and our next step is to repeat these analyses with participants who have other biomarker evidence, such as amyloid plaques and neurofibrillary tangles as seen on PET scans. Speech analysis may be a valuable cognitive marker to add to clinical assessments of cognitive function in the future.”

**Emergency and urgent hospitalizations, but not elective admissions, are related to accelerated cognitive decline in older people**

Research shows that older adults are at high risk for memory and other cognitive problems after being hospitalized, not only transient delirium but also long-term changes in cognition. However, it is unknown whether elective hospitalizations, such as for scheduled surgery, put older individuals at the same risk for faster cognitive decline as emergency or urgent admissions (nonelective hospitalizations).

In research reported at AAIC 2017, Bryan James, Ph.D., of the Rush Alzheimer’s Disease Center at Rush University Medical Center in Chicago, Illinois, USA, and colleagues found that nonelective hospitalizations were associated with acceleration in cognitive decline from prehospital rates, but elective hospitalizations were not associated with a change in the rate of cognitive decline. Data came from 930 older adults (75% female, mean age of 81 years old) enrolled in the Rush Memory and Aging Project (MAP) in Chicago. The study involved annual cognitive assessments, as well as clinical evaluations. Information on hospitalizations was acquired by linking 1999-2010 Medicare claims records for these participants to their MAP data. All
hospital admissions were designated as elective, emergency, or urgent (the latter two combined as nonelective for analysis).

Of the 930 participants, 613 were hospitalized at least once over an average of almost five years of observation. Of those who were hospitalized, 260 (28%) had at least one elective hospital admission, and 553 (60%) had at least one nonelective hospital admission; 200 participants (22%) had both types of hospitalizations. In a model adjusted for age, sex, education, self-reported chronic medical conditions, length of stay, surgeries, intensive care unit stays, and comorbidities, nonelective hospitalizations were associated with acceleration in the rate of cognitive decline from before hospitalization, while elective hospitalizations were not. Nonelective hospitalizations were associated with an approximately 60% acceleration in the rate of decline.

“We saw a clear distinction: nonelective admissions drive the association between hospitalization and long-term changes in cognitive function in later life, while elective admissions do not necessarily carry the same risk of negative cognitive outcomes,” James said. “These findings have important implications for the medical decision making and care of older adults. While recognizing that all medical procedures carry some degree of risk, this study implies that planned hospital encounters may not be as dangerous to the cognitive health of older persons as emergency or urgent situations.”

While the U.S. Congress has recently provided additional funding for Alzheimer’s research at the National Institutes of Health, the commitment continues to fall far short of the need. In 2017, for every $100 the NIH spends on Alzheimer’s research, Medicare and Medicaid will spend $12,500 caring for those with the disease. Congress must continue its commitment to Alzheimer’s and other dementias by increasing funding for Alzheimer’s research by at least an additional $414 million in fiscal year 2018.

About Alzheimer’s Association International Conference (AAIC)
The Alzheimer’s Association International Conference (AAIC) is the world’s largest gathering of researchers from around the world focused on Alzheimer’s and other dementias. As a part of the Alzheimer’s Association’s research program, AAIC serves as a catalyst for generating new knowledge about dementia and fostering a vital, collegial research community.
AAIC 2017 home page: www.alz.org/aaic/
AAIC 2017 newsroom: www.alz.org/aaic/press.asp

About the Alzheimer’s Association
The Alzheimer’s Association is the leading voluntary health organization in Alzheimer’s care, support and research. Our mission is to eliminate Alzheimer’s disease through the advancement of research, to provide and enhance care and support for all affected and to reduce the risk of dementia through the promotion of brain health. Our vision is a world without Alzheimer’s. Visit alz.org or call +1 800.272.3900.

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● Taylor Fields, et al. Self-Reported Hearing Loss, Cognitive Performance, and Risk of MCI: Findings from the Wisconsin Registry for Alzheimer’s Prevention. (Funder(s): University of Wisconsin at Madison Neuroscience Training Program)
● Bryan James, Ph.D., et al. Cognitive Decline after Elective and Nonelective Hospitalization in Community-Dwelling Older Adults. (Funder(s): National Institute on Aging)

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