Biomarkers Key to AD Research Future

By Sterling Johnson, PhD, Principal Investigator, WRAP Study, and Associate Director, Wisconsin Alzheimer’s Disease Research Center

Research in the field of Alzheimer’s disease (AD) is progressing rapidly, and there are many recent positive developments representing major advances. First, after many pharmacological drugs have failed, there is a drug in phase III testing that has met all of its benchmarks. It is one of the amyloid immunotherapy drugs, and it works by turning the body’s own immune system against the amyloid plaques. Similar clinical trials are underway in asymptomatic people at risk for AD due to having amyloid in their brain. We anxiously await the results of those trials.

Second, there have been major advances in Alzheimer’s disease biomarkers. These are the amyloid scans, and more recently the tau scans, that provide an accurate indication of the amount and location of amyloid plaques and neurofibrillary tangles that a person may have in their brain. We anxiously await the results of those trials.

Second, there have been major advances in Alzheimer’s disease biomarkers. These are the amyloid scans, and more recently the tau scans, that provide an accurate indication of the amount and location of amyloid plaques and neurofibrillary tangles that a person may have in their brain. Biomarkers also include the amyloid and tau protein levels measured from the cerebrospinal fluid (CSF). The barriers in getting accurate measures from CSF are no longer an issue when using newly developed instruments and methods.

When we started studying amyloid markers, we found about one-third of healthy older adults had amyloid in their brains, but no symptoms. Why? By further observation of those same people over time, we and other scientists have found that in fact people with amyloid exhibit steeper cognitive decline than others.

This new and rapidly growing understanding of biomarkers has led to the third development I want to tell you about. There are new 2018 research diagnostic criteria for AD that the National Institute on Aging, together with the scientific branch of the Alzheimer’s Association, have proposed. These mainly involve the use of biomarkers together with clinical and cognitive measurement to define a preclinical phase of AD (a silent or asymptomatic phase), a mild cognitive impairment phase, and a dementia phase. Knowledge gained from WRAP and other similar studies have contributed to this new framework, and we at WRAP will be uniquely positioned to validate this new framework.

My colleagues and I will explain these and many other new developments in the field at our upcoming WRAP info sessions in April 2018. I invite you to attend and I personally look forward to seeing you at a session. Thank you for your commitment to the WRAP study. It is not easy to endure study visits year after year, but your dedication is paying off in new knowledge about preclinical AD that the field badly needs.
Join the Wisconsin Alzheimer’s Institute Regional Milwaukee Office for the 5th Annual Minority Health Month Event.

BREAKING THE SILENCE
ADDRESSING ALZHEIMER’S DISEASE IN COMMUNITIES OF COLOR IS A PUBLIC HEALTH ISSUE

Friday, April 20, 2018
Milwaukee
8:30 am – Noon
Italian Conference Center
Grand Ballroom
631 E. Chicago St., Milwaukee

Saturday, April 21, 2018
Racine
8:30 am – Noon
Racine Civic Centre
Festival Hall
5 5th Street, Racine

Featuring the “Amazing Grace” Chorus.
Complimentary parking is available at both locations.

FREE admission but registration is required. Space is limited - RSVP by April 16.

Register online at https://tinyurl.com/wai2018
or to register by phone, please contact Nia Norris at (414) 219-5159.

Wisconsin Alzheimer’s Institute
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH
Regional Milwaukee Office

New Podcast Highlights Alzheimer’s Disease Research, News

The Wisconsin Alzheimer’s Disease Research Center recently introduced Dementia Matters, a podcast aimed at educating listeners about Alzheimer’s disease. Host Dr. Nathaniel Chin, assistant professor of medicine, geriatrics and gerontology at the University of Wisconsin School of Medicine and Public Health and a WRAP coinvestigator, interviews experts in academia and the community about the latest headlines, research studies, and caregiver resources. Recent episode topics include the importance of healthy sleep, the link between Alzheimer’s disease and gut bacteria, the MIND diet for healthy brain aging, and utilizing prescription fish oil for AD prevention in veterans.

You can listen to episodes online at adrc.wisc.edu/dementia-matters, or through iTunes, Google Play, and other podcasting platforms.

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International Focus on WRAP Study Highlights Risk Factors for Cognitive Decline

By Robyn Perrin, PhD, Department of Medicine

Thirty-six scientists from the University of Wisconsin-Madison presented research at the Alzheimer’s Association International Conference in London, United Kingdom, joining nearly 6,000 attendees from around the globe. The conference, which occurred in July 2017, is the world’s largest meeting dedicated to the scientific study of dementia.

Four studies led by UW-Madison investigators were selected by conference organizers to be highlighted during news briefings. Each study used data gleaned from the Wisconsin Registry for Alzheimer’s Prevention (WRAP).

By applying a range of innovative approaches, UW-Madison researchers identified socioeconomic conditions of neighborhoods, stressful life events, hearing loss, and speech as possible risk factors for cognitive decline.

Amy Kind, MD, PhD, associate professor, geriatrics and gerontology, and her research group found living in a disadvantaged neighborhood — defined as a neighborhood challenged by poverty, low education, unemployment, and substandard housing — may account for some of the observed differences in Alzheimer’s disease risk among people of different racial backgrounds and income levels.

Megan Zuelsdorff, PhD, postdoctoral fellow in the Health Disparities Research Scholar program at the UW School of Medicine and Public Health, described research on lifetime stressful events and racial disparities in cognitive health. Results showed African Americans experienced over 60% more stressful events than whites over their lifetimes, and these experiences were one of the strongest predictors of poorer memory and thinking skills in older age.

Taylor Fields, a doctoral student in the Neuroscience Training Program, looked at the potential correlation between hearing loss and mild cognitive impairment (MCI). This study suggests that hearing loss could be an early indicator of worsening cognitive performance in older adults, and that identifying and treating hearing loss could have value for interventions aimed at reducing the risk of cognitive decline.

Kimberly Mueller, PhD, associate researcher, geriatrics and gerontology and Wisconsin Alzheimer’s Institute, and her group looked at changes in everyday speech. The research showed that subtle changes in everyday speech, such as the use of short sentences, more pronouns, and pauses like “um” and “ah,” correlated with MCI. Further studies are needed, but the results of this research indicate that speech analysis may be a valuable cognitive marker to add to clinical assessments of cognitive function in the future. ☀
UW-Madison is one of only 32 NIH-Funded Alzheimer’s Disease Research Centers across the country committed to finding a cure. Not only does our ADRC collaborate across this network of other ADRCs, but we also collaborate and have partnerships with research centers in several other countries including Germany, Israel, Sweden, and Australia.

UW-Madison:

- has a rare combination of expert collaborators with a multi-faceted approach that is key to understanding, treating and ultimately finding a cure for Alzheimer’s disease (AD).
- is home to the first and only combined School of Medicine and Public Health in the nation.
- has a group of over 2300 research participants committed to ending AD.
- faculty are studying how humans can fight back against AD and develop resilience through lifestyle changes.
- is one of only 24 facilities in the country that has the ability to both produce and image radioactive tracers that our medical experts use for early detection of changes in the brain.
- has a strong focus on addressing health equity with unique programs specifically tailored for African Americans and Native Americans.
- faculty members invented a unique 4-dimensional technique that shows how vessels are structured, their role in maintaining a healthy brain, and how they function as we age.

Over 15 years ago, UW physician scientists at WAI began studying the children of people who had been diagnosed with Alzheimer’s disease (called Wisconsin Registry for Alzheimer’s Prevention or WRAP). WRAP is the largest longitudinal study of its kind in the world.

The Wisconsin ADRC has completed over 150 research studies, published 725 research papers, and has over 50 active research studies in basic science and clinical research.

The UW is one of the top research institutions in the country. #6 (out of 900)

BECAUSE HERE, MEMORIES MATTER.
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