



## Institute for Aging & Alzheimer's Disease Research Newsletter

MAY 2014

VOL 2, ISSUE 1



### STUDY WILL SEEK TO SHOW DEPRESSION INCREASES ALZHEIMER'S RISK

Using MRI imaging, researchers plan to show that five specific symptoms of depression put Mexican American elders at greater risk of developing mild cognitive impairment (MCI) or Alzheimer's disease.

Previous studies have found that an explicit cluster of depressive symptoms are related to a higher risk for MCI and Alzheimer's disease (AD), according to Leigh Johnson, PhD, Assistant Professor of Internal Medicine at UNTHSC. Those symptoms are memory problems, feeling blue, feeling worthless, frequent crying and difficulty in concentrating.

"We have demonstrated that it is not 'depression' per se that is related to risk for MCI and AD, but rather this specific type of depression," Dr. Johnson said. "Given that depression is a treatable condition, this work holds tremendous therapeutic potential for treating and preventing MCI and AD."

The study is being funded by an Institute for Aging and Alzheimer's Disease Research junior faculty grant.

Depression is a significant risk factor for MCI and AD among Mexican Americans, while many other "established" risk factors among non-Hispanic whites – including education, gender, hypertension and diabetes – are not.

The current study is designed to further characterize the depression-cognition relationship through the use of neuroimaging. The imaging will indicate if there are neurological differences, such as hippocampal atrophy, an established biomarker of MCI and AD, in those participants who score high on these key depressive symptoms.

The study also seeks to address a major gap in knowledge about MCI and AD in an underserved, but rapidly growing segment of the aging population, specifically Mexican Americans.

While a tremendous amount of progress in neuroimaging biomarkers of MCI and AD has been accomplished within the last decade, very little work has examined these neuroimaging biomarkers among underserved patient populations, Dr. Johnson said.

The current study will significantly contribute to the advancement of scientific knowledge about aging in Mexican Americans.



**Leigh Johnson, PhD**  
Assistant Professor of  
Internal Medicine at  
UNTHSC

## **A**lzheimer's disease among Mexican Americans - A significant unmet health disparity

Mexican Americans are diagnosed with Alzheimer's disease at more advanced stages and at younger ages than non-Hispanics, research suggests.

They also suffer disproportionately from modifiable risk factors for Alzheimer's disease, such as diabetes and depression. In addition, Mexican Americans appear to be at an increased risk for developing Alzheimer's disease, the fifth-leading cause of death among those over age 65.

At the same time, little research has been done on Alzheimer's disease among Mexican Americans, who make up 65 percent of the nation's Hispanic population and are the fastest growing segment of the aging population. At UNT Health Science Center, researchers are leading the effort to address this unmet health disparity through numerous studies that could one day lead to treatments that target the specific needs of Mexican Americans.

Ethnicity matters in Alzheimer's disease research and clinical care for many reasons:

- The diagnostic process may be biased to over-diagnose Hispanics as having dementia or cognitive problems.
- Cultural considerations could play a role. For example, the term "dementia" means "crazy" in Spanish.
- The blood-based biomarker profile for Alzheimer's disease among Mexican Americans is more metabolic

in nature, whereas non-Hispanic whites demonstrate an inflammatory/vascular dysfunction profile.

Given the different biomarker profiles and prevalence of risk factors such as diabetes, it is possible that treatment for Alzheimer's disease may vary by ethnicity. For example, treatments using diabetes medications may work better among Hispanics, while treatments using anti-inflammatory drugs may work better among non-Hispanics.

Research in other diseases such as cancer and diabetes has shown that race/ethnicity impacts the therapeutic response. But a review of more than 11,000 patients enrolled in AD clinical trials showed that less than 1 percent were of Hispanic ethnicity. This comes despite calls for targeted recruitment of minority patients for these trials.

There remains a tremendous need to understand cognitive aging among Hispanics and all minority populations in order to ensure adequate advancements are made in diagnosis, treatment, prevention and caregiving.

### **BY THE NUMBERS**

- Alzheimer's disease (AD) is the most common neurodegenerative dementia, with more than 5.2 million Americans suffering from the disease.
- An American develops AD every 71 seconds.
- AD is the fifth-leading cause of death for those over 65.
- The percentage of Hispanics 65 and older will triple by 2050.
- About 65 percent of Hispanics in the U.S. are Mexican American, making this the fastest-growing segment of the aging population.

## **UNTHSC's O'Bryant recognized for Alzheimer's disease work**



Sid O'Bryant, PhD, Interim Director of the Institute of Aging and Alzheimer's Disease Research, has received the Federation of Associations in Behavioral Health and Brain Science (FABBS) Early Career Impact Award and the National Academy of Neuropsychology's Early Career Service Award.

The Early Career Impact Award is given to researchers who have made major contributions to the sciences of mind, brain and behavior. It is presented to early-career scientists of FABBS member societies during their first 10 years of post-PhD work.

The Service Award is based on the number of service-related positions the person has held and years in organizational leadership roles. Teaching, supervision and mentor activities and involvement in clinical/community service also are considered.

Dr. O'Bryant, Associate Professor of Internal Medicine, is being recognized for his work on the diagnostics of Alzheimer's disease and mild cognitive impairment.

Dr. O'Bryant said the Impact award is especially meaningful because he was the first person nominated for the award by the National Academy of Neuropsychology.

"There are a lot of psychologists in this country doing incredible work and to be selected is a huge honor," he said.

Dr. O'Bryant said it has been a privilege to play a role within the organization and a tremendous honor to receive the Service award honor.

"I have been involved with the organization since I was a student volunteer at the annual conference in 1998," he said. "I have served in a number of roles within the organization, which has been an incredible experience."

## MESSAGE FROM THE DIRECTOR



I am pleased to report that the Institute for Aging and Alzheimer's Disease Research (IAADR) has continued to make significant strides in its efforts to further our understanding of brain

aging and to discover biological basis, diagnosis and potential treatment of neurodegenerative diseases.

Such activities were enabled by significant new funding from both federal and private agencies.

Given the exceedingly tough climate for funding, such successes are a tribute to the high caliber and quality of research being conducted by our faculty.

In addition, faculty within the IAADR continued their efforts to ensure the training of future professionals capable of addressing the oncoming "silver tsunami" of the aging population and the age-associated diseases our society will have to tackle. These innovative training programs reach a broad range of individuals from students to professionals. They have been funded by either the NIH or private foundations.

I am very excited about an ongoing effort of the IAADR to assess the feasibility of a "clinical research

center." Such an entity may not only enhance the opportunity for faculty to translate pre-clinical research into the clinical setting, but may also serve as a mechanism through which we augment our ability to serve as a community resource, by bringing our expert clinicians, researchers and community together. This feasibility study is made possible by the generous support of the Rainwater Charitable Trust.

Because I have been appointed Dean for the Graduate School of Biomedical Sciences at UNT Health Science Center, I have relinquished my role as

Interim Director of the IAADR.

I leave it in the very capable hands of Dr. Sid O'Bryant, a talented and energetic member of the IAADR who already has been serving as the Director for Translational and Clinical Research. Dr. O'Bryant will provide excellent direction and vision, and I look forward to supporting his efforts moving forward.

Although I am stepping down, I plan to continue being an active participant in the IAADR and

look forward to my continued interactions with the talented group of faculty and staff. They are the backbone of the IAADR, and I wish to thank them for their gracious support.

“During my time as Interim Director, I have been elated at the continued successes of the IAADR this past year, with credit really going to the hard work and collaborative spirit of the faculty and staff.”

— Meharvan Singh, PhD

## IN THE NEWS: *Can coconut oil prevent or treat Alzheimer's?*



By Meharvan Singh, PhD  
Dean of the Graduate School of Biomedical Sciences

### ***The claim***

In recent years, there's been a lot of talk about using coconut oil as a way to help treat Alzheimer's disease. The theory is based on evidence that as the brain ages it is less able to use glucose or sugar for energy. This reduced use of glucose is believed to cause or contribute to the development of Alzheimer's disease. To compensate, the brain can break down fats to generate ketone bodies, which serve as an alternative energy source to brain cells that have lost their ability to use glucose. The body produces ketones when it metabolizes coconut oil, which can then serve as an alternate fuel source for the brain.

### ***The research***

Researchers have looked for ways to replenish the brain's ability to use sugar. But research on the effectiveness of coconut oil still is lacking. In theory, there may be potential benefits since ketone bodies can substitute for glucose in the brain. Sources of ketone bodies have been shown to modestly improve memory function in Alzheimer's patients.

### ***The bottom line***

Coconut oil may be beneficial, but it is also very high in saturated fats, which can have deleterious consequences on the heart and blood vessels in both the heart and brain. So far, there is insufficient research to support its effectiveness and safety. As a general rule, individuals considering coconut oil should remember that just because it is natural doesn't make it safe, and they should always consult a physician prior to trying it.

## Get to know your IAADR Faculty, Staff and Students



*Janice Knebl, DO, MBA*

Dr. Knebl is the Chief of Geriatrics at UNT Health Science Center and holds the Dallas Southwest Osteopathic Physicians Endowed Chair in Clinical Geriatrics. She acts as primary investigator for clinical trials in Alzheimer's disease and dementia. Dr. Knebl has brought many innovative programs to UNTHSC, including the Geriatric Education and Training in Texas (I GET IT) program, which helps meet the growing need to train new and practicing physicians in the care of the geriatric population.



*Nathalie Sumien, PhD*

Dr. Sumien's research focuses on identifying interventions to reverse motor and cognitive declines that accompany aging and Alzheimer's disease. Her laboratory is currently examining the interactive nature of antioxidant supplementation with exercise training on brain function. The goal is to develop therapies to reverse brain declines and identify clinically useful recommendations for successful brain aging.



*Blair Cushing, Third-Year TCOM Student*

Ms. Cushing, a third-year medical student at the Texas College of Osteopathic Medicine, already has a head start on a career in geriatrics. This summer she'll head to Boston University School of Medicine, where she was selected to participate in the Summer Institute in Geriatric Medicine. The program, which exposes students to academic geriatric medicine and research, is sponsored by the American Geriatric Society and BU's medical school with funding from the National Institute of Aging.