The Risk of Alzheimer’s Disease in Asymptomatic People: Patterns of Compensation and Vulnerability

As you may know, Alzheimer’s disease (AD) is the most frequent form of dementia in elderly individuals. Both the incidence and prevalence of AD increases with age, which is the most important risk factor for the disease; the older we are, the greater the risk. In addition, the risk of AD is affected by certain genetic, demographic (e.g., education level), and medical factors (e.g., hypertension, diabetes, and heart disease). Some of these factors, like lower educational attainment and greater risk of cardiovascular disease, can increase a person’s vulnerability for AD.

By contrast, there are lifestyle risk modifiers that can reduce the effects of AD risk factors, including physical and cognitive activity and diet (e.g., a Mediterranean diet). The most important aspect of studying risk factors for AD is the understanding that the presence of these factors does not predict AD in all cases; this means that not all people with hypertension will get AD. Similarly, not everyone with a high level of physical activity or a healthy diet will be fully protected. Nevertheless, a healthy lifestyle and keeping cardiovascular disease under control are important things that people can do to maintain a healthy brain.

In order to provide people with more specific recommendations, we need to conduct more research to fine-tune our understanding of AD risk. Brain imaging studies are beginning to play a major role in such research and are yielding very interesting results. For example, one might expect that people who are experiencing early changes in memory or thinking would show less evidence of brain activity on brain scans. Several studies have found that people with mild cognitive changes do not show a consistent pattern of decreased brain activity on brain scans. Rather, increased activity is seen in some areas of the brain that are usually affected by AD. This suggests that there is an early physiological process of compensation in the brain. The factors that make this compensatory process successful or unsuccessful are unknown, although it seems that vascular disease can modulate this response.

The Alzheimer Disease Research Center (ADRC) is currently conducting studies to examine whether vascular disease can accelerate the transition from normal to abnormal cognition by hindering the effects of physiological compensatory mechanisms. In addition, the ADRC is examining the relationship between vascular disease and the buildup of amyloid, a protein linked to AD. Understanding this process will determine when and how the cerebral vascular process might be treated and how this process could influence future prevention therapies for AD.
Fortunately, the actions that a person can take to help preserve healthy brain aging also benefit a person’s overall health. They include the following:

- Control risk factors for chronic disease such as heart disease and diabetes. Keep cholesterol and blood pressure at healthy levels and maintain a healthy weight.
- Get regular exercise and physical activity.
- Eat a healthy diet, including vegetables and fruits.
- Engage in intellectually stimulating activities.
- Maintain close social ties with family, friends, and the community.
- Get enough sleep. Memories are consolidated during sleep. Also, scientists have shown that memory works best when material is learned immediately prior to falling asleep (or taking a nap), probably because there is no interference from other incoming information.
- Make life as user friendly as possible by using strategies that aid memory. Why stress yourself? There is good evidence that stress is bad for your memory, especially as you age.
What is Lewy body dementia?

Lewy body dementia (LBD) is a common progressive brain disease that affects thinking, movement, behavior, and sleep. Approximately 1.3 million Americans have LBD, but many go undiagnosed because doctors may be unfamiliar with LBD. Most people with LBD will see several different doctors over the course of a year or two before receiving a diagnosis of LBD.

Symptoms and diagnosis

LBD symptoms include dementia, Parkinson’s disease-like movement problems, hallucinations and changes in mood, fluctuations in attention, and certain sleep disorders. LBD is a general term and includes two related conditions—dementia and Parkinson’s disease—that have similar combinations of symptoms. What differentiates the two is the timing in the onset of dementia and parkinsonism—i.e., the closer the onset of both symptoms, the more likely it will be called LBD. However, in LBD, the Parkinson’s symptoms may be mild early on, so LBD often is misdiagnosed as Alzheimer’s disease.

A common sleep disorder in LBD is called REM sleep behavior disorder (RBD), in which people physically act out their dreams. During periods of REM sleep, a person with LBD will move, gesture, and/or speak. There also may be some confusion between the dream and reality upon waking. In some people, RBD is the earliest symptom of LBD and is now considered a significant risk factor for developing LBD and Parkinson’s disease.

Every person with LBD is different and will manifest different degrees of the symptoms. Some will show no signs of certain features, especially in the early stages of the disease.

Is it LBD or something else?

Early and accurate diagnosis of LBD, while not always easy to do, is important for two reasons. First, people with LBD may respond more favorably to certain dementia medications than people with Alzheimer’s, allowing for early treatment that may improve or extend the quality of life for both the person with LBD and his or her caregiver. Second, certain antipsychotic medications such as haloperidol (Haldol), which are sometimes used to treat Alzheimer’s dementia, can result in a severe reaction in patients with LBD and should be avoided.

Treatment

Many LBD symptoms are highly treatable, and treatment can improve the quality of life of both the person with LBD and his or her caregiver. Some Alzheimer’s and Parkinson’s medications can help cognition, behavior, and movement symptoms. Family caregivers are an important link in the partnership with health care professionals and also require significant support throughout the illness. It is therefore important to build a knowledgeable LBD health care team to address the needs of both the person with LBD and his or her primary caregiver. It is very important to understand that because LBD can result in so many symptoms, multiple doctors may be required to treat it. This requires a great deal of coordination between members of the care team.

If you or your loved one is looking for additional support and information about LBD, ask your Alzheimer Disease Research Center social worker for more information about the Lewy Body Dementia Association.

The Lewy Body Dementia Association

The Lewy Body Dementia Association (LBDA) is a nonprofit organization dedicated to raising awareness about LBD; supporting patients, their families, and their caregivers; and promoting scientific advances. Through outreach, education, and research, LBDA supports those affected by Lewy body dementia. LBDA helps to connect LBD caregivers to each other and to the most current information about LBD. Resources available to caregivers through LBDA include online discussion forums in which caregivers can meet and share their experiences; a national network of LBD support groups; and the LBD Caregiver Link (1-800-LEWYSOS), through which caregivers can connect with LBDA volunteers who have personal experience with LBD. October is LBD Awareness Month, “A Month to Remember.” Please visit www.lbda.org for more information about LBD.
Research over the last two decades has vastly improved our understanding of the formidable challenges faced by family caregivers of persons with dementia. We know far less, however, about daily interaction between these individuals, particularly in the later stages of diseases such as Alzheimer’s disease, vascular dementia, dementia with Lewy bodies, and frontotemporal dementia. Much remains to be learned about how caregivers handle dementia-related behaviors that they find difficult. Likewise, much could be gained from health care providers’ using such information to reinforce effective caregiving approaches and to suggest additional strategies for dealing with these behaviors.

Numerous behaviors exhibited by persons with dementia have been identified as problematic by family caregivers, increasing both the time demands and the perceived burden of caregiving. Particularly problematic are resistive, repetitive, and agitated or inappropriate behaviors that affect health, safety, and social discourse. Patience, intuition, and trial and error may work well in defusing some of these behaviors, but these approaches may not suffice as symptoms of dementia fluctuate and worsen.

Informed principally by what family caregivers describe and by brief observations made during medical appointments or home visits, health care providers may not realize the frequency or intensity with which an array of problem behaviors are occurring, and they may leave unaddressed contextual factors that trigger, aggravate, or result from such behaviors and contribute to caregiver distress. Unlike the abundance of clinical information (e.g., physical exams, tests, and procedures) used to diagnose health conditions and evaluate responses to treatment, objective data are lacking for nuanced assessment and intervention related to caregiving at home.

First-person vision (FPV) technology developed by the Quality of Life Technology (QoLT) Center, a collaboration between Carnegie Mellon University and the University of Pittsburgh, offers a new way to learn about how caregivers handle various difficult behaviors. Further, it compiles objective information that can serve as a springboard for targeted discussion between family caregivers and health care providers. Attached to eyeglasses and worn on a special vest, FPV sensors gather visual and audio data that enable digital capture of what is happening from the user’s point of view. They record interactions between people as they occur, though with the advantage of giving the wearer complete control over when the devices are operating through the use of an on/off button.

QoLT Center researchers are currently seeking family caregivers age 21 or older who live with a person with dementia to participate in a study focused on their experiences and views about wearing FPV devices at home as well as their responsiveness to customized, nurse-delivered interventions informed by data gathered by the devices.
Alzheimer Disease Research Center (ADRC) staff members continue to work steadily to raise awareness and share valuable information about Alzheimer’s disease (AD).

Venues where center staff members have recently presented include Vintage senior center, Elder Ado senior center, the Wilkinsburg Public Library, and Arden Courts of Monroeville.

An outreach event also was held at Hill House Association’s Kaufmann Center, located in the Hill District of Pittsburgh. In collaboration with the Alzheimer’s Association Greater Pennsylvania Chapter, the ADRC held its inaugural Black History Month event, titled the Time Is Now: Facing Alzheimer’s in Our Community. The purpose of the program was to stress that now is the time to reflect on the future health of our flourishing community of older African Americans and to learn more about AD and ways to advocate for those who are affected.

People sometimes dismiss the warning signs of AD, believing that these symptoms are part of normal aging. This is of even greater concern for African Americans, who are more likely to develop AD than Caucasians. This inaugural program featured a presentation from Clayton Jacobs, vice president of programs and services for the Greater Pennsylvania Chapter of Alzheimer’s Association, and Jennifer Lingler, PhD, Education and Information Core director at ADRC. A former AD caregiver gave her personal testimony of dealing with the disease and encouraged attendees to consider participating in AD research. This event was a successful program that created increased awareness and encouraged advocacy to help fight AD.

The ADRC also hosted the spring 2013 Walter Allen Memorial Seminar Series lecture on May 9, 2013. Ishan Williams, PhD, ADRC University of Virginia satellite recruitment and enrollment coordinator, spoke on “Informed Consent: What We Need to Know about Participating in Clinical Research.” The presentation was well received and sparked some great discussion among attendees.

If you would like information about upcoming seminars and/or support groups or about participating in research studies, please contact Marita Garrett at 412-692-2722 or garrettm@upmc.edu.

Outreach Happenings

At the Alzheimer Disease Research Center (ADRC) University of Virginia satellite, we have been busy connecting with our ADRC families and focusing on how we can better reach more African Americans who may be suffering from cognitive decline. One such effort to aid in increased enrollment in ADRC studies is a recently funded grant directed by nursing professor Ishan Williams, PhD, and neuropsychologist Carol Manning, PhD.

This grant, from the Alzheimer’s and Related Diseases Research Award Fund, was awarded to the researchers to conduct research on cognitive impairment among African Americans in primary care clinics.

They will examine whether mild cognitive impairment is underrecognized in a community sample of African Americans coming into a primary care clinic, determine whether African American older adults with vascular risk factors (such as hypertension, diabetes, high cholesterol, history of stroke, or cigarette smoking) have more cognitive impairment than African Americans with well-controlled or no vascular risk factors, and examine whether the number and type of vascular risk factors predict cognitive impairment.

We are very excited to see how this study can potentially become a referral source for the ADRC among African American families in the greater Charlottesville, Va., area.
In Memoriam

The University of Pittsburgh Alzheimer Disease Research Center thanks the following individuals and companies for their generous donations received October 19, 2012–April 19, 2013.

In Memory of Dawn Alexson
Jennifer Hinz Beacom
Susan Clark

In Memory of Gertrude Archer
Jeanne Fulton
David and Cynthia Jones

In Memory of Gilbert Blair
Guy and Patricia Bauman
Dorothy Bickmore
Madge Clayton
Mary Laura Gardner
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R.A. Peebles
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Mary Hazel Tanner
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In Memory of Elizabeth Dale
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Robert P. Czmiel

In Memory of Dr. Edward Daggitt
John and Margaret Ellison
Gary and Sharon Thompson

Thank you!
Your contributions are greatly appreciated and help to support research and education in the area of Alzheimer’s disease. You can remember or honor a loved one by using the envelope enclosed in this newsletter to send in your donation.
In Memory of Robert F. Klemens
Pete and Lisa Klemens
Patricia and Harvey Spikol, PhD

In Memory of Beatrice Lamprinakos
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In Memory of Julia E. Simpson
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Sandra Simpson

In Memory of Terri Simpson’s Mother
Susan Maxwell

In Memory of Jane Stonerod-Lauterbach
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Simon and Brenda Stang
Thompson Public School
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Heath and Shannon Webber
The Tippins Foundation
Truist
United Way of Midland County, Mich.
The Alzheimer Disease Research Center and the Andy Warhol Museum have partnered to offer a new and innovative program for patients and family members affected by memory loss and other cognitive changes. Patients and their family members are invited to participate in a special tour and artistic expression activity offered at the Andy Warhol Museum on Pittsburgh’s North Side.

Please contact MaryAnn Oakley at 412-692-2721 or oakleym@upmc.edu for more information or to register for this event.

ADRC Patients and Family Members Invited to Warhol Tour and Artistic Expression Activity

The Alzheimer’s Association 24-hour helpline provides reliable information and support to all who need it. Call the toll-free hotline anytime, day or night, at 1-800-272-3900.

PSYCHIATRIC SOCIAL WORKER
AMANDA HUNSAKER, MSW, MPH

Amanda Hunsaker, a psychiatric social worker at the Alzheimer Disease Research Center (ADRC) since January 2012, truly believes that the ADRC is making a difference for the families it currently serves and for future generations.

“It is truly rewarding to be part of a center with the shared aim of helping patients and families cope with a diagnosis of Alzheimer’s disease and carrying out research to improve diagnostic processes and treatments of that disease,” says Hunsaker.

In the course of conducting initial and annual appointments with patients and their families, Hunsaker assesses how the patients are doing in their daily functioning and what social services might be beneficial to them. She also helps to facilitate the meetings in which diagnostic results are relayed to patients and families. As part of those meetings, she provides counseling, social services, and care referrals and discusses opportunities for patients to participate in research studies.

Before moving to Pittsburgh, Hunsaker worked at the Rollins School of Public Health at Emory University as a project manager on a range of health care studies. The research that she was most drawn to examined the assessment process for Alzheimer’s disease-related behaviors and tested ways to help families and paid caregivers manage those behaviors. Through these projects, Hunsaker had a lot of opportunities to collaborate with practicing social workers and see firsthand the critical role they play in supporting patients and families living with dementia. These experiences really sparked her interest in being a social worker and in pursuing a career in dementia care research.

Hunsaker earned an undergraduate degree in biology at Smith College, a Master of Public Health degree at Emory, and a Master of Social Work degree at the University of Pittsburgh. She is currently working on a doctoral degree in social work at Pitt.

When she’s not at work, Hunsaker loves watching her 6-year-old son play soccer, spending time in Frick Park, and traveling.
THE IMPORTANCE OF HAVING A STUDY PARTNER

The Alzheimer Disease Research Center (ADRC) is grateful for all of the devoted study partners who accompany our participants to the ADRC for visits. On occasion, participants ask, “Why is it required that a study partner join me for my annual ADRC evaluation?” This may be a particular question if the participant is not having memory problems or is having only very mild memory problems. Here is a bit of background information that we hope will help to answer this excellent question.

In recent years, the field of Alzheimer’s research has shifted toward assessing people earlier and earlier. This means either before the changes in memory or thinking emerge or early on during the process of the change.

There are three main ways that early changes in a person’s memory or thinking could be detected by doctors and researchers. The first, and most common, of these occurs when a patient notices and reports to a clinician that something is not quite right with his or her memory or ability to think clearly. Second, early changes can be detected using paper and pencil cognitive tests. And third, people who are close to the patient can begin to notice changes in the patient’s thinking.

Each of the three ways in which subtle changes in thinking can be detected is valid. And, as a research center, it is crucial that we document having fully considered each possibility. That is why bringing a study partner to annual visits is a requirement for participation in center research.

So, if you ever find yourself wondering whether it’s really necessary to bring a study partner to the ADRC, the answer is yes! We are able to learn so much about the evolution of early symptoms by talking with you, the participant, and someone who is close to you.

The information provided by your study partner helps us to make more reliable diagnoses and enhances the research information.

Thank you, study partners, for the important role you play in ADRC research!

ADRC Highlights

LIPTAK EARNs BSN

The Alzheimer Disease Research Center (ADRC) would like to congratulate Amy Liptak on receiving her Bachelor of Science in Nursing degree from the School of Nursing at the University of Pittsburgh. Liptak served as a student nurse at the ADRC under the direction of Jennifer Lingler, PhD, and Donna Simpson, MPH, and was involved in a research project associated with the Warhol Enrichment Program.

GILLUM NAMED BEST EARLY INVESTIGATOR

The Alzheimer Disease Research Center (ADRC) would like to congratulate Megan Gillum, a second-year medical student at the University of Pittsburgh, who was awarded the Best Early Investigator award at the March 2013 Annual Meeting of the American Association for Geriatric Psychiatry in Los Angeles, Calif. Gillum spearheaded the analysis leading to the abstract for the poster “Neuropathologic Correlates of Cognitive Impairment in Late-life Depression.”

GARRETT RECEIVES COMMUNITY OUTREACH VOLUNTEER AWARD

Marita Garrett, BS, ADRC outreach coordinator, was presented with the Community Outreach Volunteer Award at the Alzheimer’s Association’s Evening of Recognition and Celebration on April 9, 2013. Garrett was honored along with other dedicated volunteers and valued partners who share the vision and commitment to help end Alzheimer’s disease.

LOPEZ PRESENTED WITH ACHIEVEMENT AWARD AND NAMED DISTINGUISHED PROFESSOR

Oscar Lopez, MD, ADRC director, received the 2012 Joan and Mercè Boada Scientific Achievement Award at Fundació ACE in Barcelona, Spain, in recognition of his scientific contributions to the field of Alzheimer’s disease research. This award also recognized his scientific achievements in the field of epidemiology of cognitive disorders, clinical diagnosis of dementia, and the study of the factors that alter the natural history of dementing disorders.

Lopez also has been appointed professor honoris causa (distinguished professor) at Universidad Favaloro in Buenos Aires, Argentina, in recognition of his lifetime scientific and academic achievements.
Volunteers Needed for Research Studies

Get involved! We are in constant need of participants for several research studies and invite anyone with interest to call the ADRC at 412-692-2721 or e-mail oakleym@upmc.edu.

Medication Study for the Treatment of Agitation in Moderate to Severe Alzheimer’s Disease

DESCRIPTION
The purpose of this study is to determine whether an investigational medication (ELND005) is effective for reducing behaviors in people with moderate to severe Alzheimer’s disease who have agitation/aggression.

STUDY LENGTH
12 weeks

STUDY REQUIREMENTS
• A diagnosis of moderate to severe Alzheimer’s disease with behavior problems/agitation
• A study partner who will accompany you to all study visits

Alzheimer’s Disease Neuroimaging Study 2 (ADN12)

DESCRIPTION
The goal of this study is to determine whether imaging of the brain (through MRI, PET, and amyloid imaging scans) can help to predict the onset and monitor the progression of cognitive change. The study will test blood and cerebrospinal fluid (from lumbar punctures) to determine if biomarkers can predict and monitor the disease.

STUDY LENGTH
54 months

STUDY REQUIREMENTS
• A diagnosis of early Alzheimer’s disease
• A study partner who will accompany you to all clinic visits
The University of Pittsburgh Alzheimer Disease Research Center (ADRC) is looking for volunteers with and without mild memory loss to participate in its research.

You may qualify if:
- you are 65 years or older with no memory complaints or
- you have a memory complaint and think you might have mild memory loss AND
- you have a study partner who can accompany you to clinic visits. A study partner is a family member or close friend who knows you well and can answer questions about your memory and functioning.

Please call the ADRC at 412-692-2700 for more information or to inquire about how you can volunteer for research to help fight Alzheimer’s disease, or visit our Web site at www.adrc.pitt.edu to download a memory evaluation application.

Objective Evaluation of Family Caregiving Study

**DESCRIPTION**

The goal of this study is to learn how family caregivers deal with dementia-related behavior and how they respond to suggestions for handling these situations at home. Participants will be asked to wear a video device at home to capture daily interactions with their family member who has dementia.

**STUDY LENGTH**

Three to four months

**STUDY REQUIREMENTS**

- Family caregiver age 21 or older who lives with and provides care to a person with moderate to severe dementia
- Person age 50 or older with moderate to severe dementia whose behavior is difficult for the caregiver
- Willingness to engage in all study activities at home and by phone

**CONTACT**

MaryAnn Oakley at 412-692-2721 or oakleym@upmc.edu

The RECALL (Retaining Cognition while Avoiding Late-life Depression) Study

**DESCRIPTION**

This research project will test whether problem-solving therapy (PST) is successful in preventing major depression for those living with mild cognitive impairment. It also will examine the effect of modest exercise on mood.

**STUDY LENGTH**

8–12 weeks of PST sessions and follow-up visits at three-month intervals for 12 months

**STUDY REQUIREMENTS**

- 60 years of age or older with a diagnosis of mild cognitive impairment

**CONTACT**

MaryAnn Oakley at 412-692-2721 or oakleym@upmc.edu
Q: What is the relationship between Alzheimer’s disease and Down syndrome?

A: At first, you might not think that there is a connection between Alzheimer’s disease (AD) and Down syndrome. Down syndrome is a genetic condition that results in a delay in cognitive ability and physical growth. In addition, individuals with Down syndrome are more likely to develop AD than the rest of the population.

Individuals with Down syndrome are born with an extra chromosome—chromosome 21. This extra chromosome is responsible for the production of amyloid, the main component of the characteristic plaques in the brains of individuals with AD. By their 40s, those with Down syndrome have plaques in their brains that mirror the pattern found in those with AD. Cognitive symptoms typically appear 15–20 years later, when they are in their 50s and 60s. Individuals with Down syndrome also have indicators in their blood and cerebrospinal fluid that are comparable to indicators found in those with AD.

Just as in the rest of the population, not everyone with Down syndrome develops AD. Scientists believe, however, that the extra chromosome is responsible for a higher incidence of AD in those with Down syndrome.

It is believed that conducting more research into Down syndrome may aid in the development of new medications that could prevent and/or delay the buildup of amyloid plaques in AD.