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## Are You at Risk for Alzheimer's Disease if Your Parents Are Affected?

By Lisa Mosconi, PhD, John Murray, BS, and Kenneth E. Rich, MD

Historically, Alzheimer's disease (AD) has been considered a disease with two distinct forms: an "early-onset" form and a "late-onset" form. The rare early-onset form is characterized by symptom onset before age 65, and has been shown to be caused by genetic mutations in the DNA. The late-onset form (which is much more common) is marked by symptom onset after age 65 and there are currently no known genetic mutations that cause this form of AD. Because of the lack of known genes, late-onset AD has long been considered a 'sporadic' disease, where sporadic refers to a disease occurring upon occasion or in an isolated or seemingly random way. However, our recent studies measuring proteins associated with AD in the blood and cerebrospinal fluid (the fluid surrounding and cushioning the brain) have demonstrated that not all late-onset AD cases are sporadic or random in nature. Rather, our findings show that many individuals with a parent affected by late-onset AD have altered protein levels, which they may have inherited from their parents and may increase their risk for developing the disease.

*continued on page 12*

## Making sense of brain scans in Alzheimer's disease

by Ricardo Osorio, MD

Dementia is a disease that includes decline in memory and at least one other cognitive domain, such as language or problem solving. Alzheimer's disease (AD) and vascular dementia are the most common causes of dementia. Despite recent advances, the diagnosis of AD is still made very precisely in the "office", based on the symptoms, the patient's history, the caregiver interview, the memory assessment and the physical examination. Brain scans are used to independently confirm the physician's clinical impression and increase the diagnostic accuracy.

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# About the NYU Alzheimer's Disease Center

The National Institute on Aging funds Alzheimer's Disease Centers (ADCs) at major medical institutions across the United States. Researchers at these Centers are working to expand knowledge of brain function in healthy older people, identify ways we might lessen normal age-related declines in mental function, and deepened our understanding of Alzheimer's disease and related dementias. We strive to improve diagnosis and care for people with Alzheimer's disease (AD), while at the same time focusing on the long-term goal of finding a way to cure and possibly prevent AD.

Areas of investigation range from the basic mechanisms of cognitive decline and AD to interventions to help families cope with the effects of the disease. Center staff conduct basic, clinical, and behavioral research and train scientists and health care providers who are new to AD research. At NYU, the ADC has a strong focus on very early diagnosis and treatment, including research on healthy people who may be at risk for cognitive decline.

## **The NYU ADC offers participants and their families:**

- Comprehensive clinical evaluations using the most advanced diagnostic methods
- Annual follow-up evaluations
- Brain Donation Program
- Opportunities to participate in drug trials, special diagnostic studies, and other clinical research projects
- Information about cognitive decline and dementia, services and resources
- Individual and family counseling, and support groups
- Special educational programs for participants and their families

**ADC Website:** [www.med.nyu.edu/adc](http://www.med.nyu.edu/adc)

**Telephone:** 1-212-263-8088

# Director's Note

It is exciting to report that funding of the NYU Alzheimer's Disease Center (ADC) by the National Institute on Aging (NIA) has been renewed for another five years, thus extending our period of federal support from 1990 to 2015—our 25th year. Thirty ADCs across the United States provide critical core resources that facilitate the important work of scientists who are studying normal brain aging and the nature, causes, early diagnosis, treatment and prevention of Alzheimer's disease (AD) and related disorders. Our ADC Clinical Core provides well-diagnosed research participants (individuals with AD or mild impairment and normal older adults) who receive comprehensive annual research evaluations. The Clinical Core also collects and stores biological material, such as blood and cerebrospinal fluid (CSF) samples, for use by researchers. The Data and Statistics Core stores and maintains the Center's comprehensive clinical data, and assists researchers with data management and statistical analyses. Participants who generously choose to participate in the Brain Donation Program of the Neuropathology Core, help provide brain tissue essential for laboratory research and for confirmation of changes observed clinically. The Education Core helps train new scientists and educates health care providers and the public about the results of our research on aging and AD. The NYU-ADC is unique as one of the only Centers with two additional core facilities: A Neuroimaging Core which focuses on brain imaging and provides researchers with cutting edge data from MRI and PET scans that support pioneering research on the early brain changes associated with cognitive decline; and a Psychosocial Core which collects data on the psychological and emotional consequences of caring for a relative with dementia and provides resources for the study of psychosocial interventions for patients and family members to reduce the impact of AD.

Over the past 20 years, the research affiliated with the ADC has broadened from an initial focus on better understanding the causes and improving the treatment of AD, to an increased focus on early diagnosis, early treatment and prevention. Our NYU scientists previously contributed to the recognition and understanding of mild cognitive impairment, which is now recognized as a very mild “prodromal” or pre-dementia clinical stage of AD. We subsequently widened our focus to include the study of the transition from “normal” brain aging to the earliest pathology caused by AD, and to the development and testing of novel treatments that may eventually lead to AD prevention. This current research requires the participation of healthy older adults willing to contribute their time so that future generations will not have to worry about AD. Success in this important endeavor depends on the partnership between the ADC and our valuable participants.



*Steven Ferris, PhD*

A handwritten signature in black ink that reads "Steven Ferris". The signature is written in a cursive style.

## NEW TO THE ADC



James E. Galvin, MD, MPH has recently joined the faculty of New York University Langone School of Medicine as Professor of Neurology and Psychiatry. Dr Galvin is serving several important roles as the Director of Clinical Operations for the Center of Excellence, Director of the Pearl Barlow Center for Memory Evaluation and Treatment,

**Dr. James E. Galvin**

and as an Associate Director of the Alzheimer Disease Center.

Dr Galvin received his MD from the University of Medicine and Dentistry of New Jersey and his Masters of Public Health from St Louis University. Dr Galvin joins us from Washington University, where he was Director of the Memory Diagnostic Center and Education Core Leader of the Alzheimer Disease Research Center. Dr Galvin moved to NYU in March 2010.

Dr Galvin has been recognized for his research efforts and excellence in Geriatric Neurology and Psychiatry by the American Academy of Neurology. He has published more than 80 scientific papers covering basic, clinical and translational science in the area of neurodegenerative disorders, dementia and cognitive aging; is the editor of

two textbooks on dementia; and serves on the editorial board for three journals. His research interests include characterizing Lewy body diseases and early detection of cognitive impairment. He has led over 2 dozen clinical trials investigating new therapeutics for Alzheimer disease and related disorders. He is on the Board of Directors for the Lewy Body Dementia Association and the Scientific Advisory Council for the American Federation for Aging Research.

Dr. Galvin has expertise in characterizing, diagnosing and managing patients who have problems with memory, thinking, executive function, attention, language, emotion, mood or behavior due to neurodegenerative disease. At the Barlow Center, Dr. Galvin's practice will focus on providing state of the art diagnostic evaluations, treatment and rehabilitation for all forms of dementia and cognitive impairment. Approaches include not only medical treatments but psychosocial interventions, counseling, nutrition, diet and exercise.

In his role as Director of Clinical Operations for the Center of Excellence on Brain Aging, he will help to facilitate, promote, and expand clinical and translational research programs within NYU and develop collaborations across institutions. These programs include clinical trials testing potential treatments, neuroimaging and biomarker studies for the early disease detection and psychosocial research for caregivers. ■

### The ADC Also Welcomes:

**Amanda Behrens:** Psychometric Tester

**Ashita Gurnani:** Psychometric Tester

**Alex Sierra:** Clinical Trials Coordinator

**Giuseppe Agugliaro:** Assistant Clinical Trials Coordinator

**Immanuel During:** Research Scientist

**Michelle Davies:** Administrator

**Salman Anwar:** Clinician

**Tariq Gil:** Post Doctorate Research Scientist

**Vanessa Bhikizi:** Coordinator

**Yael Sollins:** Nurse Practitioner

## The Alzheimer's Breakthrough Ride



The Alzheimer's Breakthrough Ride collected more than 110,000 signatures for a petition asking Congress to make Alzheimer's disease a national priority.

On World Alzheimer's Day, Dr. Thomas Wisniewski, Director of the Neuropathology Core, joined over 55 Alzheimer researchers to take part in the Alzheimer's Breakthrough Ride, where they presented these signatures to Congress on Capitol Hill. The presentation marked the culmination of a cross-country journey that began in San Francisco and involved cycling over 4,500 miles to raise awareness and support for the cause.

*"It was great fun for an outstanding cause. It was the longest I have ever cycled (close to 300 miles in 3 days) going from Pittsburgh to Philly. I thought I was going to die on the 2nd day but the feeling of helping a good cause made it worthwhile on the finishing line on the 3rd day."*

# ADC Research Opportunities:

## Longitudinal Study of Normal Aging, Mild Cognitive Impairment (MCI) and Alzheimer's Disease

Participants receive a comprehensive diagnostic evaluation and are re-evaluated every year. The goal is to improve early diagnosis and better understand the clinical course and causes of age-related cognitive decline and AD. For information, call Thet Oo at 212-263-8088; [thet.oo@nyumc.org](mailto:thet.oo@nyumc.org)

## TREATMENT STUDIES

### *Clinical Trial of Anti-Amyloid Antibody Treatment with IGIV in Mild to Moderate AD*

We are testing the safety and effectiveness of Intravenous Immune Globulin (IGIV, Baxter) or placebo in participants with mild to moderate AD. IGIV may interrupt the processing of beta amyloid protein in the brain, which is thought to play a role in the early pathology of AD. Participation in this 18 month study involves regular visits, repeated MRIs, and biweekly infusions both at NYU and eventually in the participants' homes. For information call Alex Sierra at 212-263-5845/5708; [alex.sierra@nyumc.org](mailto:alex.sierra@nyumc.org).

### *Memantine (Namenda) and Individualized Alzheimer's Care*

The goal of this 1 year study for middle or late stage AD is to determine the added value of an individualized patient management program in patients receiving Memantine. All patients receive Memantine and follow-up evaluations and are randomly assigned to a group receiving compensation or a group receiving an individualized program consisting of caregiver training and support as well as home visits to get the patient exercising, doing enjoyable activities and cognitive stimulation. For information, call Sunnie Kenowsky at 212-263-7164; [sunnie.kenowsky@nyumc.org](mailto:sunnie.kenowsky@nyumc.org).

## EARLY AD DIAGNOSIS

### *Clinical Correlates of Longitudinal PET Changes in Alzheimer's disease*

The goal is to assess combining FDG-PET imaging (brain metabolism) with cerebrospinal fluid (CSF) biomarkers and PET amyloid imaging (using a tracer that binds to brain amyloid) in predicting cognitive decline. We are enrolling mild AD, MCI and normal subjects over age 20 who receive a comprehensive evaluation: neurological/physical exam, MRI and PET, memory testing, laboratory blood-work, EKG and lumbar puncture. Participants receive results and are compensated for their time and effort. For information, call Megan Cummings at 212-263-7795; [megan.cummings@nyumc.org](mailto:megan.cummings@nyumc.org).

### *Maternal history of AD Predisposes Children to Brain Hypometabolism*

The goal is to determine whether young subjects (age 20- 60) with maternal family history of AD show reductions in the brain's ability to use sugar, and to see if there are greater re-

ductions in subjects with family history spanning 2 generations (i.e., mother and grandmother affected with AD). For information, call John Murray at (212) 263-7795; [John.Murray@nyumc.org](mailto:John.Murray@nyumc.org)

### *Effects of Memantine on Magnetic Resonance Spectroscopy in persons at risk for AD*

This study is for adults 55-90 with memory complaints and a family history of AD, but without any signs of memory decline. We are testing whether Memantine, a drug approved for the treatment of moderate to severe AD, may be beneficial in these at risk individuals. The study duration is 6 months. The brain effects of memantine are measured with magnetic resonance spectroscopy (MRS), a scan to investigate in the chemical substances that make up the brain. For information, call Lidia Glodzik at 212-263-5698; [lidia.glodzik@nyumc.org](mailto:lidia.glodzik@nyumc.org);

### *Imaging Neuroinflammation in Alzheimer's Disease with [11C]Arachidonic Acid (AA) and PET*

The goal is to validate a new inflammation PET imaging agent known as [11C] Arachidonic Acid (AA) in individuals with and without cognitive dysfunction. Inflammation is a key component of the pathological processes (amyloid beta plaque deposition, neurofibrillary tangles, neuronal loss, astrocytosis) that are found in patients with Alzheimer disease (AD). An in vivo neuroimaging method to measure markers of neuroinflammation would represent a major advance in the understanding of the pathophysiology of AD and other dementing disorders. We are enrolling normal and dementia subjects over the age of 65 who receive physical examination, blood tests, neuropsychological evaluation, EKG, MRI; [11C]PIB, [18F]FDG, and [11C] AA PET scans. Participants receive results and are compensated for their time and effort. For information, contact Ricardo Osorio at 212-263-3258; [Ricardo.osorio@nyumc.org](mailto:Ricardo.osorio@nyumc.org).

### *MRI Progression Markers of Cognitive Decline in the Elderly*

This project investigates the relationship between plasma amyloid beta protein levels and brain vascular response to CO<sub>2</sub> (measured with MRI). Additional tests include brain structure measurement and CSF tau levels. Participants should have mild cognitive impairment (MCI), and will receive a comprehensive evaluation consisting of a neurological/physical examination, neuroimaging (MRI and ASL), memory testing, laboratory blood-work, ECG and lumbar puncture. Participants receive results and are compensated for their time and effort. For

# ADC Research Cont'd:

information, contact Vanessa Bikhazi at 212- 263-7563; [vanessa.bikhazi@nyumc.org](mailto:vanessa.bikhazi@nyumc.org).

## *Biomarkers in Early Alzheimer's Disease*

This project builds upon our new work demonstrating the value of cerebrospinal fluid (CSF) and blood biomarkers. We combined these analyses with novel MRI technology which looks at cerebral blood flow, a possible mechanism-based marker for early Alzheimer's disease. We are enrolling normal subjects over the age of age 50, with and without mild memory complaints to receive a comprehensive evaluation: neurological/physical exam, MRI and memory testing, laboratory blood-work, EKG and lumbar puncture. Participants receive results and are compensated for their time and effort. For information, contact Vanessa Bikhazi at 212-263-7563; [vanessa.bikhazi@nyumc.org](mailto:vanessa.bikhazi@nyumc.org).

## *A $\beta$ 42 CSF changes in elders with sleep disorders. A new risk factor for AD?*

Sleep is involved in brain restoration and modulation of memory. The goal of our study is to analyze if the production of amyloid is disrupted by sleep/wake changes that occur during normal aging, and exacerbated in older subjects with sleep disorders, increasing the risk for developing AD. For this purpose, we plan to conduct clinical examinations, objective evaluation of sleep duration and quality using an actigraph, sleep breathing using and ARES Unicorder and CSF measurements. We are enrolling cognitively normal subjects ages 60-85 with chronic sleep disorders and subjects with normal sleep. This project will provide us with very useful information about A $\beta$  metabolism in the elderly and of certain patterns of sleep disorders as potential risks factors for developing AD. This finding, given the effect of sleep disorders in our lives, the increasing numbers of cognitively impaired elders, and the fact that millions of people regularly obtain insufficient sleep, would be of the highest relevance. For information, contact Ricardo Osorio at 212-263-3258; [Ricardo.osorio@nyumc.org](mailto:Ricardo.osorio@nyumc.org).

## OTHER STUDIES AND PROGRAMS

### *Brain Donation Program*

The NYU ADC is grateful to donors and their families for participation in our Brain Donation Program. Brain autopsy provides a definitive diagnosis for families while contributing to important research on the causes and treatment of brain aging and AD. Donors with and without memory impairment are eligible. For information, call Lynne Leung at 212-263-5108; [lynne.leung@nyumc.org](mailto:lynne.leung@nyumc.org)

### *The Multicultural Program*

The Multicultural Aging and Memory Assessment program provides free educational presentations and memory screenings at various community organizations and centers for health care providers, patients, family members, and others who may be interested in learning more about normal aging, memory

problems, dementia, and Alzheimer's disease. The program is committed to providing memory assessment and clinical trials research opportunities to an ethnically and socioeconomically-diverse patient population. For information, contact Dorothy Patterson at 212-263-3201, or Milena Perez at 212-263-1027 (Spanish)

### *Early Stage Support Group*

The center offers facilitated support group meetings to people in the early stages of AD. Studies suggest these groups may alleviate depression and social isolation, enhance coping skills, improve self esteem and provide education and mental stimulation in a safe environment. For information, call Ursula Auclair at 212-263-2245.

### *Support for Caregivers*

A peer facilitated support group for caregivers conveniently meets at the same time as the early stage AD support group held on Thursday's. If interested, please call Ursula Auclair, LCSW at 212 263-2245

### *Postoperative cognitive decline, inflammation, and plasma levels of beta-amyloids*

The goal of this study is to examine whether inflammation associated with surgery may increase the risk of postoperative cognitive dysfunction (POCD) in elderly patients who already have a degree of preoperative mild cognitive impairment (MCI). Inflammatory mechanisms may also be involved with the progression of Alzheimer's Disease. POCD is a potential complication that may have consequence for patients' quality of life. This is the first prospective study to attempt to establish this link. We are enrolling MCI and normal subjects over age 65 who receive a series of comprehensive evaluations of cognitive and memory functioning as well as laboratory blood-work. Timing is important so please let us know if you are planning to have surgery. Participants are compensated for their time and effort. For information, contact Sonya Farber, MA at 212-263-0531.

### *Rivastigmine prophylaxis for elderly patients at risk for delirium: A randomized, double blind placebo-controlled pilot study*

The goal of this study is to assess the effectiveness of Rivastigmine, a long central acting acetylcholinesterase inhibitor commonly used to slow the progression of Alzheimer's and other dementias, on the prevention of postoperative delirium (POD) and postoperative cognitive dysfunction (POCD) in an elderly population undergoing surgery. POD is characterized by changes in consciousness and cognition over a brief period of time. POCD refers to cognitive problems involving memory, learning and the ability to concentrate observed weeks or months after surgery. We are enrolling subjects over age 65 who will receive a brief series of evaluations of their cognitive and memory function. For information, contact Andrew Sapson, MD at 212-263-0667. ■

# SPOTLIGHT

## Dr. Barry Reisberg receives Distinguished Scientist Award



**Dr. Barry Reisberg**

On March 18, 2011, Dr. Barry Reisberg was presented with the American Association for Geriatric Psychiatry (AAGP) Distinguished Scientist Award for 2011. This prestigious award is given to an outstanding AAGP member whose lifetime scientific career is distinguished by original research achievement and mentorship of budding scientists in the field of geriatric psychiatry. The awardee is nominated by his peers, which is a further testament to the honor of receiving such an award. Below is the transcript of the brief interview with Dr. Reisberg about this event.

### **Interview with Dr. Barry Reisberg:**

#### **Q1. How does receiving this award impact your future work in the field?**

**A1.** We have been describing a very early stage of eventual Alzheimer's disease in which older persons have subjective complaints of not recalling things, such as names. We found by following these normal elderly persons for many years, that they frequently develop early Alzheimer's disease after about 15 to 20 years.

At the present time, no treatments have been identified which can prevent progression in these persons. We naturally want to develop treatments which would be effective in slowing the progression of this condition and hence, in preventing eventual Alzheimer's disease.

We have a great amount of medical information which we now need to study, which should enable us to find out how to begin to prevent the development of further decline in these older persons.

The new funds which we have now received from Mr. and Mrs. Kay's donation will enable us to study these factors, and should help us to identify and develop the first preventative treatments for Alzheimer's disease in seemingly normal persons with complaints

These ambitious goals seem realistic, since we have previously been successful in developing the first effective treatment for advanced Alzheimer's disease and we have had many other treatment successes as well.

#### **Q2. What meaning does this award have for you and how might it be different from other awards you have received?**

**A2.** The American Association for Geriatric Psychiatry Distinguished Scientist Award for 2011 is the highest research and scientific honor in my specialty of geriatric psychiatry. Only one of these awards for a lifetime of scientific achievement, is given annually.

I have received one somewhat similar award in my career, namely, a Lifetime Achievement Award for Research in Alzheimer's Disease from the Alzheimer's Association and the International Conferences on Alzheimer's Disease (ICAD), in 2004. Naturally, I have received many others awards. However, these awards are special because they honor and recognize my lifetime achievements.

The American Association for Geriatric Psychiatry Distinguished Scientist Award is particularly special because I will deliver a lecture which will summarize my life goals and achievements for a diverse audience of clinicians at all levels of their career. I am being called upon to do this in about half an hour. I have never put together my life in this fashion before. I am looking forward to describing my very rich experiences, in which the major threads of my professional life have been intertwined. These major threads have been: (1) my interest in research and in making important scientific discoveries and contributions, and (2) my interest in people, both the study of people, and in helping people. The details are very exciting and have taken me through more than 60 countries and through numerous scientific advances. Although I will tell this story, with pictures, in 30 minutes, it is much too long for this brief paragraph.

**Q3. How might this award impact the ADC?**

**A3.** I believe, we will have the resources, in terms of both excellent clinicians and scientists, and also in terms of research capacity, to continue to achieve major scientific advances. I believe these future advances will be of even greater value to older persons and science more generally, than the advances we have achieved until this time. These future advances should continue to positively influence lives not only of all persons with Alzheimer's disease, but also, of all older persons and everyone who cares about or for them. ■

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**NYU Caregiver Intervention Receives National Attention**

The National Alliance for Caregiving and MetLife Foundation recently honored The NYU Caregiver Intervention, developed at our ADC, an evidence-based intervention to improve the well-being of caregivers of those with Alzheimer's disease. This intervention is now being implemented in six states with funding from the Administration on Aging and in two Veterans Administrations Medical Centers as well as the Lou Ruvo Cleveland Clinic in Las Vegas with funding from the Rosalynn Carter Institute. The NYU Caregiver Intervention mobilizes the support of naturally existing family networks, improves caregiving skills and provides the opportunity for ongoing counseling and support. ■

## Laughter, Tears, Humor, Wit, Word Play: Early Stage Alzheimer's Support Groups at The NYU ADC and The Barlow Center

by Ursula Auclair

“Too much mirth!” shouts Morton above the laughter, which prompts one participant to stop laughing. “How do you spell that?”

A discussion ensues as to the origins and meaning of the word mirth, until someone gets back to what all group participants have in common: A diagnosis of Alzheimer's disease in the early stage.

“Maybe that is the reason we should not have too much mirth!” We should be frightened and sad and quiet.”  
“Well, not here. Here we are among ourselves; we can relax and not worry how we come across”.

The weekly early stage groups are facilitated by a clinical geriatric social worker. Each group has no more than 10 participants. Group members are encouraged to set the tone and the content of each meeting, while the facilitator encourages each participant to contribute according to his or her emotional availability and cognitive ability.

Most of the time, the magic unfolds, so that at the end of each meeting the mood is almost exuberant. One member said, “When people ask me what happens at these meetings, I am at a loss for words – and that is not

because of the Alzheimer's – all I can say is that I had a wonderful time.”

It is this wonderful time, sometimes sad or confusing, often encouraging and empowering, always intense and real, that makes the participants return week after week, via Access-A-Ride, with escorts, caregivers, spouses and adult children and on their own, despite rain, snow, heat, and the sometimes numbing effects of the illness.

People in the early stages of dementia who would benefit from participating in these groups acknowledge that they have a memory problem and are interested in meeting with other people in a similar situation.

Presently, we are exploring the feasibility of starting a new group for people over 55 who have experienced the loss of friends and family, have diminished mobility and decreased energy and initiative to reach out on their own to make new friends and find interesting activities.

If you would like to join one of the groups or know someone who would, call Ursula Auclair, LCSW at 212 263-2245. ■

### Go Green with The ADC:

To help the environment and to save money in these economic times, please consider sending us an email with the following information to begin receiving our ADC Newsletter and information about educational

ADC events via email. Email: [olanta.barton@nyumc.org](mailto:olanta.barton@nyumc.org)

Include: *your name, mailing address and email address*

In the Subject line: *e-connect*

## A Poem Written by an Early Stage Group Participant in Appreciation of his Experience

By: Frank Brenner, June 2010

It is great to be here with you  
This is really an amazing crew

What an exciting season it has been  
With people I had never before seen

A group very unusual in scope  
Where many really like to talk

There are great executives galore  
Even one that has been in jail before

A few come in their very best suit  
And one has jumped round in a parachute

There is an actress of great renown  
And some that like to paint the town

And to me it means so much  
To sit next to a really great judge

To witness so much courage, so much hope  
Has greatly helped my ability to cope

And I hope that it is not too late to state  
That the leadership is really great!

## Groups at NYU ADC:

The NYU ADC currently offers several different support groups for those affected by Alzheimer's disease and related dementias. Groups cater to people in the early stage of dementia, and those who are caregivers of people with dementia. Our groups are facilitated by social workers who offer participants a place where they can feel free to express fears, hopes and share funny as well as unfortunate events that occur as a result of the illness. Practical help and emotional support are offered. There is a camaraderie that forms and group members find strength as they encourage one another and value "how good it is to feel less alone."

We now offer a unique opportunity for caregivers of individuals in the early stage of Alzheimer's disease. A peer-led caregiver support group meets at the same time as the early stage support group.

If you or someone you know might benefit from an early stage support group or a caregiver support group, please contact us for further details. Counselor helpline: 212-263-5728. ■

# Are You at Risk for Alzheimer's Disease if Your Parents Are Affected?

*continued from front page*

Our most recent findings show that, among healthy and cognitively normal individuals with a parent affected with late-onset AD, those whose mothers have AD may be at increased risk compared to those whose fathers had AD and to those with no parents affected. We collected data from the cerebrospinal fluid of over 50 individuals, and measured the levels of proteins that are known to be altered in AD. We were able to measure a protein called amyloid, a major hallmark of AD, as well as other proteins involved with oxidative stress (i.e., free radicals, which are harmful to brain as well as body). Our study showed that only those subjects whose mothers had AD had increased levels of amyloid proteins and oxidative stress. The study was published in the journal of Biological Psychiatry in August 2010.

These results have several possible implications. First, they indicate that having a mother affected by AD may increase risk for developing the disease in the offspring, whereas having a father affected by AD seems to confer lower risk. Second, our findings indicate that AD should be divided into three forms instead of two: an early-onset form with genetic mutations, and two late-onset forms: without family history (i.e., "sporadic"), and with a family history (i.e., "familial").

The genes involved in familial late-onset AD are unknown. There are currently 5 million people affected by AD in the USA alone. Almost all these patients have late-onset AD, and their children may be at increased risk for developing the disease. It is therefore extremely important to understand the genetic mechanisms involved in late-onset AD. Such is one of the main goals of our research. Finally, individuals with a maternal family history of AD may particularly benefit from paying particular attention to their health in a preventive fashion. To this aim, keeping blood pressure and cholesterol levels under control, leading a healthy diet and lifestyle, keeping intellectually active and exercising may help decrease risk for AD.

My colleagues and I would like to express our gratitude for all of the individuals who agreed to participate in this study. These findings would not have been possible without research volunteers. Perhaps the best way that people with parents who have had or who have AD can help us to learn more about and eventually prevent this disorder is by volunteering to be in studies. This type of service is invaluable. ■

## How You Can Help

We continue to welcome your participation in Center activities and research programs. Federal support for medical research has been reduced in recent years. Thus, we increasingly depend on the generosity of our participants to help strengthen and expand our research and clinical programs, and greatly appreciate your financial support.

Please make check payable to Aging and Dementia Research Center and mail to:  
**Aging & Dementia Research Center**  
**Att: Dorothy Patterson**  
**NYU School of Medicine**  
**145 East 32nd Street, 2nd Floor**  
**New York, NY 10016**

# Brain Donation— The Gift of Knowledge

Brain donation is an important and generous gift, whether a person has Alzheimer's disease or normal cognition. Examining brain tissue is the only method by which to make a definitive diagnosis of the cause of dementia. Family members play a crucial role by abiding by their loved one's decision to donate and by making sure that the donation is received in a timely manner. The results can provide family members with information that may encourage them to monitor their

own brain health. Studying brain tissue also provides scientists with valuable information in their quest to unravel the mysteries of the disorders that cause cognitive impairment. This offers the opportunity to improve treatment and ultimately find a much sought-after cure. There is currently a severe shortage of brain tissue available for dementia research.

If you or your family are interested in enrolling or want to know more about Brain Donation, Lynne Leung, our Coordinator, is available to help you. She can be reached at: (212) 263-5108 or [lynne.leung@nyumc.org](mailto:lynne.leung@nyumc.org) ■

## Questions you may have about...

### Brain Donation

**Q1. I am not sure if my religion permits organ donations.**

A1. Organ donation is consistent with the beliefs of many religious communities. If you are uncertain or uncomfortable about how to make a decision regarding brain donation, it may be helpful to speak with a clergy person from your community. Another option is to check the federal Web site [OrganDonor.gov](http://OrganDonor.gov), which provides information on religious views about organ donation and transplantation by denomination.

**Q2. Before the brain is removed for autopsy, how is it determined that the person is "really" dead?**

A2. Before a brain autopsy, it is necessary to establish that a person is dead. This is a routine medical process that is based on an agreed-upon set of guidelines. Physicians use these guidelines to determine whether or not a person is dead and then issue a death certificate. An autopsy will not be conducted without a death certificate which is always verified by the pathologist.

**Q3. Should I inform my Healthcare Proxy/ next-of-kin of my decision to become a donor?**

A3. Yes. They are directly involved in the final consent process. We encourage you to discuss your interest in this program with them and urge them to call our coordinator, Lynne Leung, at 212-263-6262 to discuss any questions or concerns.

**Q4. I assigned a Healthcare Proxy but what happens if my family opposes my wish to donate my brain?**

A4. According to New York state law the wishes of the donor/Healthcare Proxy are paramount. Hence if these have been made clear in writing, in the form of a signed consent form by either the donor or an assigned Healthcare Proxy, then the autopsy can be legally done. However, every effort is always made to include the family members in the understanding of the donor's wishes and to obtain consent and cooperation with the autopsy prior to proceeding.

If you are interested in a more in depth exploration of Brain Donation, please contact Lynne Leung at 212-263-6262.

# Making sense of brain scans in Alzheimer's disease

*continued from front page*

Brain Imaging Techniques		
<b>MRI</b>	Magnetic Resonance Imaging	Provides information about the shape and volume of the brain and occurrence of strokes.
<b>CT</b>	Computed Tomography	Provides information about the shape and volume of the brain, calcifications and occurrence of bleeding.
<b>PET</b>	Positron Emission Tomography	Reveals brain functioning by showing how actively the neurons use sugar or how a tracer binds to specific AD lesions (i.e., senile plaques).

Structural imaging (Magnetic Resonance Imaging [MRI] and Computed Tomography [CT]), provides information about the shape, strokes, calcifications or volume of the brain tissue; while functional imaging (Positron Emission Tomography [PET]) reveals brain functioning by showing how actively the cells use sugar, or how a tracer binds to a specific AD lesion (like senile plaques). Currently, a standard medical workup for AD includes structural imaging with MRI and less frequently, CT or PET. These images are used primarily to detect potentially reversible causes of dementia such as brain tumors, abscesses, strokes or hematomas that can be found in 1-5% of patients with no features in the history or physical examination that would have predicted the lesions. Another issue of concern in the assessment of AD is the differential diagnosis with other dementias. Clinical diagnosis by a physician is less accurate for other dementias like Lewy bodies (DLB) and frontotemporal dementias (FTD) with up to 30-50% of cases failing to be identified. The ability of PET to distinguish patients with dementia with DLB and FTD from AD, is often higher than that of clinical evaluation, and these techniques may be therefore considered as part of the evaluation of patients with dementia when symptoms are unusual, present diagnostic difficulties, or reflect diagnostic uncertainties.

In contrast to their usefulness in diagnosing an established AD patient with many symptoms of the disease, the clinical examination is poor at predicting which normal individuals will develop AD in the future. Neuroimaging holds the promise of making an important and unique contribution to identifying persons at higher risk for future dementia. Several groups, led by studies at NYU, have shown that atrophy in some areas of the brain, measured with MRI, is associated with an increased likelihood of subsequent dementia due to AD. PET changes also have an important predictive value, and seem to appear even before the brain tissue loss shown by MRI. Patients with AD have reduced glucose uptake in brain areas responsible for memory and for visuo-spatial function. Similar glucose decreases are also found in subjects who are at increased risk of developing AD: individuals who are already showing some memory impairment, persons who carry a specific variant of an apolipoprotein E gene (ApoE4), and those with a maternal family history of AD. These preclinical (very early disease) stages are an ideal target for prevention strategies or any effective drugs, as they have the best chance of preserving normal brain function. ■

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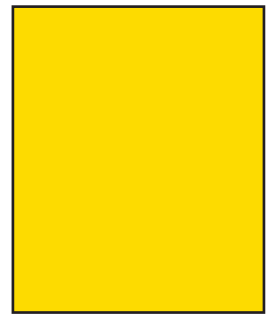
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