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BRAIN SCANS: A WINDOW INTO ALZHEIMER'S DISEASE

H. RANDALL GRIFFITH, PH.D., ABPP-CN

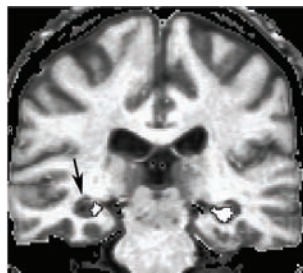
As a younger man I used to watch *Star Trek* on television. Many of these episodes featured a futuristic medical examination with devices that, when quickly passed over the body, would tell the doctors what was wrong with a patient, after which the problem was quickly cured with a shot out of the doctor's medical kit. While science fact has yet to catch up with science fiction, there are many new and exciting developments occurring that will vastly improve our ability to diagnose and treat Alzheimer's disease. I will discuss three of these new technologies and the promise each brings to improving our abilities as clinicians to provide better diagnosis, track treatments, and better understand Alzheimer's itself. These three techniques are MRI, PET and MRS.

MRI Scans

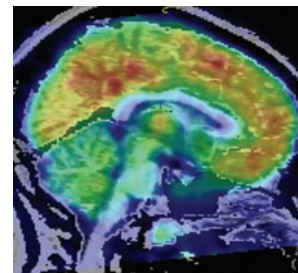
MRI scans of the brain have been used to diagnose and treat brain diseases for over twenty years. MRI offers better ability to view the structure of the brain and the fluid that exists within and around the brain when compared to prior brain imaging methods. Recent advances in the strength of MRI scanners and the computers used to process MRI scans have allowed researchers to measure shrinking of the brain, especially in areas critical to memory. The Alzheimer's Disease Neuroimaging Initiative, or ADNI, is a federally-funded study to use MRI scanners across the country to examine what areas of the brain change first in Alzheimer's disease and how these relate back to other clinical and laboratory measures. The ADRC is a participating site in this three-year study. It is hoped that better understanding how the brain shrinks in early Alzheimer's will result in more accurate diagnoses and will also be a way to measure treatment effects.

PET Scans

Another technique, and one of the most exciting recent advancements in brain imaging, is PET. This type of brain scan uses minute amounts of radiation injected into the patient to observe changes in brain chemicals. Researchers in Pittsburgh have recently developed a PET scan that detects plaques (the



Brain MRI scan showing shrinking in temporal lobe (arrow)



PET scan of the brain

CAREGIVER CORNER: HOPE FOR THE HOLIDAYS



In former first lady Rosalyn Carter's book, Helping Yourself Help Others, she offers some "ingredients of caring" from philosopher Milton Mayeroff. These may be just the ingredients to inject hope into your caregiving journey for the holidays and beyond.

Knowing – Take time *to know* your patient, to know their strengths and weaknesses, to know the ways to respond to them. We must know ourselves, too.

Alternating Rhythms – There is a natural ebb and flow in the caregiving relationship. We should learn from our triumphs and from our mistakes. When we take action, we must evaluate whether or not we have been effective.

Patience – Learning patience may be the greatest reward of caregiving. When we are patient, we give the individual cared for time to figure out and to do for themselves. We must learn to tolerate their confusion and hesitation. We must also learn to be patient with ourselves and with family members who do not accept what is happening.

Honesty – Be truthful with yourself. See your patient as they are, not as you wish them to be. By being honest we can evaluate whether our responses to our patient are truly helpful, or if we are part of the problem.



Trust – We must learn not to be overprotective. Trust means letting go – allowing others to help. Learn to believe in the possibility that there are solutions to our problems.

Humility – There are some things over which we have no control. Even the best caregivers can't do it alone. Humility means being able to ask for and receive help.

Courage – Alzheimer's disease is a journey into unfamiliar territory. Where we once felt sure about life, we now cannot anticipate what the future will bring. We need courage to face these frightening changes in our lives.

Hope – Hope is not wishful thinking, rather, it is the belief in our ability to take action in the present and the future. Believe that we can make a difference in the lives of our loved ones.



This holiday season reflect on your life as a caregiver. Are there ways to improve? Are there ways to grow, to know more, to listen to the alternating rhythms, to be more patient and honest, to trust more, and to accept your humility, to find courage and hope? These are the keys to unlocking resentment and finding greater peace this holiday season.

RULES TO REMEMBER: TIPS FOR CAREGIVERS DURING THE HOLIDAYS

- **Keep it simple** – Alzheimer's patients are most comfortable in quiet, familiar surroundings. Big crowds or new places may confuse your patient. During family gatherings, plan for family members to talk quietly with the patient, one on one.
- Plan for plenty of time to **rest and recuperate** between events. Avoid overtiring your patient, which can make confusion worse.
- Schedule events for the **time of day** when your patient is most alert. If your loved one becomes agitated in the late afternoon or evening, consider having a holiday brunch.

Rules to Remember: Tips for Caregivers During the Holidays... *continued from Page 2*

- **Watch what your patient eats.** Too much sugar, caffeine or rich food may complicate their care later on.
- **Encourage reminiscence and memory joggers,** play traditional holiday music or spend time looking through old photographs.
- **Don't waste time worrying** about what family and friends think about your loved one's behavior. Use holiday gatherings as an opportunity to educate them about the disease.
- Everyone likes a present. **Make sure gifts are meaningful and helpful.** Consider:
 - a bird feeder hung outside the patient's window
 - a family photo album
 - a baby doll or stuffed animal
 - a basket filled with little individually wrapped gifts like tissues, lotion, pens, etc.
 - lap robes, slippers, comfortable jogging suits; consider clothes that are easy to get on and off, that are durable, and that wash well
 - DVDs of old favorite music or television programs
 - simple games or puzzles
- Remember to buy yourself a gift and wrap it up!

Brain Scans: A Window into Alzheimer's Disease... *continued from Page 1*

pathological hallmark of Alzheimer's) in the brain. This new type of PET, called PIB, allows researchers to see where plaques are occurring in patients with Alzheimer's. This scan also has promise as a way to identify early Alzheimer's well before the clinical signs of the disease appear. Experimental drugs for treating Alzheimer's are targeting the reduction of the number of plaques and their prevention. The PIB scan will be a very useful tool for observing the effectiveness of these experimental drugs for removing and preventing plaques. The ADNI study is currently conducting PIB scans along with MRI scans to determine the usefulness of this type of scan. Although the clinical usefulness of PIB is not yet known, it is likely that in the future such scans would help us diagnose and treat patients with Alzheimer's.

MRS Scans

A third promising technique for better understanding Alzheimer's is MRS. An MRS scan is performed in an MRI scanner, but the scan provides information about brain chemicals rather than pictures of the brain. MRS allows researchers to know whether chemicals in an area of the brain are abnormal. Often there are no visible changes on an MRI scan to indicate that Alzheimer's has started affecting the brain. However, using MRS in combination with MRI may help us detect subtle changes in the brain. Our research group at the ADRC has performed several studies with MRS and found that there are abnormal levels of certain brain chemicals in patients with Alzheimer's disease. We have also used MRS to better understand how changes in brain chemistry impact memory loss and changes in daily activities such as such as financial management. MRS measurement of brain chemistry changes may also be sensitive to the effects of future treatments.

I have briefly discussed three exciting developments within the area of brain imaging in Alzheimer's. Much more is to come, as researchers continue to develop stronger and more sophisticated technology. It is the hope that one day the stuff of science fiction will become science fact and will make substantial contributions to finding a cure for Alzheimer's.



H. Randall Griffith,
PhD, ABPP-CN

UAB ADRC OUTREACH AND EDUCATION

ADRC Host Annual Conference: Alzheimer's Disease in the African American Community



Congressman Artur Davis, Dan Marson, Jennifer Manly, Richard Powers

On Saturday, September 8th, the Alzheimer's Disease Research Center hosted a conference, "Alzheimer's in the African American Community," at the Harbert Center. Over 400 people attended. Daniel Marson, JD, PhD, Director of the ADRC, gave a message of hope as he shared the mission and goals of the center. A panel of experts including Ezra Jordan, JD, Delois Guy, DSN, Richard Powers, MD, and Natalie Washington, LGSW, answered questions from the audience about legal issues, patient care and community services. Dr. Guy reminded caregivers that taking care of their own health is vital and said, "It's impossible to care for someone else if you don't first care for yourself."

Special guest speakers for the event were Dr. Jennifer Manly, a neuropsychologist and associate professor of Neurology at Columbia University in New York City, and Congressman Artur Davis. Congressman Davis has served two terms in Congress, representing the Alabama 7th District, earning a

reputation as a productive and effective legislator who has set a new standard of services for his constituents. Quoting Hubert Humphrey, Congressman Davis said, "It was once said that the moral test of government is how that government treats those who are in the dawn of life, the children; those who are in the twilight of life, the elderly; and those who are in the shadows of life, the sick, the needy and the handicapped." He challenged the audience to speak up and become advocates for those in the twilight and shadows of life.

Dr. Jennifer Manly spoke to the audience about the higher risk of Alzheimer's disease (AD) among African American elders relative to Caucasians. Her research has shown that the risk of developing AD may be up to four times as great for the African American population. One of the most important determining factors she has discovered is the quality of one's education. When the number of years of education (such as ten or twelve) is the same across ethnic groups, the quality of education might not be equivalent for African Americans and Caucasians: this is particularly true of people raised in the South during the years of segregated schooling. Dr. Manly provided historical data showing that teacher-pupil ratios and per-pupil spending were much less favorable for black students during this era than for white students.



Dr. Manly also discussed that reading levels among ethnic groups represent, in part, the quality of each group's education. Reading levels, and especially discrepancies between actual reading ability and expected levels based upon educational achievement, appear to account for many of the ethnic group differences in rates of cognitive impairment and dementia diagnosis in late life. In other words, once we take into account differences in educational quality, apparent differences in rates of dementia are diminished. Dr. Manly concluded that quality of education is an important determinant of dementia risk among African Americans—even more important than differences in cardiovascular risk factors such as hypertension and diabetes.

The program concluded with a "call to action" from ADRC physician, Richard E. Powers. The Center is poised to serve as a resource for families wanting to participate in research and help find better treatments for the disease. He reminded the audience that caring for a patient can be difficult, but families can find meaning and hope through participation in research.



These angels were painted by Lucy, who took up painting in her 80's. Her family fondly recalls when she would dress in hat and gloves and go with her husband for dinner and dancing. "Telling Stories", Alzheimer's of Central Alabama's 2008 calendar of Alzheimer's artwork is available for \$10. Call 205-871-7970.

Upcoming Event: Caregiver Appreciation Luncheon

The ADRC will host our 2nd annual Caregiver Appreciation Luncheon Friday, February 29, 2008, for families participating in the research efforts of the Center. The luncheon will be held at Dawson Memorial Baptist Church, in Homewood, from 11:30 - 1:00.

Seating will be limited and reservations will be required. Research participants will receive an invitation in January.

First Annual Community Awareness Dinner



Dan Marson; Congressman Spencer Bachus; Ken Carter; Tom Brannon

Ray L. Watts, MD, John Whitaker Professor and Chairman of Neurology, hosted the first annual Community Awareness Dinner, on August 30th, in the Compass Bank Executive Club. The dinner was designed to provide a greater understanding of the mission and goals of the Alzheimer's Disease Center for community leaders and families touched by Alzheimer's. The program, "Memory Disorders – Research in the 21st Century", included research updates from Daniel Marson, JD, PhD, Professor of Neurology and Director of the Alzheimer's Disease Center; David Standaert, MD, PhD, John and Jaunelle Strain Professor of Neurology; and Richard E. Powers, MD, Associate Professor of Neurology.

Our guest speaker for the event was Congressman Spencer Bachus. Congressman Bachus, who was accompanied by his wife Linda, was eager to share his personal journey of caring for his father, who had Alzheimer's disease. Bachus is serving his eighth term in the U.S. House of Representatives, serving the 6th District of Alabama. He is a conservative who supports tax relief, fiscal responsibility, a strong national defense and traditional values.

Congressman Bachus' comments resonated with the Center's mission of providing superb care for patients and families. He told how his family's burden was eased by working with Dr. Lindy Harrell and by having an opportunity to participate in cutting edge research. Under Dr. Harrell's watchful eye, Congressman Bachus learned that the disease was impacting his mother's health as well as his father's. The most important lessons he learned were not to reason, argue or rationalize with his father, and of course, maintaining a sense of humor is essential for successful caregiving.



Ray Watts, Congressman Spencer Bachus



The Honorable Bettye Fine Collins, Ethel Hall, Thomas Alexander

Joining the faculty and staff from the Department of Neurology for the dinner were members of the Minority Outreach Advisory Board: Thomas Alexander, Ethel Hall, Claudia Hardy, Rosalyn Mitchell and Earl Sanders. Families and supporters of the center attending the dinner included: John Beard, Claude Bennett, Mary Virginia and Ken Carter, Charles Collat, The Honorable Bettye Fine Collins, Nancy Goedecke, Kim Jemison, Virginia Loftin, Sherri and Mel York.

ADRC ACTIVELY RECRUITING STUDIES

Study Type	Study Title	Study Description
Memory Cognition Studies	Alzheimer's Disease Research Center Clinical Core	A study in which the cognitive, functional, and clinical changes of participants with Alzheimer's disease, mild cognitive impairment (MCI), Parkinson's disease and normal older adults are studied over 5 years to observe changes. Understanding these changes may help to develop new treatments for these conditions and the memory loss associated with their progression. Call (205) 934-3847.
	C.O.IN.S (Cognitive Observation IN Seniors)	This study examines the effects of mild memory loss on everyday skills, particularly on financial skills and medical decision-making skills. We hope this study will aid physicians in diagnosing and advising patients with memory loss and also aid policy-makers when making decisions regarding issues of competency and memory loss. Call (205) 934-4498.
	MILES (Measuring Independent Living in The Elderly)	This is a study of how people with mild memory problems and people without memory problems perform everyday tasks. The study will evaluate your everyday abilities, including looking up phone numbers, understanding medication labels, paying bills, and driving. Call (205) 934-3847.
	P.R.I.C.E.S. (Parkinson's Research Involving Changes in Everyday Skills)	This study examines the effects of mild memory loss in patients with Parkinson's disease on everyday skills, financial and medical decision-making in particular. We hope the results of this study will aid physicians in diagnosing and advising patients with memory loss and also aid policy-makers when making decisions regarding issues of competency and memory loss. Call (205) 934-4498.
Treatment Study	Exelon Patch	This is a 24-48 week study comparing the efficacy of 10 cm ² patch versus target Exelon 15cm ² patch in patients who have demonstrated cognitive decline in the initial open label treatment phase in patients with Alzheimer's Disease. All patients will receive medication. Call (205) 934-0946.

Additional Treatment Studies are scheduled to begin in early 2008.

To learn more about these studies and to learn if you or your loved one can participate, please call (205) 934-3847

JUST A CHAT WITH PAM TRULL, RN



Ask Pam Trull what's the most important part of her work and she'll quickly tell you, "The patients, always the patients. The patients must be the number one priority to have effective health care. Ask one hundred nurses why they chose their career, 97% will tell you it was because they enjoyed helping people. They enjoy their patients." Pam joined the ADRC in 2005 and serves as the nurse coordinator for the Alzheimer's clinics, working with Drs. Clark, Harrell and Powers. She is inspired by working in a research atmosphere and says, "Research is hopeful. You never know if your next study will prove to be a miracle. Each time you start something new there is this excitement."

Pam admits she has a rather unusual background. She grew up doing design and casting work for her father's jewelry business, but her father wanted her to pursue nursing. She earned an

Just a Chat with Pam Trull, RN... *continued from Page 6*

Associates Degree in 1976, the year he died of cancer. Pam's varied work experiences include the Medical/Surgical Floor and Intensive Care Unit at Huntsville Hospital, and work at the Madison County Health Department. After moving back to Birmingham, she worked for the Visiting Nurses Association of Birmingham and the Alabama Quality Assurance Foundation (AQAF) before coming to UAB. While working in the Diabetes Research Unit, Pam says, "Gradually, I saw less and less of patients, and more and more of paper. Managing studies can do that." As she began to look for a position that was more patient oriented, she found the ADRC. Pam says she loves working at the ADRC. "The patients and families are so hopeful and devoted to each other and devoted to the search for a cure to Alzheimer's."

During Pam's nursing career she has seen many changes in the way patients are cared for. "My grandmother had several strokes in 1965 and ended up in the dementia wing at a state hospital in Georgia. I have vivid memories of the conditions patients were exposed to at the time. There were no medications, no treatments, and very little understanding of the disease processes of the mind. Today there is understanding. The mind is an organ. It gets diseases just like any other organ in the body. The medical community of today understands that. People who have a brain disease are not crazy! They are ill. We now have medications to treat many of the symptoms that come with memory loss. We have medications that may slow the progression of the disease. The more we learn, the better our chances of finding a cure. That's why the research at the ADRC is so important. Every little tidbit of information we gather adds to the strength of knowledge that will eventually result in a cure."

Adding an interesting twist to Pam's work environment, her son Jacob joined the ADRC staff earlier this year. Jacob works in data entry ensuring that the patient records and research information are up to date. Pam says having Jacob right down the hall is both "wonderful and odd. It gives me a great sense of pride and satisfaction to know he has finished college and is now a dedicated working adult. On the other hand, it is really odd running in to him in the hall and thinking wow, how did he grow up so fast."

Pam offers important advice to caregivers, "take time to recharge yourself and DO NOT feel guilty about it. You cannot take care of someone else if you are on a path to exhaustion. Make time, if only a few of hours a week. You will be a better caregiver and you will have more patience if you treat yourself with as much care as you do the one you care for." She urges caregivers to "take advantage of what's offered in the community. Only about 20% of patients and their caregivers actually take advantage of what's offered."

Quiet time for Pam is spent reading "anything I can get my hands on; the genre doesn't matter. If it is in print, I'll give it a go." She adds, "when I am truly frustrated, I sculpt in clay. The flow of the clay through my hands is peace personified."

MEMORIAL DONATIONS: JUNE 2007 TO OCTOBER 2007

Memorials

In memory of Mary Brazeal

James Land

Margaret Morford

In memory of Catherine Hill

James Belew

William McArdle

Johnnie McKenzie

Floyd Vassalotti

In memory of Irene Mae Jarvis

George Dunn

Cindy Murphy

Coworkers of Pam Jarvis Skinner

In memory of Barbara Lester

Neal Berte

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Ann Tankersley

Boyd Thompson

Robert Winn

If you are considering your end of the year tax-deductible donations and have an interest in the research taking place here in the Alzheimer's Disease Research Center at UAB, please know that we would be pleased to speak with you about the many philanthropic opportunities available. To contact us by phone please call 205-975-7240 or email us at tbrannan@uab.edu. You may also simply mail a check made payable to the UAB Department of Neurology and on the memo line please specify that the gift is for the ADRC. The check should be mailed to the following address:

UAB Department of Neurology
Sparks Center, Suite 350
1720 7th Ave South
Birmingham, AL 35294

We thank you in advance for considering a donation to the Alzheimer's Disease Research Center.

DIRECTOR'S MESSAGE

In the United States we are facing a coming tidal wave of dementia in the next 40 years. Currently there are about 5 million Americans with Alzheimer's disease; by 2050 this number will be over 14 million. One of the challenges presented by this disease is the increasing number of older adults in underserved rural areas who will be in need of dementia diagnosis and treatment. For example, in Alabama, the Dementia Education and Training Program (DETA) has estimated that there are currently over 25,000 rural Alabamians who suffer dementia. Many of these individuals reside in areas such as the Black Belt that have traditionally experienced marked health care disparities. Older adults in these areas have lacked consistent access to the dementia expertise and care that can be found in larger urban centers and health care networks.

At the UAB ADRC, serving our rural elders in Alabama and the Southeast is a key priority. We are continuing to seek ways of bringing dementia care to these underserved rural areas in our state. Dr. Richard Powers, one of our ADRC physicians and founder of the DETA program, has been providing cutting edge education and training in dementia care to rural caregivers since the early 1990s. In addition, a promising new approach that the ADRC intends to explore is the use of video teleconferencing (VT) as a means for ADRC physicians and neuropsychologists to carry out assessments of older patients in remote areas of the state. Technology like VT can allow older minority and other rural elderly hundreds of miles distant from Birmingham to receive the dementia care that is enjoyed by people living in Birmingham. We plan to provide an update to you on our rural dementia care initiatives in coming issues of our newsletter.

We thank you for your support as we seek to create a world without Alzheimer's disease.

Daniel Marson, JD, PhD

CONGRATULATIONS TO OUR DATA MANAGERS!

Of the 32 ADRC's nationwide, UAB's ADRC is ranked #1 for net gains of both new participant data submissions and follow-up participant data submissions to the National Alzheimer's Coordinating Center for the month of October 2007. We are also in the top 10 in total new participant visits and in the top 5 for total follow-up visits. Our data management unit has made considerable improvements in the process of managing data over the past few months and will be contributing to the process of statistical data analysis in applying for grants.

ACRONYMS USED IN THIS ISSUE

(Acronyms are abbreviations of phrases using initials.)

ACA	-Alzheimer's of Central Alabama
AD	-Alzheimer's disease
ADRC	-Alzheimer's Disease Research Center
DETA	-Dementia Education and Training Program
MRI	-magnetic resonance imaging
MRS	-magnetic resonance spectroscopy
PET	-positron emission tomography
PIB	-Pittsburgh Compound B
UAB	-University of Alabama at Birmingham



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