# Memory Care Monthly

Supporting Healthcare Professionals in Caring for the Aging December 2007


## Looking Forward to 2008: Beta-amyloid Reducing Agents

In 2007, the scientific community made great progress in the field of Alzheimer's disease (AD). Throughout the last year, scientists have gained further understanding of AD pathology, genetics, as well as factors that increase and reduce AD risk.

Looking forward, to the New Year, there is hope for even greater progress in the treatment of AD. A new class of AD treatments has shown great outcomes in clinical trials. Beta-amyloid reducing agents (e.g., Flurizan) work by modulating, rather than inhibiting, gamma-secretase to shift production away from Aβ42 toward the generation of shorter, less-toxic fragments of Aβ. Reduced production of Aβ42 would prevent development of amyloid plaques that are known to be associated with AD. In addition, unlike gamma-secretase inhibitors, the modulation mechanism of the agent does not appear to interfere with the function of other important gamma-secretase activities. New therapies are designed to both treat the symptoms of AD and modify its course. These treatments represent a major advance in the field and could reduce not only the overall number of people suffering from AD, but also the societal cost of caring for those with AD by billions of dollars per year.

Of the beta-amyloid reducing agents, Flurizan, developed by Myriad Genetics, is expected to complete Phase III trial in early 2008. If the trial is successful, Myriad will likely apply for market approval prior to the end of the year.

Patient Education

# DEMENTIA REDUCING DIET

## *Findings of a recent study*

A recent study suggests that incorporating three staples into your diet may reduce the risk of Alzheimer's disease and dementia. The study was based on analysis of data on 8,085 people aged 65 or older who live in the following French cities: Bordeaux, Dijon and Montpelier. The 8,085 subjects were followed for four years. At the onset of the study none had dementia. After 4 years, 281 had developed dementia. Pascale Barberger-Gateau, PhD, of the Institut National de la Santé et de la Recherche Médicale (INSERM), the French National Institute for Health and Medical Research, in Bordeaux, France, led this study.

The three food groups recommended for reducing the risk of dementia are:

### FRUITS AND VEGETABLES

Eat fruits and vegetables daily either raw or cooked.

Dementia was 28% less common among those who ate fruits and vegetables daily

### FISH

Eat fish at least once a week.

Dementia was 40% less common among people who ate fish and did not have the Alzheimer's gene (ApoE 4)

### FATS

Regularly consume foods high in omega-3 fatty acids and avoid foods high in omega-6 fatty acids. Dietary sources of omega-3 fatty acids include fish (wild salmon, cod, herring and other fatty fishes found in cold water); flax seed, kiwi fruit and black raspberries. Dietary sources of omega-6 include sunflower oil and grape seed oil.

## MRI Predicts Conversion from Mild Cognitive Impairment to Alzheimer's

Dr. Jeffrey R. Petrella, from Duke University Medical Center in Durham studied the level of deactivation in the posteromedial cortex (PMC) during memory tasks using functional MRI (fMRI). The study included 34 patients with mild cognitive impairment (MCI), 13 with Alzheimer's disease (AD), and 28 healthy controls. All subjects underwent fMRI testing while completing a visual memory task. The MCI group was followed-up for up to 3.5 years and during that time eleven patients developed AD. The researchers found that normal subjects deactivate the PMC during many cognitively challenging tasks, while subjects with cognitive impairment deactivate the PMC at a much-reduced rate. The proportion of deactivators was significantly different across all groups: controls (79%), MCI-nonconverters (73%), MCI-converters (45%), and AD (23%) ($p<0.05$). Mean PMC activation magnitude parameter estimates, at baseline, were negative in the control (–0.57±0.12) and MCI-nonconverter (–0.33±0.14) groups, and positive in the MCI-converter (0.37±0.40) and AD (0.92±0.30) groups. The effect of diagnosis on PMC deactivation remained significant after adjusting for age, education and baseline Mini-Mental State Exam ($p<0.05$). Baseline PMC activation magnitude was correlated with change in dementia ratings from baseline.

Reference: Petrella JR et al. PLoS Medicine. 2007; Oct 31.
http://www.plosone.org/article/info:doi%2F10.1371%2Fjournal.pone.0001104

## Bright Lighting Conditions May Improve Sleep in Patients With Dementia

High-intensity ambient light in public areas of long-term care facilities may improve sleeping patterns and circadian rhythms of subjects with dementia. Dr. Philip D. Sloane, of the University of North Carolina, Chapel Hill, and colleagues compared four conditions: morning bright light, evening bright light, all-day bright light, and minimum standard light. The study included 66 older adults with dementia. Those exposed to morning and all-day light, showed a significant increase in nighttime sleep with the increase most prominent in subjects with severe or very severe dementia.

Reference: Sloane PD et al. J Am Geriatr Soc. 2007; 55(10):1524-1533.

## Use of MRI in Research Protocol Leads to High Rate of Incidental Findings

A study with 2,000 participants from the Rotterdam Study, reports finding a high rate of previously undetected abnormalities. Such incidental findings were detected by magnetic resonance imaging (MRI) scans. 145 subjects (7.2%) had asymptomatic brain infarcts. Of these, 5.6% were lacunar infarcts and the remainder was cortical infarcts. 35 subjects (1.8%) had cerebral aneurysms, 1 had a malignant tumor and one had metastases.

Reference: Vernooij MW. N Engl J Med. 2007; 357(18):1821-1828.

## One in Seven Older Americans Has Dementia

According to a new study funded by the National Institutes of Health, approximately14% (3.4 million) of individuals aged 71 or older have dementia. The Aging, Demographics, and Memory Study (ADAMS), is the first population-based study of dementia. Approximately 5% of people aged 71 to 79 years and 37.4% of those aged 90 years and older had dementia. 856 participants were included in the ADAMS study. All subjects were evaluated from July 2001 to December 2003, which included interviews of cognitive and functional status and symptoms, neuropsychiatric symptoms, current medications, medical history, family history, and memory problems. Clinicians reviewed the information and presented it to an panel of experts which included neuropsychologists, neurologists, geropsychiatrists, and internists. These experts used Diagnostic and Statistical Manual of Mental Disorders, 3rd ed, revised (DSM-III-R) and DSM-IV criteria to make a final determination about the cognitive status of each subject. The complete report is available at:
http://www.nia.nih.gov/ResearchInformation/ExtramuralPrograms/BehavioralAndSocialResearch/HRS.htm

Reference: Plassman BL. Neuroepidemiology. 2007; 29(1-2):125-132.

## Rheumatoid Arthritis Increases Risk for Stroke

Researchers analyzed data from the UK General Practice Research Database to study the link between rheumatoid arthritis (RA) and stroke. The database includes complete medical records of approximately 5% of the population of the United Kingdom. This study was based on data from 33,191 adults with RA and 99,570 others without RA between 1987 and 2002. Alison Endean, MBChB, MRCP from Southampton University Hospital in the United Kingdom let the study. Between 1992 and 1995, the incidence of stroke in RA patients was 5.7 and that of the control group was 2.94 per 1000 patient years. This represents an incident ration rate (IRR) of 1.65 for patients with RA. In comparison, IRRs for patients with other risk factors for stroke were 20.5 for patients with diabetes, 1.75 for patients with hypertension, 1.97 for patients with myocardinal infarction and 1.85 for patients with cardiac failure.

Reference: American College of Rheumatology 71st Annual Scientific Meeting: Abstract 684. Presented November 8, 2007.

## Study Links Alzheimer's Disease to Hypertension

Using a new imaging technique called arterial spin-labeled magnetic resonance imaging (ASI MRI), researchers have studied the link between Alzheimer's disease (AD) and hypertension. The ASI MRI measures the cerebral blood flow through the brain in milliliters per 100 g of brain tissue per minute. Cyrus Raji, an MD and PhD candidate at the University of Pittsburgh, Pennsylvania led the study. They found that AD patients with hypertension had lower cerebral blood flow than AD patients without hypertension. The study included a group of control patients, a group with mild cognitive impairment and a third group with Alzheimer's patients. There were a total of 48 control patients, 38 with hypertension and 10 without hypertension. 20 patients had mild cognitive impairment (MCI), 10 with and 10 without hypertension. 20 patients had AD, 10 with and 10 without hypertension. In AD patients with hypertension, cerebral blood flow was 34.8 mL/100 g brain tissue/min on ASI MRI. In comparison, healthy controls with hypertension had blood flow of 41.43 mL/100 g/min. Patients with MCI with hypertension had blood flow of 47.75 mL/100 g/min.

Reference: Radiology Society of North America 93rd Scientific Assembly: Abstract LL-NR4054-H08. Presented November 28, 2007.

## High Blood Pressure and Irregular Heartbeat May Speed Progression of Alzheimer's Disease

Dr. Michelle Mielke, assistant professor of psychiatry at Johns Hopkins University School of Medicine researched the connection between high blood pressure and irregular heartbeat and Alzheimer's disease. The study included 135 women and men aged 65 or older from Cache County, Utah with possible or probably Alzheimer's disease. The subject did not have concurrent vascular dementia. Subjects with systolic blood pressure greater than 160 mmHg or arterial fibrillation progressed through the stages of Alzheimer's disease quicker.

Reference: Miekle MM. et al. Neurology. 2007; 69:1850-1858.

## Gerneric Rivastigmine Tartate Capsules Approved by the FDA

The FDA approved the first generic formulation of rivastigmine tartrate capsules on October 22 in 1.5-, 3-, 4.5-, and 6-mg (base) strengths for treatment of mild to moderate dementia of the Alzheimer's type and mild to moderate dementia associated with Parkinson's disease.

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