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## PREVENTION HIGHLIGHT

### **Hypertension and Cognitive Impairment**

Hypertension significantly increases the risk of developing cerebral white matter lesions, which themselves increase the risk of developing stroke, cognitive impairment and dementia due to Alzheimer's or cerebrovascular disease.

Blood pressure, represented by a number such as 120/80 mm Hg, is composed of systolic and diastolic pressure readings. The systolic pressure represents the individual's blood pressure when the heart is contracting while the diastolic pressure represents the blood pressure when the heart is relaxed. In the number 120/80 mm Hg, 120 represents the systolic blood pressure, while 80 represents the diastolic pressure.

Both diastolic and systolic elevations of blood pressure in hypertensives can increase the risk of developing stroke, cognitive impairment and dementia due to Alzheimer's disease (AD) or cerebrovascular disease. Diastolic blood pressures above 90 mm Hg among hypertensive patients correlate with worsened cognitive performance. In elderly patients with systolic hypertension who were exposed to cold, exercise, or other events that stimulate the sympathetic nervous system, blood vessels did not react normally, and increased the patient's risk of stroke and cognitive impairment.

In AD patients, the presence of cerebral white matter lesions worsens their cognitive performance. Small arteries and arterioles supply blood to the white matter. Prolonged exposure to hypertension produces inelasticity, hardening and calcification in these small arteries and arterioles, and is an important factor in the pathophysiology of cognitive impairment and dementia due to hypertension-mediated cerebrovascular disease.

Treating hypertension has a profound effect on the degree of cognitive impairment and the risk of AD among patients with memory loss. Among 1,241 elderly hypertensive patients with memory complaints, those who received treatment that controlled their blood pressure had better cognitive function than untreated patients, even after adjusting for age, sex, education and diagnosis (mild cognitive impairment, AD, or vascular dementia). Furthermore, the risk of having AD was twice as high in the untreated vs. treated hypertensive patients.

The type of antihypertensive treatment also matters. Patients treated with calcium channel blockers had higher cognitive function than those treated without calcium channel blockers, and the improvement was independent of blood pressure level.

Hypertension is also one of the many factors (weak grip strength, obesity, hyperglycemia, smoking, and excessive alcohol consumption) associated with longer life expectancy and reduced morbidity if it is prevented or well controlled during midlife.

## NUMBER WITH ALZHEIMER'S IN THE U.S. REACHES 5 MILLION

According to a new report by the Alzheimer's Association, more than 5 million people in the United States have Alzheimer's disease (AD), an increase from 4.5 million. This number is expected to rise with the aging of the population. The report also said that annually, there were 400,000 new cases of AD each year. The report also mentioned that in 2005, Medicare spent \$91 billion on beneficiaries with AD and other dementias. This number is projected to double to \$189 billion by 2015. New treatments and diagnostic tools will help ease the economic burden of this debilitating disease.

Read the complete report at:

[http://www.alz.org/national/documents/Report\\_2007FactsAndFigures.pdf](http://www.alz.org/national/documents/Report_2007FactsAndFigures.pdf)

## RESEARCH UPDATES

### **High Adiposity Linked With Increased Risk for Dementia**

Dr. Jose A. Luchsinger and colleagues from Columbia University College of Physicians and Surgeons in New York studied the link between adiposity and dementia. In the study, adiposity measured by body mass index (BMI), waist circumference, and weight change was associated with dementia, probable Alzheimer disease (AD), and dementia associated with stroke (DAS). The researchers followed 893 subjects with BMI data, 907 with waist circumference data and 709 with a second weight measurement. At baseline, none of the subjects had dementia. After 5 years, 181 had incident dementia, 112 had AD, 53 had DAS. The mean patient age was 77 years.

When compared to the first quartile of BMI group, the third BMI quartile had lower dementia and AD risk, while the second BMI quartile group had a lower DAS risk. The association between BMI and dementia resembled a U-shape in those younger than 76 years, while dementia risk decreased with higher BMI in those 76 years and older. The fourth quartile of waist circumference was related to a higher DAS risk in the whole sample, and to dementia and AD in persons younger than 76 years. Weight loss was related to a higher dementia and DAS risk, and weight gain was related to a higher DAS risk only. These results show that an association between adiposity and dementia differs depending on the anthropometric measure used, and is modified by age, and would explain why various conflicting reports exist.

## **Some Drugs Prescribed for Alzheimer's May Contribute to Deterioration in Patients**

In Alzheimer's patients, cholinesterase inhibitors slow deterioration while antipsychotics and benzodiazepines tend to increase the rate of deterioration. Dr. J. Ellul and colleagues from the University of Patras, Greece, followed a community cohort of 224 patients with a mean age of 82.3 years with a diagnosis of probable Alzheimer's disease. The drugs used by each patient were recorded during the initial assessment and logistic regression was used to correlate disease progression with drug usage. The Global Deterioration Scale was used to measure disease progression and the subjects were followed for 12 months. 34 subjects (15%) were taking antipsychotics, 54 (24%) were taking antidepressants and 30 (13%) were taking benzodiazepines or benzodiazepine-related drugs. Those in advanced stages of the disease were more likely to be prescribed antipsychotics, tricyclic antidepressants, hypnotics or anxiolytics. 97 patients (39%) were taking drugs for dementia, one was taking Vitamin E, and 20 were taking vitamin B12 or folic acid.

Risk of deterioration was significantly higher among patients who were taking antipsychotics or sedatives compared with those who were not. Patients taking both antipsychotics and sedatives had an even higher risk of rapid deterioration. Those taking cholinesterase inhibitors or NMDA antagonists had a significantly lower risk of rapid deterioration.

## **Study Highlights the Link Between AD and Cardiovascular Risk Factors**

A study led by Dr. Jan A. Staessen University of Leuven in Belgium reviewed the role of hypertension as a reversible risk factor in development of Alzheimer's disease (AD). A strong association between AD and cardiovascular risk factors and atherosclerosis were established. The researchers concluded that hypertension is an important risk factor for AD.