an Ounce of Prevention

ALZHEIMER'S PREVENTION THROUGH DELAY WINTER 2009

FEATURED ARTICLE

NEW YEARS RESOLUTION: RAISE AWARENESS ABOUT ALZHEIMER'S

As 2009 comes to a close and we look forward to 2010, we would like to reflect on the importance of increased Alzheimer's awareness. In that spirit, we are sharing with you the below article, originally written for National Alzheimer's Awareness Month, as part of a public education campaign about this terrible disease. We hope you will read it and share it liberally with any colleagues who might appreciate this important message.

Alzheimer's Awareness: Why Bother?

As you may have read elsewhere, November is National Alzheimer's Awareness Month. But surely, the public is already well aware of this horrible disease. After all, Alzheimer's has directly affected approximately 1 in every 2 families and the others must have certainly noted its prominent coverage in the news. We don't really need more awareness, right?

Wrong.

Some of the information below may surprise you. That is to say, it is information about which you are not presently aware. However, by merely learning the seven facts below you will be helping to reduce the Alzheimer's problem. That's right…making you aware of this information and encouraging you to share it with your social networks will facilitate a more informed and more effective approach to combating the threat we face from this disease.

First, here are a few facts and figures that you may already know. Alzheimer's currently affects more than 5 million Americans and that number is likely to triple by 2050. It is the sixth leading cause of death in the USA and is climbing steadily in the rankings. Also, Alzheimer's is the leading cause of dementia and accounts for about 65% of all dementia worldwide. These are all sobering facts but perhaps not new to your understanding.

7 Facts You Need To Know

Now, here are some points you may not know but should. It is the following information that I hope will stimulate discussion and promote a better understanding of the disease. With more discourse, we can begin to erode the lingering stigma that currently prevents some people with early symptoms from seeking timely medical attention.

1) We generally detect Alzheimer's at the end-stage of the disease.

On average, Alzheimer's follows a 14-year course from the onset of the first symptoms until death. There is some variability across patients but 14 years is pretty typical. The more surprising news is that, on average, we diagnose Alzheimer's in years 8-10 of that disease course. This means that for most patients, symptoms go undiagnosed and untreated for at least seven years, during which time the lesions spread through the brain and cause irreparable damage. **Please be aware that we diagnose Alzheimer's disease far too late to optimize the effects of currently available treatments.**

2) Memory loss is not a part of normal aging.

The point about end-stage detection raises an obvious question about "why" we diagnose this disease so late. There are many contributing factors but most of them can be reduced through awareness and education. Some patients resist medical attention in the early stages because they fear a stigmatizing label or because they are misinformed to believe that Alzheimer's cannot be treated. Many people, including a startling number of physicians, incorrectly believe that memory loss is a normal part of aging. Improving the timeliness of diagnoses for Alzheimer's is, in many ways, a problem that can be addressed through awareness and education. **Please be aware that memory loss is not a part of normal aging and, regardless of the cause of the memory loss, timely medical intervention is best.**

3) Current Alzheimer's drugs are probably more effective than you think.

Our widespread practice of late detection has many negative consequences. For example, one of the reasons that current treatments are often deemed ineffective is because they are routinely prescribed for patients with end-stage pathology who already have massive brain damage. With earlier intervention, treatment can be administered to patients with healthier brains, many of whom will respond more vigorously to the recommended therapy. Yes, we need better treatments, but a great start would be to intervene earlier with the treatments we already have. **Please be aware that currently approved treatments may be more effective than some headlines indicate.**

4) Alzheimer's disease can be treated.

Another treatment related concept about which everyone should be aware is this. Preventing or slowing further brain damage is preferable to letting the damage spread without constraint. Yet, many physicians, patients, and caregivers conclude that any treatment short of a cure is not worthwhile. While today it is true that we have no cure for Alzheimer's, that does not mean there is no treatment. With a good diet, physical exercise, social engagement, and certain drugs, many patients (especially those detected at an early stage) can meaningfully alter the course of Alzheimer's and preserve their quality of life. **Please be aware that "we have no cure" does not mean "there is no treatment".**

5) The Alzheimer's drug pipeline is full.

Here's another fact of which you should be aware. Through an intense research effort over the past twenty years, scientists have gained a lot of insight about Alzheimer's disease mechanisms and about other factors that increase the risk for the disease. Much has been learned and some very promising drugs, based on sound theoretical approaches, are in FDA clinical trials right now. While much of the disease remains shrouded in mystery and we may still be a long way from better treatments, it is possible that an effective agent is already in the pipeline. **Please be aware that, although we don't know when, better treatments for Alzheimer's are certainly on the way.**

6) Taking good care of your heart will help your brain stay healthy.

Know this; the health of your brain is very closely tied to the health of your body, particularly your heart. Researchers have shown conclusively that high cholesterol, high blood pressure, and obesity all confer greater risk for cognitive decline. The mechanisms that keep oxygen rich blood flowing through your body play a key role in maintaining a healthy brain. Everyone should be aware about the close association between vascular health and cognitive health. **Please be aware that maintaining good vascular health will help you age with cognitive vitality.**

7) Managing risk factors may delay or prevent cognitive problems later in life.

There are well-identified risk factors for Alzheimer's disease that are within our power to manage. These include diabetes, head injuries, smoking, poor diet, lethargy, and isolation. With greater awareness of these facts, we can imagine a world where diabetics take more care to control their blood sugar, where helmets are more prevalent in recreational activities that are likely to cause head trauma, where people smoke less and eat more fruits and vegetables, and where everyone makes a better effort to exercise and to stay socially engaged on a regular basis. While these facts may not be well known, they are all well proven. Galvanizing an effort to publicize them is one purpose of National Alzheimer's Awareness Month. **Please be aware that many risk factors for Alzheimer's can be actively managed to reduce the likelihood of cognitive decline.**

So why bother with Alzheimer's awareness? Because it is a terrible disease poised to ravage our aging society and the lack of education and awareness has lead to a stigma that prevents a more proactive approach to early intervention. The result is that we diagnose it too late, which hampers the efficacy of available treatments. A more educated public could manage risk factors to minimize the likelihood of Alzheimer's, could monitor personal cognitive health with greater vigilance, and could seek medical attention at the earliest sign of decline. Physicians could then diagnose problems earlier and prescribe appropriate treatment including diet, exercise, and drugs to slow disease progression as much as possible. In the end, we could have fewer cases, more effective treatment, slower progression, higher quality of life, and lower healthcare costs. The social, emotional, and fiscal benefits of awareness and education in this area are too large to quantify.

By reading this article, you have increased your understanding of the problem and raised your awareness about what can be done. That is a great step in the right direction but you can do one thing more. You can help to spread this message.

In the spirit of National Alzheimer's Awareness Month, please share this article with your friends to promote more widespread awareness. Post it to your Facebook page, mark it in Delicious, Tweet it, Digg it, or email it. It doesn't matter how you do your part, it only matters that you get it done.

7 Facts to be Aware of:

1. We generally detect Alzheimer's at the end stage of the disease.
2. Memory loss is not a part of normal aging.
3. Current Alzheimer's drugs are probably more effective than you think.
4. Alzheimer's disease can be treated.
5. The Alzheimer's drug pipeline is full.
6. Taking good care of your heart will help your brain stay healthy.
7. Managing risk factors may delay or prevent cognitive problems later in life.

RESEARCH UPDATES

DIETARY PATTERN AND REDUCED RISK OF ALZHEIMER'S DISEASE

A new study has shown that a dietary pattern high in healthy fats (mono-saturated and omega-3 and omega-6 polyunsaturated fatty acid), folate, and vitamin E, and low in saturated fatty acids and vitamin B12 is associated with a reduced risk of Alzheimer's disease (AD). This study was presented at the 134th Annual Meeting of the American Neurological Association by Dr. Nikolaos Scarmeas and his colleagues from the Taub Institute for Research on Alzheimer's Disease and the Aging Brain, Columbia University Medical Center.

In a community-based study of 2,148 non-demented participants ages 65 and older, 253 developed AD during a mean 3.9 years of follow-up. A reduced rank regression (RRR) analysis was used to determine linear combinations of 30 food groups that explained variation in seven nutrients potentially related to AD. Dietary information was gathered using the Willet's 61-item semi-quantitative food frequency questionnaire.

Researchers found that the AD protective RRR dietary pattern included "green food" such as salad dressing (olive oil and vinegar), nuts, fish, poultry, tomatoes, cruciferous vegetables (e.g. broccoli, cauliflower, Brussels sprouts, kale, and cabbage), fruits, and dark- and green-leafy vegetables. They also found that low consumption of "red food" such as high-fat dietary, red meat, organ meat, and butter was beneficial. When divided into 3 groups, those with the high and middle RRR pattern had 38 to 46 % and 19 to 27 % reduced risk of AD, respectively, compared to the low RRR pattern.

The beneficial foods studied are similar to those found in a Mediterranean diet, but not identical, suggesting that a certain combination of food is associated with reduced risk for AD via a particular set of nutrients, and that other dietary combination may be also protective against AD.

Scarmeas N et al. The 134th Annual Meeting of the American Neurological Association.

HORMONE THERAPY, COGNITIVE FUNCTION, AND DEMENTIA

Postmenopausal hormone therapy (HT) remains the most effective treatment for alleviating menopausal symptoms, which affect up to 80% of women, yet its effect on cognitive aging remains controversial.

A research group from the University Montpellier, Montpellier, France, conducted a prospective study to examine the association between HT and cognitive performance or dementia, focusing on the duration and type of treatment used, as well as the timing of initiation of HT in relation to the menopause.

Women 65 years and older were recruited in France as a part of the Three City Study. At baseline and 2- and 4-year follow up, women were administered a short cognitive test battery and a clinical diagnosis of dementia was made. Detailed information on current and past HT use was also gathered. The types of HT included estrogen alone, oral estrogen and progestogen, and transdermal estrogen and progestogen (natural progesterone and synthetic progestin). Analysis was adjusted for a number of socio-demographic, behavioral, physical, and mental health variables, as well as apolipoproten E (ApoE) geno type.

Among 3,130 naturally postmenopausal women, current HT users performed significantly better than never users on verbal fluency, working memory, and psychomotor speed. These associations varied according to the type of treatment and a longer duration of HT appeared to be more beneficial.

However, initiation of HT close to the menopause was not associated with better cognition. HT did not significantly reduce dementia risk over 4 years but current treatment diminished the negative effect associated with ApoE E4.

Results showed that current HT was associated with better performance in certain cognitive domains but these associations were dependent on the duration and type of treatment used. It also showed that there is no evidence that HT needs to be initiated close to the onset of menopause to have a beneficial effect on cognitive function in later life. Current HT may decrease the risk of dementia associated with the ApoE E4 allele.

Ryan J et al. Neurology. 2009; 73(24):1729-37.

PHYSICAL ACTIVITY AND EXECUTIVE FUNCTION IN AGING; THE MOBILIZE BOSTON STUDY

Dr. Laura H. P. Eggermont from the Department of Clinical Neuropsychology, VU University, Amsterdam, the Netherlands, and Alzheimer's Disease Center, School of Medicine, Boston University, and her colleagues conducted a population-based cross-sectional study to determine the relationship between physical activity and cognition, specifically executive function, and the possible mediating role of factors such as cardiovascular disease (CVD) and CVD risk factors, chronic pain, and depressive symptoms.

544 individuals over 70 years old (mean age 78; female 62%) in the Boston area participated to the study. Presence of heart disease (self-reported physician diagnosis), pain, and depressive symptomatology were assessed using interviewer-administered questions. Blood pressure was measured. Engagement in physical activity was determined using the Physical Activity Scale for the Elderly (PASE). Cognitive function was measured using a neuropsychological test battery.

The results showed that the older adults who engaged in more physical activity had significantly better performance on all cognitive tests, except for Letter Fluency and the delayed recall memory performance after adjusting for age, gender, education, and total number of medications. With further adjustment for CVD and CVD risk factors (heart disease, diabetes mellitus, stroke, and hypertension), pain, and depressive symptoms, the PASE score remained significantly associated with executive function tests.

This study supports the idea that the correlation between physical activity and executive function represents a specific biologically determined relationship.

Eggermont LHP et al. JAGS. 2009; 57(10):1750-6.

MODERATE ALCOHOL INTAKE AND RISK OF FUNCTIONAL DECLINE: THE HEALTH, AGING, AND BODY COMPOSITION STUDY

A group of researchers studied 3,061 adults aged 70-79 without mobility disability at baseline to investigate the relationship between alcohol consumption and incident mobility limitation. This study was a part of the Health Aging and Body Composition study, conducted in Memphis, Tennessee, and Pittsburgh, Pennsylvania.

Incidence of mobility limitation (defined as self-report at two consecutive semiannual interviews of any difficulty walking one-quarter of a mile or climbing stairs), and incidence of mobility disability (defined as severe difficulty or inability to perform these tasks at two consecutive reports) were measured.

Alcohol intake, lifestyle-related variables, disease, and heath status indicators were assessed at baseline.

Results showed, during a follow-up time of 6.5 years, that participants consuming moderate levels of alcohol had the lowest incidence of mobility limitation (total: 6.4 per 100 person-years) and mobility disability (total: 2.7 per 100 person-years). Adjusting for demographic characteristics, moderate alcohol intake was associated with lower risk of mobility limitation and mobility disability than zero or occasional consumption. Additional adjustments for lifestyle-related variables substantially reduced the strength of the associations. Adjustments for diseases and health status indicators did not affect the strength of the associations, suggesting that lifestyle is the most important in confounding this relationship.

Maraldi C et al. JAGS. 2009; 57(10):1767-75.

ASSOCIATION OF HIGHER DIASTOLIC BLOOD PRESSURE LEVELS WITH COGNITIVE IMPAIRMENT

Dr. Georgios Tsivgoulis from the Comprehensive Stroke Center, University of Alabama at Birmingham, and his colleagues evaluated the cross-sectional relationship of blood pressure (BP) components with cognitive impairment after adjusting for potential confounders.

The present analysis included 19,836 participants, who had no history of stoke or TIA, with complete baseline physical and cognitive evaluations from the Reasons for Geographic and Racial Differences in Stroke (REGARDS) study. The REGARDS study is a national, longitudinal population cohort evaluating stroke in 30,228 black and white men and women aged 45 or older. During an in-home visit, BP measurements were taken as the average of 2 measurements. Incremental logistic models examined baseline relationships between BP components (systolic BP [SBP]; diastolic BP [DBP]; and pulse pressure [PP]) and impaired cognitive status (score of 4 or less on 6-Item Screener) after adjusting for demographic and environmental characteristics, cardiovascular risk factors, depressive symptoms, and current use of any antihypertensive medications.

Results show that higher DBP levels were associated with impaired cognitive status after adjusting for demographic and environmental characteristics, risk factors, depressive symptoms, and antihypertensive medications. An increment of 10 mm Hg in DBP was associated with a 7% higher odds of cognitive impairment. No independent association was identified between impaired cognitive status and SBP or PP. There was no evidence of nonlinear relationships between any of the BP components and impaired cognitive status. There was no interaction between age and the relationship of impaired cognitive status with SBP, DBP, or PP levels.

This study shows that higher diastolic blood pressure was cross-sectionally and independently associated with impaired cognitive status in this large, geographically dispersed, race- and gender-balanced sample of stroke-free individuals.

Tsivgoulis G et al. Neurology. 2009; 73(8):589-95.

CIGARETTE SMOKING AND BRAIN LESIONS IN MULTIPLE SCLEROSIS

Cigarette smoking has been linked to higher susceptibility and increased risk of progressive multiple sclerosis (MS). However, its effect on MRI characteristics of patients with MS has not been well studied.

Research conducted by Dr. Robert Zivadinov from the Buffalo Neuroimaging Anaysis Center and his colleagues compared the MRI characteristics in cigarette smoker (n=128; 34.8%) and nonsmoker patients (n=240) with MS.

The results showed that smoking was associated with increased Expanded Disability Status Scale (EDSS) scores. Adverse associations were observed between smoking and the lesion measures including increased number of gadolinium contrast-enhancing lesions, T2 lesion volumes, and T1 lesion volumes. Smoking was also associated with decreased brain parenchymal fraction and with increases in the lateral ventricle volume and third ventricle width.

Zivadinov R et al. Neurology. 2009; 73(7):504-10.

APOE GENOTYPE AND FAMILY HISTORY

Researchers from the University of Regensburg School of Medicine, Regensburg, Germany, investigated whether a positive family history and ApoE E4 genotype is prevalent among dementia patients with onset before 70 years of age compared with healthy spousal controls.

A total of 210 patients with dementia and 82 spousal control participants were evaluated with neuropsychiatric examination, CERAD battery, clock-drawing test, and ApoE genotyping. Dementia diagnosis included Alzheimer's disease (AD), vascular dementia, frontotemporal dementia, Lewy body dementia, mixed dementia, multisystem atrophy, Parkinson's disease dementia, and olivopontocerebellar atrophy.

Of the 131 patients with AD dementia, 25 had E4/E4. Among dementia patients with a positive family history (n=83), E4/E4 was found in 19 (22.9%). A positive family history was highest among E4/E4 AD patients (72.0%) and lowest among the cognitively normal spousal controls (9.3%).

In this sample of patients with dementia due to AD, approximately 3 out of 4 (72.0%) had E4/E4 when they had a positive family history supporting the hypothesis that Apo E4 exerts its maximal effect before age 70 years.

Zintl M et al. AJADD. 2009; 24(4):349-52.

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