Diet, Exercise May Decrease Risk of Dementia

BY MICHELE G. SULLIVAN

VIENNA — Diet and exercise appear to exert positive influences, even as people age, in terms of significant reductions in the risk of developing cognitive decline or dementia.

Researchers at the International Conference on Alzheimer's Disease presented several studies showing that a heart-healthy diet and moderate exercise are associated with lower dementia rates.

"Research continues to show us that there are lifestyle decisions we all can make to keep our brains healthier, and which may also lower our risk of memory decline as we age," William Thies, Ph.D., chief medical and scientific officer of the Alzheimer's Association, which sponsored the meeting, said in a statement.

The diet study, led by Heidi J. Wengreen, Ph.D., of Utah State University, Logan, examined compliance with the Dietary Approaches to Stop Hypertension (DASH) eating plan and dementia rates among participants in the Cache County Study on Memory, Health, and Aging. The DASH plan encourages the consumption of fruits, vegetables, nuts and beans, whole grains, low-fat dairy, and lean animal proteins, and limits salt and sweets.

The study group included 3,831 subjects who were at least 65 years old at baseline, said Ronald Munger, Ph.D., the coinvestigator who presented the findings at the meeting.

On a DASH compliance scale of 0-45, the mean score was 27. "Not one of our participants was able to be fully compliant with the diet," said Dr. Munger, also of the university. At baseline, all subjects took the Modified Mini-Mental State (3MS) examination, a global measure of cognition with a maximum score of 100. The test was repeated four times during 11 years of follow-up.

Compared with those in the lowest quintile of diet compliance, those in the highest quintile scored significantly better on the 3MS at baseline (91.38 vs. 90.41) and at 11 years (87.60 vs. 85.81).

The researchers identified four food groups that were independently associated with better 3MS scores: dairy, vegetables, whole grains, and nuts and beans. In a second model using just those four food groups, participants in the highest quintile for consumption of those foods scored significantly better than those in the lowest quintile at baseline (91.70 vs. 89.95) and 11 years (88.28 vs. 84.91)). Those in the highest quintile also had the lowest risk for developing dementia, but that finding was significant (hazard ratio, 0.40) only for ApoE4-negative subjects.

Dr. Munger said that the team is doing similar research on the Mediterranean diet, which has been linked to a similar reduction in dementia risk. "The goal is not to propose a single dietary pattern for the whole world, but to focus on finding the most effective food groups, which can be incorporated into any diet."

One exercise study, by Deborah E. Barnes, Ph.D., and her colleagues, examined activity levels and brain aging in 3,075 subjects in the Health, Aging, and Body Composition Study. The mean age was 74 years at baseline; 52% were women, and their mean 3MS score was 90. Subjects self-reported the minutes they spent walking each week at baseline and at 2, 4, and 7 years. Activity levels were classified as sedentary (no weekly physical activity), low (less than 150 minutes of walking per week), or high (more than 150 minutes of walking per week).

Dr. Barnes, of the University of California, San Francisco, found that over 7 years of follow-up, 21% of the subjects were consistently sedentary, 12% maintained a steady level of activity, 26% had a declining level, 11% had an increase, and 30% had fluctuating levels.

Physical activity may lead to neurogenesis, synaptogenesis, and overall enhanced cognitive function—and it may be more beneficial among individuals who are free of the ApoE4 gene.

After adjustment for age, sex, race, level of education, study site, alcohol and tobacco use, and the presence of diabetes and hypertension, those who reported consistent activity performed significantly better on the 3MS exam than those in the other groups. The mean rate of decline on the 3MS was 0.4 points/year in the consistent-activity group, 0.44 points/year in the increasing- or fluctuating-activity group, 0.54 points/year in the decreasing-activity group, and 0.62 points/in the sedentary group.The findings may speak to exercise's influence on neuronal health, she said. "Physical activity may lead to neurogenesis, synaptogenesis, and overall enhanced function."

Findings from a second exercise study, presented by Dr. Thomas Obisesan in a poster session, suggest that exercise may be more beneficial among individuals who are free of the ApoE4 gene.

Dr. Obisesan, chief of geriatrics at Howard University, Washington, used data from the 1988-1994 National Health and Nutrition Survey to study 1,799 subjects aged 60 years and older who had full data on aerobic activity, shortened Mini-Mental State Examination (sMMSE) scores, and ApoE4 genotype. Among those aged 60-69 years, 60% reported engaging in physical activity during the previous month; in those aged 70 years or older, 54% reported such activity.

In a regression analysis, greater aerobic activity was associated with better cognitive function in subjects who did not carry the ApoE4 high-risk allele and those who carried only one copy: Among those aged 60-69, the mean sMMSE score was 16 in noncarriers and heterozygous carriers who exercised, and 15 in nonexercisers. Among those homozygous for the gene, the mean sMMSE score was 15 in both groups.

A separate analysis looked at subjects aged 70 years and older: In noncarriers, the mean sMMSE was 15.5 in exercisers and 14.5 in nonexercisers. Among heterozygous carriers, the score was 15 in exercisers and 14 in nonexercisers. Among homozygous carriers, the score was 13.5 in exercisers and 11.5 in nonexercisers.

"This study adds to growing evidence that increased levels of physical activity may offer an important primary intervention strategy to attenuate neurocognitive loss. If confirmed in experimental studies, this strategy may have significant public health benefits," Dr. Obisesan said. ■

Moderate Drinking Confers Benefit in Cognitively Normal

BY MICHELE G. SULLIVAN

VIENNA — A drink or two a day seems to protect against the development of dementia in cognitively normal elderly adults, a study suggests.

But moderate alcohol consumption doesn't improve thinking processes in those who already have mild cognitive impairment (MCI), and heavy drinking can tip the scales from mild impairment to dementia, Dr. Kaycee M. Sink said at the International Conference on Alzheimer's Disease.

"Our findings support current recommendations for alcohol consumption [of one drink per day for women and two for men], at least for older adults with normal cognition," Dr. Sink said in an interview.

However, she warned, alcohol's brain benefit can't be used as an excuse to take up drinking at an advanced age. "The results of our study apply only to older adults who reported drinking alcohol at the start of the study. They can't be extrapolated to those who do not currently drink—that is, we cannot recommend that someone in his 70s or 80s start drinking alcohol to try to prevent dementia," said Dr. Sink of Wake Forest University, Winston-Salem, N.C.

Dr. Sink and her colleagues based their study on data extracted from the Ginkgo Evaluation of Memory (GEM) study, which enrolled 3,069 participants aged 75 or older with normal cognition or mild cognitive impairment. They were randomized to twice-daily doses of either placebo or 120 mg of ginkgo extract. Although the extract was safe, it was not associated with any significant cognitive improvement (JAMA 2008;300:2253-62).

At baseline, the subjects' average age was 78 years; 2,587 were cognitively normal, and 482 had MCI. MCI was present in 20% of the alcohol abstainers and 12% of the consumers.

'The results of our study apply only to older adults who reported drinking alcohol at the start of the study.'

DR. SINK

Subjects self-reported daily alcohol consumption as abstinent, light (1-7 drinks a week), moderate (8-14 drinks), or heavy (more than 14 drinks). Abstinence was reported by 43%, light drinking by 38%, moderate drinking by 9%, and heavy drinking by 10%.

There were 523 new cases of dementia during the 6-year follow-up period. After adjustment for demographics, smoking, medical comorbidities, depression, social activity, and baseline cognition, moderate alcohol consumption conferred a 37% reduction in the risk of dementia in those who were cognitively normal at baseline. But moderate drinking did not reduce the dementia risk for those who already had MCI at baseline.

Heavy drinking conferred a nonsignificant 18% risk reduction for cognitively normal subjects. But in those who already had MCI, heavy drinking significantly increased by 92% the risk of progression to dementia. "Heavy alcohol use is associated long-term toxic effects in the brain. In addition to the almost twofold increase in risk of progression to dementia for participants with MCI who drank heavily, we saw that even lesser amounts of alcohol were associated with greater declines in a measure of overall cognition over the 6-year study," she said.

The protective mechanism of mild drinking remains a mystery, she said.

"We don't fully understand how alcohol may be protective against dementia," said Dr. Sink. However, since for many people, MCI is a transition state between normal cognition and dementia, it may be that any protective benefits from moderate alcohol intake are too late once the process of cognitive impairment begins. Alternatively, the results could be consistent with the cognitive reserve hypothesis, in that those who are already declining aren't as resilient to neurotoxic effects of heavy alcohol use as cognitively normal older adults might be."

Dr. Sink said she had no conflicts of interest with regard to the study. ■