

## Preserving Cognitive Function

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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.

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 0.44 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/year 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; among 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. ■

## Frailty Markers Tied to Postop Death

BY SHERRY BOSCHERT

INDIAN WELLS, CALIF. — Elderly patients with at least four of six markers of frailty before elective major surgery were significantly more likely to die within 6 months after surgery, a prospective study of 110 subjects showed.

More than half of all operations in the United States are performed on patients older than 65 years. Including six frailty markers in geriatric preoperative assessments can help predict postoperative mortality and the need for institutional care after discharge, Dr. Thomas N. Robinson and associates reported at the annual meeting of the American Surgical Association.

"Recognition of frailty markers in a preoperative assessment of geriatric patients represents a paradigm shift from the traditional preoperative evaluation techniques," which typically stratify risk based on a single organ system assessment, said Dr. Robinson of the University of Colorado, Denver.

"We used to only look at comorbidities, urgency of procedure, and cardiac risk stratification to determine risk. Only recently have we recognized that

frailty, disability, and alterations in serum markers like albumin and hematocrit can affect the outcome," said Dr. Michael E. Zenilman, professor and chair of surgery at the State University of New York Downstate Medical Center, Brooklyn, N.Y.

The investigators chose 12 of more than 70 frailty markers to include in assessments within 30 days before elective major



**'Recognition of frailty markers in a preoperative assessment of geriatric patients represents a paradigm shift.'**

DR. ROBINSON

surgery at the Denver Veterans Affairs Medical Center. The patients, who underwent general, thoracic, vascular, or urologic surgery, had an average age of 74 years, and 95% were men.

The assessments covered age, cognition, falls, history of depression, anemia, disability, undernutrition, and comorbidity level (based on the Charlson Index, the number of outpatient medications being used, and the American Society of Anesthesiologists score).

All patients survived surgery and postoperative care in the ICU. A total of 15% of patients

died within 6 months of undergoing surgery, and 26% required institutionalization in nursing homes or other care institutions upon discharge, Dr. Robinson reported.

The six frailty markers that were significantly associated with a higher risk of 6-month mortality and discharge to institutional care were:

► **Cognitive impairment on the Mini-Cog Test.** This is a simple and validated way to test for impaired cognition or dementia.

► **Lower albumin level.** This averaged 2.93 g/dL in patients who died, compared with 3.69 g/dL in patients who survived 6 months after surgery.

► **Increased falls.** Patients who died averaged 1.6 falls in the 6 months before surgery, compared with 0.7 falls in survivors.

► **Lower hematocrit.** This was 35% in patients who died and 41% in those alive 6 months after surgery.

► **Higher Katz disability score.** This averaged 3.2 among patients who died and 4.8 among survivors.

► **Greater burden of comorbidities.** Patients who died had an average Charlson Index score of 5.1, compared with 3.1 among survivors.

Dr. Robinson and his associates stated that they have no conflicts of interest. ■

## Falls Lead to ED Visits by Nursing Home Residents

NEW ORLEANS — Falls are by far the most common reason for emergency department visits by nursing home patients, a national survey showed.

After injuries from falling, which led to an estimated 14% of all nursing home patients' ED visits in 2004, the top reasons for a trip to the ED included chest pain and pneumonia (4.5% of visits each), psychiatric symptoms (3.7%), and cardiac conditions other than acute coronary syndrome (3.2%), Dr. Scott Wilber reported at the annual meeting of the Society for Academic Emergency Medicine.

Some researchers have said that up to half of all ED visits by nursing home residents are for problems that could have been managed by a visiting primary care physician. But the new data suggest that trauma and serious medical conditions are the typical reasons for the visits, said Dr. Wilber, director of the emergency medicine research center at Northeastern Ohio Universities College of Medicine, Rootstown.

His analysis of data from the 2004 National Nursing Home Survey indicated that there were an estimated 1,492,138 nursing home residents nationally. Their mean age was 80 years, and

71% were women. Residents had been in a nursing home for a mean of 2.3 years and were on a median of nine medications.

Within the last 90 days, 8.3% of nursing home residents had made an ED visit. Of those who went to the ED, 85% did so only once during that period; 11% had two visits.

In a logistic regression analysis, the significant risk factors for the ED visits were issues related to the presence of a gastrointestinal or genitourinary device, being on more than nine medications, weight loss, pressure ulcers, male gender, and having no advance directives. These risk factors ranged in predictive power from a high of a 1.6-fold increased risk for patients with a GI or genitourinary device to a 1.2-fold increase for individuals having no advance directives.

The rate of ED visits by nursing home patients is lower than for noninstitutionalized elderly patients. In 2004, nursing home residents averaged 40.3 ED visits per 100 residents, vs. 57.9 per 100 among noninstitutionalized individuals aged 75 years or older, Dr. Wilber said.

Dr. Wilber's study was funded by the Summa Health System Foundation.

—Bruce Jancin