

Yoga Improved Endothelial Function in Pilot Study

In a separate study, marriage was linked with lower cholesterol levels and BMIs in both men and women.

BY BRUCE JANCIN
Denver Bureau

NEW ORLEANS — Six weeks of yoga training and meditation resulted in markedly improved endothelial function in a group of patients with cardiovascular disease, Satish Sivasankaran, M.D., reported at the annual scientific sessions of the American Heart Association.

In other news from the warm and fuzzy side of cardiology, investigators reported at the conference that marriage is associated with a reduced prevalence of cardiovascular risk factors. But surgeons at the Cleveland Clinic Foundation announced that massage therapy following open-heart surgery didn't yield any demonstrable therapeutic benefits in their randomized trial.

Dr. Sivasankaran presented a small pilot study in which 10 subjects with and 23 without cardiovascular disease participated in a 6-week program of stress reduction via instruction in yoga and meditation in which 90-minute group sessions were held three times a week. Participants were encouraged to practice at home as well.

Endothelial dysfunction is a hallmark of atherosclerotic vascular disease. But after 6 weeks, endothelial vasodilation as measured by brachial artery ultrasound improved 69% in the group with cardiovascular disease, from a baseline of 6.38%-10.78%. No significant change in brachial artery reactivity occurred in the group without cardiovascular disease, said Dr. Sivasankaran of Bridgeport (Conn.) Hospital and Yale University, New Haven.

Blood pressure, resting heart rate, and body mass index decreased during the study period in yoga participants regard-

less of whether they had cardiovascular disease. These changes occurred independent of improvement in endothelial function. Fasting blood glucose, lipid parameters, and C-reactive protein levels were unchanged during follow-up.

Increased chronic psychosocial stress has been convincingly linked to elevated cardiovascular event rates in numerous prior studies. Stress reduction appears to reduce this risk, but little is known regarding the mechanisms involved. The documented improvement in endothelial function with yoga and meditation in this study sheds new light on how this risk reduction occurs, he said.

In a separate study, Chris J. Armstrong, M.D., applied the Berkman Social Network Index to participants in the Minnesota Heart Survey in order to assess the hypothesis that the association between increased social support and lower cardiovascular event rates is mediated at least in part by a reduced prevalence of cardiovascular risk factors. This indeed proved to be the case.

The Berkman Social Network Index is a tool social scientists use to study social support. It's a composite measure incorporating marital status, the availability of friends and relatives, and church and social-group activities. Dr. Armstrong applied it to nearly 7,900 participants in the Minnesota Heart Survey, a population-based surveillance study that monitors

trends in cardiovascular risk factors among randomly selected 25- to 74-year-olds in Minneapolis/St. Paul.

Married men turned out to be 5% less likely than single men to have hypertension. Moreover, married men, as well as married women, had significantly lower cholesterol levels and body mass indexes than unmarried participants. The prevalence of smoking was 12% lower in married individuals, as well. Running counter



Endothelial vasodilation rose by 69% in patients with cardiovascular disease after a yoga program.

to these favorable risk-factor trends, married men and women were significantly less physically active than singles, according to Dr. Armstrong of the University of Minnesota, Minneapolis.

Looking at social support excluding marriage, men with weak social ties were 8% more likely to smoke than those with

strong social support, and women with weak social support were 12% more likely to be smokers. Strong social support apart from marriage was also associated with significantly lower systolic blood pressure in both men and women, as well as with increased physical activity.

In a separate presentation, A. Marc Gillinov, M.D., reported on 252 patients undergoing open-heart surgery who were randomized to usual postoperative care or usual care plus two professional massages in a quiet room on the postoperative floor separate from their bed space.

The impetus for this prospective trial was the growing interest in and acceptance of massage therapy as a complementary medicine technique that reduces pain and anxiety, improves sleep, and relaxes muscles. Massage therapy hadn't previously been formally studied in the setting of cardiac surgery, noted Dr. Gillinov of the Cleveland Clinic Foundation.

The pre- and postoperative assessments of pain, mood, and affective state via the Beck Depression and Anxiety Indices, visual analog pain scores, and the Profile of Mood States showed no differences between the massage therapy group and controls. Nor were there significant between-group differences in incidence of postoperative atrial fibrillation or median postoperative length of hospital stay. Blood pressures were lower following massage, but there were no between-group differences in postoperative heart rate or other physiologic parameters.

These results suggest that massage therapy after open-heart surgery has no therapeutic benefit and therefore doesn't warrant third-party payment. Cardiothoracic surgeons at the Cleveland Clinic plan to routinely offer it on a self-paid basis and will conduct a formal patient satisfaction study. ■

Low Magnesium Intake Linked With Elevated CRP Levels

BY DIANA MAHONEY
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ORLANDO, FLA. — Low dietary magnesium may elevate serum levels of C-reactive protein, but high vitamin E intake does not reduce levels of the inflammatory marker among at-risk individuals, according to two separate studies.

Both studies were conducted by researchers at the Medical University of South Carolina in Charleston and were presented at the annual meeting of the North American Primary Care Research Group.

Recent clinical studies have uncovered structural changes in C-reactive protein (CRP) linked to dietary magnesium intake, said Dana King, M.D. To assess the validity of that association, she and her colleagues at the university studied 5,021 adults in the National Health and Nutrition Examination Survey (NHANES) database.

The current recommended dietary allowance (RDA) for magnesium is 400 mg/day. Of the study population, 75% consumed less than 309 mg of magnesium

per day—the lower end of adequate, Dr. King said. Regression analysis showed these adults to be 55% more likely to have elevated CRP levels, compared with those adults who met the RDA for magnesium.

After the investigators controlled for the various factors associated with low magnesium intake in this population, including older age, female gender, non-white race, nondrinker status, and reduced exercise, low magnesium intake was still a significant predictor of elevated CRP.

The subgroups at highest risk for elevated CRP linked to low magnesium included adults over age 40, those with a body mass index over 25 kg/m², and those who consumed less than 50% of the RDA for magnesium. "The inverse association was clearly linear. The lower the magnesium intake, the greater the risk for elevated CRP," Dr. King noted.

The findings are important given that most Americans consume magnesium at levels well below the RDA, and because CRP is a marker of risk for ischemic heart disease—the leading cause of death in developed countries, said Dr. King. "It is

possible that increasing dietary magnesium to adequate levels can reduce heart disease risk substantially," she added.

Because of the limitations of the cross-sectional study design, "the relationship between magnesium and CRP should be further evaluated in prospective studies," Dr. King concluded.

The second study investigated the possible link between vitamin E intake and CRP concentrations. Because individuals with a combination of high ferritin and high LDL cholesterol levels tend to have elevated CRP levels due to increased oxidative stress, investigators at the Medical University of South Carolina hypothesized that higher intakes of vitamin E, because of its antioxidant properties, might help mitigate the CRP elevation in these people.

Using data from the 1999-2000 NHANES database, Brian Wells, M.D., now of the Cleveland Clinic, and colleagues, stratified a random cluster sampling of 4,204 adults aged 25 years and older by daily vitamin E intake. The researchers used logistic regression to determine predicted levels of CRP and di-

vided the study population into quartiles by daily vitamin E intake.

As expected, those at-risk individuals with elevated levels of both ferritin and LDL cholesterol had significantly higher levels of CRP than did those individuals with normal iron and cholesterol measures. Within both the at-risk group and the general population, vitamin E intakes equal to or greater than the high end of intakes seen in the general population—about 50 IU—were not significantly associated with CRP levels, said Dr. Wells.

"Having high iron and LDL means having a lot of cholesterol available to be oxidized. Our hypothesis was that if oxidized LDL causes an inflammatory response leading to increased CRP, the antioxidant might mitigate that response," he said. "What we saw was that vitamin E intake at the high end of normal levels in the diet was not linked with a reduction in CRP."

It is possible that much higher levels of vitamin E, "or another antioxidant entirely," could have an effect on CRP, said Dr. Wells, and these possibilities should be the focus of future research. ■