Model Quantifies How Much to Cut Salt Intake

BY HEIDI SPLETE

A reduction in salt intake of 3 g per day could have an impact on cardiovascular disease and reduce all-cause mortality in the United States by an estimated 44,000 to 99,000 deaths each year, according to study findings.

"A reduction in dietary salt of 3 g per day would have approximately the same effect on rates of coronary heart disease (CHD) events as a 50% reduction in tobacco use, a 5% reduction in body mass index among obese adults, or the use of statins to treat persons at low or intermediate risk for CHD events," the researchers wrote.

Dr. Kirsten Bibbins-Domingo of the University of California, San Francisco, and colleagues used a computer simulation model to predict the effects of a population-wide reduction of salt intake on cardiovascular events in the United States (NEJM 2010 Jan. 20 [Epub doi: 10.1056/NEJMoa0907355]).

Reducing daily dietary salt by 3 g would reduce the number of new cases of coronary heart disease per year by an estimated 60,000 to 120,000, according to the computer model. New cases of stroke would be reduced by 32,000 to 66,000, and new cases of myocardial infarction would be reduced by 54,000 to 99,000.

Cutting daily salt consumption would benefit adults of all ages, both genders, and all races, according to the model, but "the anticipated relative benefits among blacks would be greater than those among nonblacks across all age groups and both sexes," the researchers noted.

The model predicted that, although all age groups would benefit, middle-aged and older populations would likely have larger relative reductions in CHD incidence and in rates of new and recurrent myocardial infarction and stroke.

In adults aged 35 to 64 years, the relative reduction in mortality would be approximately 7%-11% for blacks and 3%-6% for nonblacks.

In addition, a nationwide 3 g per day decrease in salt consumption would save approximately $10 billion to $24 billion in health care costs annually and add approximately 194,000 to 392,000 quality-adjusted life years.

VITALS

Major Finding: Reducing salt by 3 g daily may reduce the annual new cases of coronary heart disease in the United States by 60,000 to 120,000, annual new cases of stroke by 32,000 to 60,000, and annual new cases of myocardial infarction by 54,000 to 99,000.

Data Source: The Coronary Heart Disease Policy Model.

Disclosures: The study was supported in part by a grant from the American Heart Association Western States Affiliate and an intramural pilot grant from the University of California, San Francisco Clinical and Translational Sciences Institute. Study investigators reported no financial disclosures. The editorialists report their financial disclosures at www.nejm.org.

The researchers acknowledged that the results were limited by the uncertainty of the data used in the model, but add that, despite those limitations, their findings build on those from previous studies.

"Our findings underscore the need for an urgent call to action that will make it possible to achieve these readily attainable cardiovascular benefits," they said.

The results also showed positive, although less dramatic, improvements in all-cause mortality, CHD, stroke, and myocardial infarction with reductions of daily salt intake by either 1 g or 2 g.

"As salt intake is reduced, people appear to prefer food with less salt, a phenomenon that is probably related to the accommodation of taste receptors over the course of weeks to months," the researchers noted.

The benefits seen in the study may be an underestimate, according to an accompanying editorial by Dr. Lawrence J. Appel and Cheryl A.M. Anderson, Ph.D., of Johns Hopkins University in Baltimore. The study did not factor in the impact of modest daily salt reduction on reducing blood pressure in children or mitigating age-related rise in blood pressure in adults, they wrote (NEJM 2010 Jan. 20 [Epub doi: 10.1056/NEJMe0910352]). ■

Dual Clinic IDs Occult CAD in Diabetic Retinopathy Patients

BY MICHELE G. SULLIVAN

Up to a quarter of patients with diabetic retinopathy may also have unrecognized stenotic coronary artery disease, putting them at risk for heart attack or sudden cardiovascular death.

Since many of these patients are already receiving outpatient care for their eye disorders, a clinic that proactively targets them for cardiac screening could improve their health and long-term survival, reported Dr. Takayuki Ohno and colleagues at the University of Tokyo.

The investigators found that 12% of patients attending a retinocoronary clinic had undiagnosed coronary artery disease. Diabetic retinopathy (DR) is present in 3 million Japanese citizens, they said; therefore, 363,000 of these people could have unsuspected heart disease. "These estimates suggest that a large number of patients with DR ... would remain without diagnoses until a fatal coronary event," they wrote. "We think that this specialized clinic might become the new model of an institution for identifying occult [coronary artery disease] in patients with DR requiring [coronary artery bypass grafting]."

To test this hypothesis, the researchers opened a diabetic retinocoronary clinic in 2007. Patients with type 2 diabetes and DR who were getting outpatient ophthalmologic care were randomly referred to the clinic. There they were asked to undergo a cardiac screening. Patients who tested positive were asked to undergo exercise thallium scintigraphy or a coronary CT scan. Those with abnormal results in this second tier of screening were approached for coronary angiography for further diagnosis.

Over an 18-month period, 286 patients were referred to the clinic; 214 were included in the study. Of these, 59 had nonproliferative DR and 155 had proliferative DR. Most (82%) were asymptomatic for cardiac problems; 12% had previously reported atypical chest discomfort (J. Thorac. Cardiovasc. Surg. 2010;139:92-7).

A total of 172 underwent an exercise tolerance test. The results were positive in 50 (29%) and nondiagnostic in 15 (9%). A total of 33 patients underwent exercise thallium scintigraphy, with abnormal results in eight (24%). A coronary CT was performed in 24 patients, with seven (29%) showing atherosclerotic coronary artery disease.

A total of 65 patients had a coronary angiography; 55 of these (26% of the entire cohort of 214) had angiographically confirmed stenotic coronary artery disease (CAD). Compared with patients without confirmed CAD, these patients were older (62 vs. 58 years) and more likely to have Q-wave or ST-T changes on resting ECG (47% vs. 21%, respectively).

CABG was recommended for 17 patients, percutaneous coronary intervention for 25, and aggressive medical therapy alone for 13. So far, 12 have undergone CABG (including 3 for whom PCI was recommended) and 27 have undergone PCI. Three refused to have any type of coronary revascularization.

During 288 days of follow-up, all patients have remained alive with no myocardial infarction. But eight (four in each intervention group), all of whom had proliferative DR, experienced vision-threatening vitreous hemorrhage. ■

Abnormal Lipid Levels Put Many Youths at Risk

BY JEFF EVANS

Abnormal lipid levels are present in 20% of U.S. youths aged 12-19 years, according to estimates reported by investigators at the Centers for Disease Control and Prevention.

An analysis of data derived from four cycles of the National Health and Nutrition Examination Survey during 1999-2006 found that the prevalence of abnormal lipid levels increased with rising body mass index (BMI), from 14% of normal weight to 22% of overweight and 43% of obese adolescents.

"Based on the findings in this study, clinicians should be aware of lipid screening guidelines and recommended interventions for children and youths who are overweight or obese," the authors wrote (MMWR 2010;59:29-33).

Abnormal blood lipid levels were defined using the same cutoffs recommended by the American Academy of Pediatrics for targeted screening of children aged 2 years or older: an LDL cholesterol level of 130 mg/dL or greater, an HDL cholesterol level of 35 mg/dL or lower, and a triglyceride level of 150 mg/dL or greater.

The survey data covered a cross-sectional sample of 3,125 youths who had fasting blood samples taken for lipid testing. A total of 32% of the sample—15% of overweight and 17% of obese participants—would be candidates for screening for abnormal blood lipid levels based on the AAP recommendations for BMI screening.

A greater percentage of boys had low HDL cholesterol levels (11%), compared with girls (4%). Older participants aged 18-19 years had higher rates of low HDL cholesterol (10%) and high triglyceride levels (16%) than did participants aged 12-13 years (5% and 10%, respectively). Non-Hispanic white youths were more likely than non-Hispanic black youths to have low HDL cholesterol (9% vs. 5%) or high triglyceride levels (12% vs. 4%).

VITALS

Major Finding: The prevalence of abnormal lipid levels is estimated to be 14% for normal weight, 22% for overweight, and 43% for obese youths aged 12-19 years.

Data Source: Analysis of National Health and Nutrition Examination Survey data for 1999-2006.

Disclosures: The authors are employees of the CDC.

Although the AAP recommends considering pharmacologic treatment of children whose LDL cholesterol remains persistently high even after lifestyle counseling, less than 1% of the adolescents in this NHANES study and a previous analysis of the same NHANES data set were found to have "lipid levels high enough to warrant drug therapy according to AAP guidelines," the CDC investigators reported. ■