Low Serum Selenium Boosts Hypertension Risk

BY SHARON WORCESTER
Southeast Bureau

NEW ORLEANS — Reduced serum selenium is an independent predictor of hypertension, according to an analysis of data from the third National Health and Nutrition Examination Survey.

The findings from this and other studies, that serum selenium concentrations are reduced in African Americans, compared with whites, may in part explain the increased incidence of hypertension in African Americans, Dr. Chizobam Ani reported in a poster at a meeting sponsored by the International Society on Hypertension in Blacks.

Serum selenium is an essential component in substances shown to mediate the incidence of cardiovascular disease, such as glutathione peroxidase and homocysteine. In 9,881 nonpregnant adults aged 40 years and older who participated in the third National Health and Nutrition Examination Survey (NHANES III), significant differences in the concentrations of serum selenium were noted between African Americans and whites at the highest and lowest quartile concentrations (see box), reported Dr. Ani of Charles Drew University of Medicine and Science, Los Angeles.

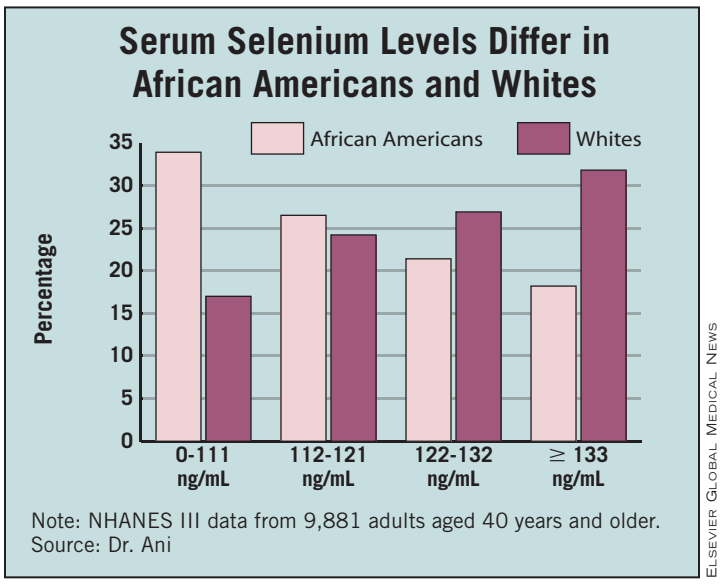
On bivariate analysis, there was a significant association between serum selenium concentration and the prevalence of hypertension and other cardiovascular disease, including peripheral vascular disease, myocardial infarction, and congestive heart failure. An analysis that controlled for known predictors of cardiovascular disease, including family history, diabetes, renal disease, and sociodemographic variables, showed a significant relationship between serum selenium and the prevalence of hypertension (odds ratio 1.30), as well as a significant interaction effect between ethnicity and serum selenium among individuals with hypertension (odds ratio 1.10).

These findings are important because African Americans have higher rates of hypertension and mortality from heart disease and stroke than do whites and Hispanics in the United States, and because African American men have three times the risk of sudden death as do white men.

"Inquiry into biomarkers [that may be] predictors of differential risk and incidence, particularly at the population level, may provide useful explanatory insight regarding the differential burden on cardiovascular disease among African Americans," Dr. Ani wrote.

Based on the emerging understanding of the role of serum selenium in hypertension and cardiovascular disease, and the differing concentrations of selenium in African Americans and whites, Dr. Ani and his colleagues theorized that high serum concentrations of selenium might predict reduced levels of oxidative stress and vascular injury in certain ethnic groups that correlates with the incidence of cardiovascular diseases.

The current findings of a statistically significant interaction between serum selenium concentration and ethnicity in individuals with hypertension appear to support this theory of "differential oxidative protection for cardiovascular injury" in African Americans, compared with whites, he said in an interview, adding that the findings are of particular interest because low serum selenium concentration is a modifiable risk factor. ■



ELSEVIER GLOBAL MEDICAL NEWS

Proper Antihypertensive Prescribing Prompted by Computerized Reminders

BY MITCHEL L. ZOLER
Philadelphia Bureau

TORONTO — Computerized reminders flashed to primary care physicians as they checked and recorded their patients' blood pressures led to a small but significant improvement in the rate of drug prescribing that followed hypertension-management guidelines.

But in this study, which randomized 14 general medicine clinics to either use or no use of the computer-generated reminders, automated prompts had no effect on the rate at which patients had their blood pressure controlled to target levels, according to Dr. LeRoi S. Hicks, an internist at Brigham and Women's Hospital and Harvard Medical School, both in Boston.

The computerized prompts were linked with a 32% increased rate of compliance.

DR. HICKS

It's possible that improved blood pressure control could be achieved by not only prompting physicians to use the right drugs, but also prompting them to use the right dosage or to add more drugs when needed, Dr. Hicks reported at the 14th World Congress on Heart Disease.

"We focused on which drugs were used, not on intensification of treatment. We may be better off focusing on intensification," as well as on the reduction of racial disparities in prescribing patterns, he said.

The study involved eight community-based and six hospital-based clinics in the Boston area from July 2003 to February 2005. The physicians at seven of the clinics were randomized to treat patients for hypertension by their usual practice. In the other seven clinics, when physicians entered blood pressure readings in each patient's computerized record, they received a computer-generated reminder telling them which drugs to preferentially use to control blood pressure. The study included 786 patients treated using the computer-generated messages and 1,048 patients treated by usual care.

The drug recommendations were based on the sixth report of the Joint National Commission on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 6), the authoritative guideline prepared and disseminated by the National Heart, Lung, and Blood Institute. JNC 6 was the prevailing guideline when the study began.

The two patient groups were similar by age, ethnic and racial profile, insurance coverage, and baseline level of blood pressure control. About 43% of patients in each group were at their goal blood pressure when the study began. Nearly 90% were also on regimens that were consistent with the JNC 6 recommendations at baseline.

During an average follow-up of about 1.5 years, the computer-generated prompts had essentially no effect on the extent of blood pressure control. Target pressures were reached by 45% of patients in the usual care group and by 48% in the intervention group, a difference that was not statistically significant, reported Dr. Hicks at the congress, sponsored by the International Academy of Cardiology.

But the computerized decision support system led to a small but significant rise in prescribing compliance with the JNC 6 guidelines. The computerized prompts were linked with a 32% increased rate of compliance after adjustment for baseline differences in demographic and clinical parameters. But because most patients (nearly 90%) were in compliance at baseline, the absolute amount of increased compliance achieved by the intervention was modest, Dr. Hicks said. ■

Obesity Alters Normal Nocturnal BP Patterns

BY SHARON WORCESTER
Southeast Bureau

NEW ORLEANS — Obesity blunts the normal pattern of nocturnal blood pressure dipping, and this might be one mechanism through which obesity contributes to adverse cardiovascular outcomes, findings from a recent study suggest.

Blood pressure normally drops by 10%-20% at night during sleep, compared with blood pressure during waking hours during the day, and studies have shown that nondipping (defined as less than a 10% decrease in blood pressure at night) is associated with increased cardiovascular morbidity and mortality, Dr. Otelio Randall reported in a poster at a meeting sponsored by the International Society on Hypertension in Blacks.

In the study, hourly blood pressure measurements were taken in 200 obese African American patients who were classified into three groups on the basis of their body mass index, in kg/m^2: less than 40, 40-49, and at least 50. The average age of the patients was 47 years, and most (83%) were women.

The researchers found that as BMI increased, so did the rates of nocturnal nondipping. The rates of nondipping were 26%, 41%, and 76% for the three BMI categories, respectively. Additionally, 36% of the patients were "reverse dippers," meaning that their blood pressure actually increased at night, reported Dr. Randall, professor of medicine and cardiology at Howard University, Washington.

The mean percentage of dipping was 8.6% in those with a BMI of less than 40, 8.4% in those with a BMI of 40-49, and 3.9% in those with a BMI of 50 or greater. Those with a BMI of at least 50 had a significantly smaller decrease in nocturnal blood pressure than the other two BMI groups.

Daytime blood pressure for this study was defined as the average of hourly readings between 8 a.m. and 10 p.m., and nighttime blood pressure was defined as the average of hourly readings from 10 p.m. to 6 a.m.

"Nondipping and reverse dipping are known to be associated with the potential risk for target organ damage. The high rates of nondipping and reverse dipping in this obese population reinforces the need to reduce BMI and improve hemodynamic and lipid profiles through lifestyle changes," Dr. Randall said. ■