Metabolic Syndrome Criteria Miss At-Risk Blacks

BY ROBERT FINN
San Francisco Bureau

ATLANTA — Current sets of criteria for diagnosing metabolic syndrome fail to identify many African American patients at increased risk of cardiovascular disease and diabetes, said Dr. Anne E. Sumner in a presentation given at a meeting sponsored by the International Society on Hypertension in Blacks.

The three sets of diagnostic criteria currently in use all list triglyceride levels in excess of 150 mg/dL as one sign that a patient has the metabolic syndrome. But studies show that even obese and insulin-resistant African Americans can have low triglyceride levels, Dr. Sumner, a diabetes expert at the National Institutes of Health, said in her presentation.

"The inclusion of triglyceride [levels] in the metabolic syndrome leads to the exclusion of a significant proportion of insulin-resistant African Americans," Dr. Sumner said. Excluding elevated triglycerides from the metabolic syndrome criteria would "lead to the inclusion of a significant proportion of insulin-resistant African Americans."

Dr. Sumner relied on several clinical studies to support her conclusion. Data from the National Health and Nutrition Examination Survey (NHANES) show that both African American men and women have a significantly higher prevalence of cardiovascular disease and diabetes than do whites. Despite that, NHANES data show that African American men and women at all body-mass index levels have lower rates of metabolic syndrome than do whites.

Dr. Sumner emphasized that the data supporting her comments are preliminary and have not yet been peer reviewed.

Preliminary results from the Triglyceride and Cardiovascular Risk in African Americans (TARA) study, for which Dr. Sumner is a principal investigator, show that even African Americans with very high BMIs and very high levels of insulin resistance can have very low levels of triglycerides.

She pointed in particular to 2 women among the 210 African Americans so far enrolled in the study. One has a BMI of 55 kg/m^2 and a triglyceride level of 55 mg/dL. Another has a BMI of 48 and a triglyceride level of 24 mg/dL.

Of the African Americans in the study, 30% are insulin resistant, but only 2% have elevated triglycerides. In comparison, data from other studies show that about 60% of whites with insulin resistance have elevated triglycerides.

Dr. Sumner obtained similar results from her as-yet-unpublished analysis of NHANES data. She examined data from a cohort of 2,804 persons, aged 20-70, composed of 569 non-Hispanic blacks, 1,485 non-Hispanic whites, and 750 Mexican Americans. She divided the entire cohort into thirds based on their homeostasis model assessment (HOMA) scores, a surrogate for insulin resistance. Of the patients with the highest HOMA scores, the blacks had significantly lower triglyceride levels than either the whites or the Mexican Americans. This held true for both men and women as well as for individuals who were obese, overweight, and of normal weight.

Although triglyceride levels do have a direct relationship with insulin resistance, the absence of high triglyceride levels in African Americans does not mean the absence of insulin resistance. Therefore, any system that relies on triglyceride levels as a marker for insulin resistance risks underdiagnosis in African Americans.

"In blacks, the danger of underdiagnosis is the lost opportunity for the prevention of diseases related to insulin resistance, particularly diabetes and heart disease," Dr. Sumner said.

She suggested that the solution is to develop criteria for "triglyceride-absent metabolic syndrome" to be used in African Americans and to test prospectively whether requiring just two of the four remaining criteria (waist circumference, hypertension, low HDL cholesterol, and high fasting glucose) for diagnosis of metabolic syndrome would accurately predict the onset of diabetes or cardiovascular disease.

For the individuals in her TARA study, the definition of metabolic syndrome developed by the National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III) results in a prevalence of 11%, a sensitivity of 21%, and a specificity of 97%. On the other hand, using the triglyceride-absent definition, the prevalence would be 30%, the sensitivity would be 53%, and the specificity would be 81%.

"I felt this [triglyceride-absent definition] was a minimalist approach to the changing of the metabolic syndrome with the smallest perturbation," Dr. Sumner said. ■

Metabolic Syndrome Associated With Increased Risks of Atrial Fib and Stroke

BY MITCHEL L. ZOLER
Philadelphia Bureau

BARCELONA — Patients with metabolic syndrome have an increased risk of developing atrial fibrillation compared with patients with a single risk factor for cardiovascular disease, based on an analysis of more than 13,000 patients.

Metabolic syndrome also boosted the risk of stroke in patients with atrial fibrillation (AF) compared with patients with AF and a single cardiovascular-disease risk factor, Dr. Leonardo Tamariz and his associates reported in a poster at a joint meeting of the European Society of Cardiology and the World Heart Federation.

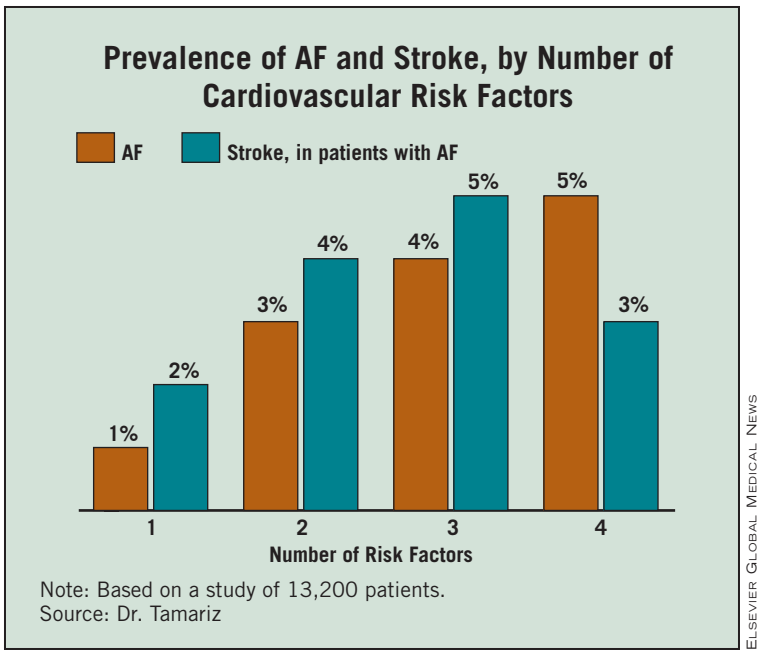
The study analyzed data for 13,200 patients with AF who were drawn from the records of more than 380,000 patients insured through Humana Inc. in the United States and who were diagnosed with at least one cardiovascular risk factor during January 2003-May 2004. The included risk factors were hypertension, obesity, diabetes, and lipid abnormalities. Patients are diagnosed with metabolic syndrome if they have three or more of these risk factors.

The prevalence of AF was significantly linked to the number of risk factors that patients had. (See box.) In a multivariate analysis that controlled for age, gender, coronary artery disease, and heart failure, patients with all four risk factors were 40% more likely to have AF compared with patients with one risk factor, reported Dr. Tamariz, an internal medicine physician at the University of Miami. The prevalence of AF in patients with three risk factors was not significantly higher than in patients with one risk factor.

Patients with metabolic syndrome also developed AF at a younger age. Among patients with a single cardiovascular disease risk factor, the average age of patients with AF was 73 years. Patients with two risk factors developed AF at an average age of 71 years, those with three risk factors had AF at age 67 years, and those with four risk factors and AF had an average age of 60 years.

The researchers also analyzed the prevalence of stroke by number of risk factors in patients with AF. Generally, the more risk factors a patient had, the higher the risk of stroke.

In a multivariate analysis that controlled for age, gender, coronary artery disease, and heart failure, patients with three risk factors had the highest stroke prevalence, 2.8-fold higher than patients with a single risk factor; those with four risk factors had a 2.2-fold higher stroke prevalence than those with one factor. ■



Note: Based on a study of 13,200 patients.
Source: Dr. Tamariz

ELSEVIER GLOBAL MEDICAL NEWS

Lipid Biomarker Linked to Higher Cardiovascular Risk

BARCELONA — Elevated lipoprotein-associated phospholipase A2 and metabolic syndrome are additive in their predictive power for future cardiovascular events, Dr. Margaretha Persson reported at the joint congress of the European Society of Cardiology and the World Heart Federation.

Lipoprotein-associated phospholipase A2 (Lp-PLA2) is a novel biomarker reflecting a proinflammatory state. It has been shown to be an independent predictor of cardiovascular risk in the Atherosclerosis Risk in Communities Study (Circulation 2004;109:837-42) and the Rotterdam Study (Circulation 2005;111:570-5). Metabolic syndrome (MS) is also associated with systemic inflammation and increased cardiovascular risk.

To learn whether Lp-PLA2 provides additional clinically important prognostic information in patients with MS, Dr. Persson analyzed 10-year follow-up data on 4,480 healthy middle-aged nondiabetic participants in the Malmo (Sweden) Diet and Cancer Cardiovascular Cohort.

The baseline prevalence of MS as defined by National Cholesterol Education Program criteria was 14% in women and 20.5% in men. Mean plasma Lp-PLA2 activity was 51 nmol/mL per minute in those with MS and 43 nmol/mL per minute in those without. Of subjects with MS, 51% had an Lp-PLA2 level in the top tertile, compared with 30% of those without MS. The more components of MS an individual had, the higher the Lp-PLA2. Both the presence of MS and high Lp-PLA2 were independent of age, gender, smoking status, and LDL cholesterol level.

In a Cox multivariate analysis, subjects with high Lp-PLA2 had an adjusted 50% increased relative risk of having a first MI or ischemic stroke during 10 years of follow-up, compared with those with an Lp-PLA2 in the lower two tertiles. Subjects with MS had a 67% increased risk, compared with those without MS. And participants with both MS and high Lp-PLA2 had a 118% increase in risk, compared with those with neither, according to Dr. Persson of Malmo University Hospital.

Her study was sponsored by GlaxoSmithKline. The company's Diadexus PLAC blood test is Food and Drug Administration–approved for measurement of Lp-PLA2.

GlaxoSmithKline has large ongoing clinical trials studying an Lp-PLA2 inhibitor for the prevention of cardiovascular events.

—Bruce Jancin

Pages 44a—44b