

Metabolic Syndrome Tied to Rise in MI Risk

BY NEIL OSTERWEIL

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As a risk factor for acute myocardial infarction, metabolic syndrome is similar in potency to diabetes or hypertension, and stronger than either abdominal obesity or an abnormal lipid profile, according to findings from INTERHEART, an international case-control study of 26,903 participants.

The presence of metabolic syndrome, as defined by World Health Organization criteria, conferred a nearly threefold higher risk of acute MI in the analysis of 12,297 cases and 14,606 controls from 262 centers in Africa, the Americas, Asia, Australia, Europe, and the Middle East.

VITALS

Major Finding: The risk of acute MI was 2.69 times higher in people with metabolic syndrome (as defined by WHO criteria) than in people without the syndrome.

Data Source: The 52-nation case-control INTERHEART study involving 26,903 participants.

Disclosures: The study was funded by the Canadian Institutes of Health Research, the Heart and Stroke Foundation of Ontario, the International Clinical Epidemiology Network, and unrestricted grants from several pharmaceutical companies including AstraZeneca, Novartis, Hoechst Marion Roussel (now Aventis), Knoll Pharmaceuticals (now Abbott), Bristol-Myers Squibb, and Sanofi-Synthelabo. Dr. Mente is supported by a Heart and Stroke Foundation of Canada postdoctoral research fellowship.

This effect was directionally similar for men and women, across all regions, and among all ethnic groups, reported Dr. Andrew Mente of McMaster University, Hamilton, Ont., and INTERHEART colleagues (J. Am. Coll. Cardiol. 2010;55: 2390-8).

With International Diabetes Federation criteria, the apparent effect of metabolic syndrome was slightly less strong but still powerful, more than doubling the risk for heart attack.

"Metabolic syndrome has been fraught with definitional problems, including variation in the component factors used and differences in risk factor thresholds," the investigators wrote. "In our analysis, the use of two different syndrome definitions (WHO and IDF) yielded a similar pattern of results relating MI to metabolic syndrome and its component factors, which is consistent with the premise that different definitions of metabolic syndrome have similar predictability in relation to coronary risk."

Both sets of criteria include diabetes (defined as a hemoglobin A_{1c} of 6.5% or higher) and a history of treated or untreated hypertension. But WHO criteria define abdominal obesity broadly as a waist-to-hip ratio of at least 0.90 in men

and 0.85 in women, while the IDF criteria stratify abdominal obesity by gender and ethnicity, and with categories for major geographic regions. Both sets of criteria include an abnormal lipid profile.

The MI risk conferred by metabolic syndrome as defined by WHO criteria was similar to that for diabetes and hypertension and significantly stronger than that for abdominal obesity or low HDL cholesterol.

Asians with metabolic syndrome based on WHO criteria had a fivefold higher risk compared with other regional or ethnic subgroups. For the North American population as a whole, metabolic syndrome was not significantly associated with MI risk. "However, our subanalyses by ethnicity show that metabolic syndrome is consistently associated with MI, which suggests that the null association in North America likely reflects the heterogeneity

of the subjects recruited from Canada and the U.S.," the researchers wrote.

In a comparison by age and sex that used WHO criteria, the increase in MI risk associated with metabolic syndrome was significantly higher in women than in men and in younger subjects than in older subjects.

Study limitations included the methods used to ascertain risk factors and self-reporting of diabetes and hypertension. ■

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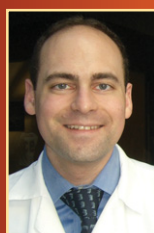
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Jane F. Reckelhoff, PhD

Editor-in-Chief

GenderMed@elsevier.com

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