Metabolic Syndrome Fails to Predict CVD Risk

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Metabolic syndrome is associated with type 2 diabetes but not cardiovascular disease in elderly patients, according to study findings.

Criteria for metabolic syndrome were developed to help improve understanding of the links between insulin resistance and vascular disease, wrote Dr. Naveed Sattar of the University of Glasgow (Scotland) and colleagues.

Nevertheless, the clinical role of these criteria, which were “designed to predict people at risk of events of cardiovascular disease (CVD) or diabetes, remains contentious,” they noted. Few studies have been able to simultaneously link metabolic syndrome to both diabetes and coronary heart disease, and “to establish whether prediction of both end points can be usefully achieved by one set of criteria,” the investigators wrote.

Dr. Sattar and his associates analyzed data from their Prospective Study of Pravastatin in the Elderly at Risk (PROSPER) and corroborated the data in another prospective study, the British Regional Heart Study (BRHS).

The PROSPER study comprised 4,812 nondiabetic men and women aged 70-82 years who had no preexisting vascular disease or raised risk of such disease. The BRHS study comprised 2,737 nondiabetic men aged 60-79 years (Lancet 2005 May 28 [doi: 10.1016/S0140-6736(05)66002-9]).

In both studies, Dr. Sattar and his associates were able to establish five components of the metabolic syndrome: body mass index or waist circumference, triglyceride levels, glucose cutoff points, HDL cholesterol level, and blood pressure. In both studies, five components were associated with risk of new onset diabetes, but “cutoff points for fasting glucose, triglyceride, and waist circumference had no association with risk of incident coronary heart disease in either study despite strong associations with incident diabetes,” they wrote.

In the PROSPER study, there were 772 cases of incident CVD and 287 cases of incident diabetes over a 2-year period. Metabolic syndrome was not associated with an increased risk of CVD in those without CVD at baseline (hazard ratio 1.07), but was associated with a more than fourfold increased risk of diabetes (HR 4.41).

The BRHS study had similar results—even with patients who had preexisting cardiovascular disease. A total of 440 cases of CVD and 105 cases of diabetes occurred during the follow-up of 7 years. In this study, metabolic syndrome was associated with only a small increased risk of CVD (HR 1.27), but a more than sevenfold increased risk of diabetes (HR 7.47).

“Results from this study show that metabolic syndrome has negligible clinical association with incident vascular events in elderly people despite strong associations with risk for incident type 2 diabetes in two prospective studies,” Dr. Sattar and his colleagues wrote.

“Out clear finding in both studies of substantial differing diabetes versus cardiovascular disease associations of metabolic syndrome and its components should aid better general understanding of differing risk patterns for these two diseases, which therefore should not be considered together. Our findings should help other investigators to think about their data in a similar critical way.”

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