Editorial Comment

Which Diagnostic Criteria of Metabolic Syndrome Can Better Predict the Risk of Ischemic Heart Disease and Stroke in Japanese and Asian Populations?

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(*Hypertens Res* 2008; 31: 2103–2104)

***Key Words*: metabolic syndrome, follow-up study, Japanese, ischemic heart disease, stroke**

Several different sets of diagnostic criteria for metabolic syndrome have been defined by the Third Report of the National Cholesterol Education Program Expert Panel on Detection and Treatment of High Blood Cholesterol in Adults (NCEP-ATP III) (*1*, *2*), the American Heart Association and the National Heart, Lung and Blood Institute (AHA/NHLBI) (*3*), the International Diabetes Federation (IDF) (*4*) and the Japanese Committee to Evaluate Diagnostic Standards for Metabolic Syndrome (*5*). However, little is known about which set of diagnostic criteria may accurately predict the risk of cardiovascular disease in Asian populations.

In the previous issue of *Hypertension Research*, Chei *et al*. examined the associations between metabolic syndrome and risks of ischemic heart disease and stroke in a population-based Japanese cohort study using different diagnostic criteria (*6*). The authors found that the NCEP-ATP III criteria for metabolic syndrome were better at predicting the risk of cardiovascular disease, ischemic heart disease and stroke than other sets of diagnostic criteria, probably due to the requirement for waist circumference. The other substantial studies among Japanese populations showed only an association between NCEP-ATP III criteria and cardiovascular disease (*7*, *8*).

Metabolic syndrome had also been called syndrome X (*9*) or the deadly quartet (*10*), which implied insulin resistance (*i.e.*, early phase of impaired glucose tolerance [IGT] and type 2 diabetes) (*2*, *11*). The criteria of metabolic syndrome based on the definition above were practical because it is easy to diagnose the early phase of IGT and diabetes (*11*, *12*). However, metabolic syndrome was recently defined as one of the many independent risk factors (*i.e.*, age, smoking habit and hypertension) for cardiovascular disease (*1–3*, *11–14*). Some factors of metabolic syndrome may indirectly influence the risk of cardiovascular disease, thus weakening the predictive power for the risk of cardiovascular disease; for example, central obesity, which is a major component of metabolic syndrome, is a good predictor of diabetes risk, but may not be as good a predictor of cardiovascular disease risk (*11*). Thus, we must reconsider whether the criteria for metabolic syndrome are able to predict the risk of insulin resistance, the risk of cardiovascular disease, or both. If we focus on risks associated with metabolic syndrome in relation to cardiovascular disease, hypertension could be the most important required criterion for metabolic syndrome in Asian populations (*15*). In fact, Chei *et al*. analyzed a cluster of risk factors in cases and non-cases of cardiovascular disease and found a significant difference in hypertension, sex and age between cases and non-cases (*6*).

Nonetheless, we need more longitudinal studies to evaluate the diagnostic criteria for metabolic syndrome in Asian populations and these studies have to be continued because the prevalence of metabolic syndrome as well as other cardiovascular risk factors and diseases may continue to change.

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Received November 6, 2008.

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