

## **Impact of the Metabolic Syndrome on Macrovascular and Microvascular Outcomes in Type 2 Diabetes Mellitus**

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**Background**— The metabolic syndrome (MetS) and type 2 diabetes mellitus are both associated with increased cardiovascular disease risk. We examined retrospectively the degree to which the presence of MetS in individuals with type 2 diabetes mellitus increased their risk of diabetic complications using United Kingdom Prospective Diabetes Study data.

**Methods and Results**— Of 5102 United Kingdom Prospective Diabetes Study patients recruited with newly diagnosed type 2 diabetes mellitus and followed up for a median of 10.3 years, 4542 had the requisite data for these analyses. After a 3-month dietary run-in, MetS, diagnosed with National Cholesterol Education Program Adult Treatment Panel III, World Health Organization, International Diabetes Federation, or European Group for the Study of Insulin Resistance criteria, was present in 61%, 38%, 54%, and 24%, respectively. Those with MetS by these criteria had increased cardiovascular disease risks relative to those without MetS of 1.33 (95% confidence interval 1.14 to 1.54), 1.45 (95% confidence interval 1.26 to 1.66), 1.23 (95% confidence interval 1.07 to 1.42), and 1.31 (95% confidence interval 1.10 to 1.57), respectively, but similar risks for microvascular complications. The positive predictive value of MetS for cardiovascular disease events, however, was only 18%, 13%, 18%, and 39%, respectively.

**Conclusions**— MetS, diagnosed by Adult Treatment Panel III, World Health Organization, or International Diabetes Federation criteria, identifies diabetic patients at greater risk of macrovascular but not microvascular complications. Poor discrimination by MetS with respect to cardiovascular disease outcomes means that it is of limited clinical value for cardiovascular disease risk stratification in type 2 diabetes mellitus.