Hyperglycemia Strongest Predictor of Type 2

BY MIRIAM E. TUCKER

FROM THE ANNUAL MEETING OF THE EUROPEAN ASSOCIATION FOR THE STUDY OF DIABETES

STOCKHOLM – The risk for developing type 2 diabetes is not the same for everyone with metabolic syndrome, but instead varies dramatically depending on individual factors.

In fact, hyperglycemia – with or without metabolic syndrome – was a much stronger predictor of incident type 2 diabetes than was metabolic syndrome without hyperglycemia in a 5-year observational analysis of 58,056 initially nondiabetic adults aged 30 years and older who were members of the managed care organization Kaiser Permanente Northwest, Gregory A. Nichols, Ph.D., said.

"In the absence of impaired fasting glucose, the definition of metabolic syndrome may be a misleading estimator of diabetes risk," according to Dr. Nichols, the lead investigator on the study (Diabetes Res. Clin. Pract. 2010;90:115-21).

He and a colleague examined the incidence of diabetes for all possible combinations of metabolic syndrome components using criteria defined in the National Cholesterol Education Program's Adult Treatment Panel III report (ATP III) (Circulation 2004;109:433-8). The one exception was the use of body mass index as a substitute for waist circumference, which is rarely measured clinically, noted Dr. Nichols of Kaiser Permanente's Center for Health Research, Portland, Ore.

For the study, an individual was considered to have metabolic syndrome if they met three of the following five criteria: impaired fasting glucose (greater than 100 mg/dL), hypertension (130/85 mm Hg or greater), high triglycerides (150 mg/dL or greater), low HDL cholesterol (less than 40 mg/dL for men, 50 mg/dL for women), and BMI greater than 28.8 kg/m^2. This BMI cut-point has been substituted for waist circumference in other published studies, he noted.

Over 5 years, 6% of the total study sample developed diabetes. Compared with those who did not develop diabetes,

In the absence of IFG, 'the definition of metabolic syndrome may be a misleading estimator of diabetes risk.'

DR. NICHOLS

those who did were significantly older (59 vs. 57 years), and were more likely to be male (52% vs. 44%), nonwhite (10% vs. 8%), and a current smoker (15% vs. 12%).

The risk for developing diabetes was greater in the presence than in the absence of each individual component. The 5-year risk for diabetes rose with each component an individual had at baseline, from 0.3% for those with none to 1.2% with one, 3.5% with two, 8.4% with three, 16.9% with four, and 28.2% with five.

Among the five individual components, the greatest diabetes risk was associated with impaired fasting glucose (IFG; incidence of 37.4/1,000 person-years), followed by low HDL cholesterol (21.6/1,000 person-years), high triglycerides (20.6/1,000), obesity (19.5), and hypertension (16.2).

There was a clear separation between combinations of components that did and did not contain IFG. The combination of IFG and any one additional component – by definition, not meeting metabolic syndrome criteria – had a higher incidence rate of diabetes (16.5/1,000 person-years) than did any three- or four-component combination that did not include IFG (7.9 and 11.3 per 1,000 person-years, respectively), yet did meet the metabolic syndrome criteria.

The incidence of diabetes among those who had IFG and no other metabolic syndrome component was 10.2/1,000 person-years, compared with 11.3/1,000 for those with every component except IFG, Dr. Nichols reported.

This study was funded by Tethys Bioscience Inc. Dr. Nichols disclosed that he has received research funding from GlaxoSmithKline, Novartis, Novo Nordisk, Takeda Pharmaceuticals, and Merck. ■