OBESITY

Association of atherothrombotic risk factors and obesity indexes

Both generalized obesity (measured by BMI) and abdominal obesity (measured by waist circumference) are associated with atherothrombotic risk factors in patients with type 2 diabetes mellitus (T2DM) and coronary artery disease, a new study published in *Obesity* suggests.

To investigate the influence of obesity on risk factors for cardiovascular disease, researchers of the BARI 2D (Bypass Angioplasty Revascularization Investigation 2 Diabetes) trial enrolled 2,273 patients with documented T2DM and coronary artery disease from 49 international, clinical sites. Study participants were aged ≥25 years (mean age 62 years) and had a BMI ≥18.5 kg/m^2 (mean BMI 31.7 ± 5.9 kg/m^2). The investigators determined levels of HbA_{1c}, cholesterol (total, LDL and HDL), triglycerides, insulin and plasma markers of inflammation, as well as blood pressure.

A total of 90% of patients were overweight with a BMI ≥25 kg/m^2, and 68% of men and 89% of women had a 'high-risk' waist circumference (≥102 cm and ≥88 cm, respectively). Patients' baseline clinical history and lifestyle characteristics were categorized by BMI into five obesity classes (BMI <25, 25–29.9, 30–34.9, 35–39.9 and ≥40 kg/m^2) according to the National Heart, Lung, and Blood Institute Obesity Education Initiative Expert Panel.

As is the case in patients without T2DM, BMI and waist circumference were highly correlated and differed depending on sex and ethnicity in BARI 2D study participants. Moreover, hypercholesterolemia and/or hypertension were more frequent in patients with T2DM and coronary artery disease with a BMI >35 kg/m^2 , as was chronic renal dysfunction. In addition, study participants with severe obesity (BMI ≥40 kg/m^2) had significantly more heart failure than patients in the other obesity classes.

Even after adjustment for potentially confounding variables, significant associations could be found between BMI and levels of triglycerides, insulin and plasma inflammatory markers, as well as diastolic blood pressure. Furthermore, waist circumference was negatively correlated with HDL cholesterol levels. However, LDL cholesterol and HbA_{1c} levels were not associated with BMI or waist circumference.

Taken together, given that both BMI and waist circumference were associated with atherothrombotic risk factors, the investigators recommend that they be included as potential risk factors for cardiovascular disease outcomes in longitudinal analyses.

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