

ORIGINAL RESEARCH COMMUNICATION

Abdominal obesity and coronary artery calcification in young adults: the Coronary Artery Risk Development in Young Adults (CARDIA) Study^{1,2,3}

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Background: Whether abdominal obesity is related to coronary artery calcification (CAC) is not known.

Objective: We investigated the relations of waist girth and waist-hip ratio (WHR) to CAC in 2951 African American and white young adults from the Coronary Artery Risk Development in Young Adults Study.

Design: The present study was a cross-sectional and observational cohort study. Using standardized protocols, we measured CAC in 2001–2002 by using computed tomography and measured waist and hip girths in 1985–1986 (baseline), 1995–1996 (year 10), and 2001–2002 (year 15, waist girth only). CAC was classified as present or absent, whereas waist girth and WHR were placed in sex-specific tertiles.

Results: After adjustment for age, sex, race, clinical center, physical activity, cigarette smoking, education, and alcohol intake, baseline waist girth and WHR were directly associated with a higher prevalence of CAC 15 y later (*P* for trend < 0.001 for both). The odds ratios (ORs) for CAC in the highest versus lowest tertiles of waist girth and WHR were 1.9 (95% CI: 1.36, 2.65) and 1.7 (1.23, 2.41), respectively. Waist girth and WHR at year 10 and waist girth at year 15 similarly predicted CAC. These associations persisted after additional adjustment for systolic blood pressure, fasting insulin concentrations, diabetes, and antihypertensive medication use but became nonsignificant after additional adjustment for blood lipids.

Conclusions: Abdominal obesity measured by waist girth or WHR is associated with early atherosclerosis as measured by the presence of CAC in African American and white young adults. This is consistent with an involvement of visceral fat in the occurrence of coronary artery calcium in young adults.

Key Words: Coronary artery calcification • abdominal obesity • waist girth • waist-hip ratio

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