Associations of Fat Distribution and Obesity with Hypertension in a Bi-ethnic Cohort

Margaret M. Harris, June Stevens, Neal Thomas, Pam Schreiner, Aaron R. Folsom

Objective: To examine associations of hypertension with obesity and fat distribution among African American and white men and women.

Research methods and procedures: The analysis sample included 15,063 African American and white men and women between the ages of 45 and 64 who were participants in the 1987-1989 examination of the Atherosclerosis Risk in Communities Study (ARIC). Odds ratio and adjusted prevalences of hypertension were calculated across sex-specific quintiles of body mass index (BMI), waist-to-hip ratio (WHR), waist circumference, and waist-to-height ratio (waist/height) and adjusted for age, research center, smoking, education, physical activity, alcohol consumption, hormone replacement therapy and menopausal status.

Results: The prevalence of hypertension was higher among African Americans than whites. In the lowest quintile of BMI, 41% of African American women and 43% of African American men had hypertension compared to 14% of white women and 19% of white men. Elevated BMI, WHR, waist circumference, and waist/height were associated with increased odds of hypertension in African American and white men and women. In women, but not in men, there were significant interactions between ethnicity and the anthropometric variables studied here. The direction of the interaction indicated larger odds ratio for hypertension with increasing levels of anthropometric indices in white compared to African American women.

Discussion: Obesity and abdominal fat preponderance were associated with increased prevalence of hypertension in African American and white men and women. Associations were similar of hypertension in African American and white men and women. Associations were similar among African American and white men, but obesity and fat patterning were less strongly associated with hypertension in African American than in white women.

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