SWACSM Abstract

Comparing Waist Circumference, Sagittal Abdominal Diameter, and BMI As Predictors of Cardiovascular Disease in 11,449 U.S. Adults

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ABSTRACT

Although the body mass index (BMI) is a good indicator of weight for height and cardiometabolic risk, indices of abdominal adiposity may be better screening tools for cardiovascular disease (CVD) risk. **PURPOSE:** This study compared the sagittal abdominal diameter, with correction for height (SADHtR), and waist circumference, with correction for height (WHtR), and BMI, which includes a height correction, as predictors of CVD. **METHODS:** A total of 11,449 randomly selected adults from the National Health and Nutrition Examination Survey (NHANES) were included. SADHtR and WHtR were measured by trained technicians. For SADHtR, the subject was in the supine position and a sliding-beam abdominal caliper with a built-in bubble was used to ensure a vertical measurement. WHtR was assessed by extending a measuring tape around the waist in a horizontal plane at the upper level of the iliac crest. For both SADHtR and WHtR, the measured values were divided by height. Additionally, subjects were asked to report if a doctor or other health care professional had ever told them that they had congestive heart failure, coronary heart disease, angina, heart attack, and/or stroke. Subjects were divided into quartiles based on their separate SADHtR, WHtR, and BMI values and logistic regression was employed to analyze the data. **RESULTS:** With age, sex, and race controlled, odds ratios for having or not having CVD were: **Q1 vs Q2:** SADHtR: 1.31 (95% CI: 1.00-1.73); WHtR: 1.05 (0.72-1.53) and BMI: 1.07 (0.81-1.41). **Q1 vs Q3:** SADHtR: 1.81 (95% CI: 1.44-2.28); WHtR: 1.38 (1.01-1.88) and BMI: 1.26 (0.95-1.67). **Q1 vs Q4:** SADHtR: 2.65 (95% CI: 2.07-3.38); WHtR: 2.11 (1.53-2.92) and BMI: 1.86 (1.34-2.58). Overall, SADHtR was the best predictor of CVD, followed by WHtR, and BMI was the weakest of the three, for each quartile comparison. Effect modification was evaluated with BMI divided into sex-specific quartiles and SADHtR was a strong predictor of CVD within each quartile. WHtR was a significant predictor of CVD within each BMI quartile except the first. **CONCLUSION:** Clinicians and epidemiologists should seriously consider including WHtR or SADHtR, particularly the latter, as a screening tool within their programs.