Waist circumference and waist-to-hip ratio as predictors of some risk factors of coronary heart disease in Zahedanian overweight and obese adult women

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Background & Objective: It is unknown whether waist circumference (WC) can predict some risk factors of coronary heart disease better than waist-to-hip ratio (WHR) after adjustment for important confounding variables. The purpose of this clinical, healthy-subject study was to test this hypothesis in overweight and obese adult women at two clinic center of Zahedan (southeastern Iran)

Material & Method: In this clinical cross-sectional study, 714 overweight and obese women aged 20-60 y whose have referred during July 2005 through May 2006 to two clinic center at Zahedan were studied. On the basis of age, the subjects were classified to three groups (20-35, 35-50 and >or=50 years old). Demographic data were collected and anthropometric indices were measured according to standard protocol by trained anthropometrists. TC, TG, LDL-C, HDL-C, TC/HDL ratio, FBS and uric acid levels were enzymatically determined. Multiple linear regression analysis was performed to quantify the correlation between measurements of fat location (WC & WHR) and the ratio of some risk factors of coronary heart disease independently of BMI and potentially confounding factors

Results: older subjects showed significantly higher values of BMI, WC, FBS, TC, TG and LDL and non-significantly higher values for HC, HDL and TC/HDL ratio than younger ones. There was seen no differences for WHR and uric acid values between older and younger subjects. Sperman's correlation was shown that with the exception of HDL, the number of significant correlation between fat location (WC & WHR) and all variables were decreasing with the increasing of age. With the exception of HDL the correlation between WHR & WC with all risk factors was generally of the same order of magnitude but WC has shown somewhat stronger correlation with FBS and TC/HDL ratio than WHR in youngest subjects. After adjustment for age, BMI and Parity, Multiple linear regression has not shown a big difference between WHR & WC with all risk factors in 3 age groups

Conclusion: According to obtained results, Although there was not shown a big difference between WHR and WC indices on some risk factors of coronary heart disease after adjustment for potentially confounding factors in 3 age groups, but our result interpretation that the effectiveness of WC for FBS and TC/HDL is little stronger than WHR especially in younger subjects. More study is prescribed to confirm it

Key words: waist circumference, waist-to-hip ratio, coronary heart disease, Zahedan

Poster