WAIST-TO-HIP RATIO IS AN INDEPENDENT PREDICTOR OF PLASMA TOTAL HOMOCYSTEINE LEVEL IN MALE PATIENTS WITH CORONARY ARTERY DISEASE

Y-H Lin[1,4], K-Y Pao[3], V-C Wu[1,4], Y-J Chen[2], C-S Gau[3], J-J Hwang[1,4]

[1]Department of Internal Medicine and [2]Division of Clinical Pathology, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan; [3]Graduate Institution of Clinical Pharmacy, National Taiwan University College of Medicine, Taipei, Taiwan; [4]Department of Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan

BACKGROUND/AIMS: To investigate the relationship between central obesity and plasma total homocysteine (tHcy) level in male patients with coronary artery disease (CAD).

METHODS: A total of 63 male patients (mean age 66.2 years) with angiographically documented CAD were enrolled. Overnight fasting blood samples were measured for plasma tHcy, serum folic acid, and serum vitamin B12 levels. Anthropometric measurements included waist-to-hip ratio (WHR), waist circumference, and body mass index (BMI).

RESULTS: The mean WHR was 0.90±0.05, mean waist circumference 89.8±8.6 cm, mean BMI 24.6±3.3 kg/m^2, and the mean plasma tHcy level 11.6 ± 3.2 μmol/L. In univariate analysis, plasma tHcy level correlated significantly with serum vitamin B12 level, serum folic acid level, WHR, creatinine clearance, aspirin use, and fibrate use. Patients with normal WHR (<0.9) had smaller waist circumference, lower plasma tHcy level, lower BMI, lower serum triglyceride level, higher serum vitamin B12 level, higher serum folic acid level, and higher serum high density lipoprotein level than patients with elevated WHR (>=0.9). Plasma tHcy level was 12.4±3.9 μmol/L in patients with elevated waist circumference (>=90cm, n=26) and 11.0±2.5 μmol/L in patients with normal waist circumference (<90cm, n=39; p=0.108). Plasma tHcy level was 11.8±3.5 μmol/L in patients with elevated BMI (>=25 kg/m^2, n=26) and 11.4±3.1 μmol/L in patients with normal BMI (<25 kg/m^2, n=39; p=0.641). In multivariate analysis, only WHR (ß value 22.263, p<0.001), serum level of vitamin B12 (ß value -0.004, p=0.003), creatinine clearance (ß value -0.069, p=0.003), and use of fibrates (ß value 2.307, p=0.031) were independent predictors of plasma tHcy level.

DISCUSSION/CONCLUSION: WHR, but not BMI, is a strong independent predictor of plasma tHcy level in male patients with CAD.

Keywords: CAD, homocysteine, WHR, BMI