

Structured Abstract, NLM Example 2011

BACKGROUND

Elevated plasma concentrations of total homocysteine (tHcy) and obesity are risk factors for cardiovascular disease. The relationship between hyperhomocysteinemia and obesity has not been totally elucidated.

OBJECTIVE

The first aim of the study was to investigate whether anthropometric measurements and insulin resistance contribute to the variation in homocysteine levels in obese adults. Our second aim was to determine if any relationship exists between the carotid intima-media thickness (IMT) and plasma tHcy levels in obese subjects without traditional cardiovascular risk factors.

METHODS

Fifty-five obese (15 male, 40 female) and 30 (11 male, 19 female) age- and sex-matched apparently healthy volunteers were included. Exclusion criteria were smoking, hypertension, diabetes, vitamin ingestion, hyperlipidemia, renal failure, liver disease, pregnancy, menopause and secondary obesity such as Cushing's syndrome, hypothyroidism. tHcy, folate, vitamin B12 levels, fasting insulin, glucose, total cholesterol, triglycerides, HDL, LDL particles, uric acid, creatinine and creatinine clearance were measured. Non-invasive ultrasound measurements of carotid IMT were performed.

RESULTS

tHcy levels and carotid IMT were comparable between obese and non-obese subjects. Waist/hip ratio (WHR) was related to tHcy and carotid IMT. Hyperhomocysteinemic subjects (tHcy >19.2 micromol/l) had greater WHR than normo-homocysteinemic subjects. Both tHcy levels and carotid IMT were higher in male subjects both in obese and non-obese subjects. No association was observed between insulin resistance and tHcy and carotid IMT. Renal function and abdominal obesity were significant predictors of plasma tHcy levels.

CONCLUSIONS

We concluded that, in obese subjects who are free from atherosclerosis and impaired renal function, plasma tHcy levels do not differ from healthy subjects. Plasma tHcy concentrations are not related to carotid IMT in obese subjects during the non-atherogenic stage. Although no significant difference was observed between insulin-resistant and insulin-sensitive subjects compared to the plasma tHcy levels, the relationship between tHcy levels and some components of the insulin resistance syndrome may support the opinion that tHcy may be considered a component of the insulin resistance syndrome.