

Body mass index and visceral fat: correlation with serum lipid profile in healthy young adults

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Introduction: Metabolic and cardiovascular complications and obesity association is well described. Body mass index (BMI) is commonly used to assess obesity, but does not reflect body fat distribution. Abdominal obesity, namely visceral adipose tissue (VAT), is associated with greater risk for those metabolic impairments, including dyslipidemia, than adiposity in other regions of the body.

Objective: To determine the correlation between serum lipid profile and anthropometric measures (BMI and VAT) in young healthy adults.

Methods: We conducted a cross sectional study on healthy young students aged between 18 and 30 years old, with normal to pre-obese BMI (18,50 – 29,99 kg/m²) who volunteered to participate in the study, between January 2013 and March 2014. Smoking habits, clinical history of cancer, metabolic, renal, digestive, cardiovascular, respiratory or orthopaedic dysfunctions were exclusion criteria. Participants' body mass (kg) and VAT (mm) were measured by biopédance and ultrasonography, respectively. Body mass index (BMI) was calculated according to WHO guidelines. Blood samples from all participants were collected through standard antecubital forearm venepuncture and serum triglyceride, total cholesterol, LDL cholesterol and HDL cholesterol concentrations were determined using standard enzymatic colorimetric automatic techniques. Pearson's correlation coefficient was applied to assess correlation between serum lipids and anthropometric measures (BMI and VAT) at significance level of 5% ($p < 0,05$).

Results: We assessed the eligibility of 40 participants (females $n=20$, males $n=20$), with mean age of $22,55 \pm 4,37$ years old, mean BMI of $25,34 \pm 4,00$ kg/m² and mean VAT of $17,81 \pm 3,27$ mm). LDL cholesterol and triglyceride levels increased significantly with BMI ($p=0,006$, $R=0,426$; $p=0,036$, $R=0,332$; respectively), but total and HDL cholesterol were not significantly correlated to BMI. Triglyceride levels were significantly correlated to VAT ($p=0,046$; $R=0,317$).

Conclusion: There was a positive correlation between serum triglycerides level and both BMI and VAT in normal weight to pre-obese young adults. Also, BMI was correlated with LDL cholesterol.

Palavras-Chave: dyslipidemia BMI VAT