

Adiposity and High-Density Lipoprotein are Reflective of Blood Pressure among Individuals without Hypertension

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ABSTRACT

Obesity and abnormal lipid profiles have been linked to hypertension and other cardiometabolic risks. Early identification of cardiovascular risks factors in healthy individuals is important for disease prevention and maintaining a high quality of life. **PURPOSE:** This study sought to determine whether adiposity and lipid profile in a non-hypertensive, otherwise healthy population, is associated with blood pressure, a hallmark of cardiovascular disease risk. **METHODS:** Seventy-seven individuals (34 males 43 females; age 25.4 ± 7.7 years; BMI 27.2 ± 5.2 kg/m²) without hypertension (systolic blood pressure (SBP) 110.3 ± 10.3 mmHg; diastolic blood pressure (DBP) 71.48 ± 7.93 mmHg) from the border region of El Paso participated in this study. Anthropometric measurements were taken. Blood pressure was measured by sphygmomanometer. Adiposity (percent body fat) and abdominal fat distribution (android/gynoid ratio) were measured by dual energy X-ray absorptiometry. Lipid profile (triglycerides (TG), total cholesterol (TC), high-density lipoprotein (HDL) and low-density lipoprotein (LDL)) were measured by automated serum chemistry analyzer. The relationship between various body composition indices, lipid profile and blood pressure were determined by Pearson correlation at an alpha level of 0.05.

RESULTS: Body mass index positively correlated with SBP ($r=0.30$, $p<0.05$) and DBP ($r=0.36$, $p<0.05$).

Waist/Hip ratio positively correlated with SBP ($r=0.32$, $p<0.05$) and DBP ($r=0.29$, $p<0.05$).

Android/gynoid fat ratio positively correlated with SBP ($r=0.27$, $p<0.05$) and DBP ($r=0.42$, $p<0.05$).

Total body fat (%) positively correlated with DBP ($r=0.29$, $p<0.05$) but not SBP ($r=-0.10$, $p=0.5$).

HDL negatively correlated with SBP ($r=-0.28$, $p<0.05$) but not DBP ($r=-0.12$, $p>0.05$).

TG, TC and LDL did not correlate with SBP nor DBP.

CONCLUSION: Higher body fat and android/gynoid ratio, and lower HDL corresponds to higher blood pressure among individuals without hypertension. Early measures to control adiposity and maintenance of a healthy lipid profile may help maintain healthy blood pressure and ultimately, the prevention of cardiovascular diseases in a healthy, non-hypertensive population.