

Influence of Arterial Stiffness on Left Ventricular Hypertrophy in Employees of Agostinho Neto University

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Introduction: Approximately 17 million deaths occur each year worldwide due to cardiovascular diseases. The increase in arterial stiffness has important hemodynamic consequences, as progressive stiffening leads to several alterations, including increased pulse wave velocity.

Objective: To assess the impact of arterial stiffness on left ventricular hypertrophy in employees of Agostinho Neto University.

Material and Methods: A cross-sectional descriptive observational study was conducted using a convenience sample extracted from a database of a study on cardiovascular risk factors among employees of Agostinho Neto University (UAN), carried out in Luanda between 2009 and 2010. At the time of the study, UAN had 1,458 public employees, of whom 49.7% (n = 724) were academic staff (514 men and 210 women) and 50.3% (n = 734) were non-academic staff (359 men and 375 women), aged between 20 and 72 years.

Results: The mean age was 44.3 ± 10.5 years for men, representing 50.1% of the sample. The carotid-femoral pulse wave velocity (PWV c-f) was higher in men (9.99 ± 2.16 m/s; $p \leq 0.05$), followed by pulse pressure (PP) (53.8 ± 13.2 mmHg; $p \leq 0.05$). BMI was higher in women ($p \leq 0.05$). The echocardiographic left ventricular mass (ECHO LVM) was greater in men ($p \leq 0.05$). The correlation between PWV c-f and body surface-corrected LVM (BSA-LVM) was $r = 0.270$ ($p \leq 0.05$). Linear regression identified age, Cornell index (CI), Sokolow-Lyon index (SLI), and mean arterial pressure (MAP) as the main predictors of PWV c-f.

Conclusion: Hemodynamic and anthropometric parameters, such as carotid-femoral pulse wave velocity and BMI, showed statistical significance. The main determinants of left ventricular hypertrophy (LVH) were SLI, CI, ECHO LVM (BSA-corrected), and PWV c-f. When corrected for body surface area, age and systolic blood pressure (SBP) were identified as the most relevant factors influencing LVH in LVM.

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