

Abstract

NMA/AGSM/2022/MED/003 - Relationship between Ankle Brachial Pressure Index and Left Ventricular Hypertrophy in Adults with Systemic Hypertension in Rivers State, Nigeria

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Abstract

Background: Peripheral arterial disease is associated with increased cardiovascular morbidity and mortality, and left ventricular hypertrophy is also a major contributor to this. AIMS: This study aims to determine the relationship between the left ventricular mass index (LVMI) and the ankle-brachial pressure index (ABPI) in hypertensive patients in a tertiary hospital.

Methodology: One hundred and sixty hypertensive subjects [hypertensive on treatment or newly diagnosed hypertensives] were evaluated. Assessment of peripheral arterial disease was made by measurement of the ankle-brachial pressure index. Assessment of left ventricular hypertrophy was done with trans-thoracic echocardiography. Chi-square (χ^2) and Student t tests were used to assess statistical differences between categorical and continuous variables respectively. Correlation and regression analysis was used to assess the relationship between ankle brachial pressure index and left ventricular mass index.

Results: The prevalence of PAD using the ABPI was 11% in this cohort of hypertensive cases. The left ventricular mass index was significantly higher in hypertensive patients with PAD; $162.1 \pm 83.3 \text{ gm/m}^2$ compared to hypertensive patients without PAD $128.2 \pm 55.6 \text{ gm/m}^2$, ($p=0.023$). The prevalence of echocardiographic left ventricular hypertrophy when indexed to body surface area was significantly higher in hypertensive patients with PAD (88.9%) compared to those without PAD (50.0%); $p=0.02$. Hypertensive subjects with PAD were 8 times more likely to develop LVH (OR=8; 95%CI= 1.77-36.08, $p=0.007$).

Conclusion: There is a high prevalence of left ventricular hypertrophy in hypertensive patients with PAD. Prompt identification and initiation of appropriate management measures with follow-up for all patients with PAD are essential to effectively prevent future cardiac morbidity and mortality.

Keywords: Ankle Brachial Index; Left Ventricular Hypertrophy; Hypertension.

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