Hypertension increased risk of abnormal brachial ankle index in patients with low to intermediate cardiovascular risk in comparison with high cardiovascular risk patients.

Authors:
ACGB Lima¹, JP Ferraz¹, RC Barros², ML Salviano², CES Brito², MF Costa², ¹Secretaria de Saude do Distrito Federal - Brasilia - Brazil, ²University of Brasilia - Brasilia - Brazil,

Topic(s):
Risk Factors and Prevention – Cardiovascular Risk Assessment

Citation:

Introduction: The incidence of cardiovascular events has grown exponentially throughout the world over the years. Early diagnosis methods are useful in the detection of the atherosclerotic process, with the ankle-brachial index (ABI) being a good instrument for this purpose. ABI is a simple, non-invasive, low cost and highly reliable method. A low ABI is associated with increased cardiovascular risk and subsequent cardiovascular and cerebrovascular morbidity and mortality.

Objective: To evaluate the prevalence of abnormal ABI in patients without cardiovascular disease (CVD - coronary artery disease, stroke or transient ischemic attack or arteriosclerosis).

Methods: Observational descriptive study performed in asymptomatic adult patients attended from June 2012 to June 2017. The ABI was calculated using the formula: ABI = Ankle Systolic Arterial Pressure / Brachial Systolic Artery Pressure) and defined as abnormal value <0.90. The selected patients were classified as high risk (HR) - individuals with diabetes mellitus (DM) type 1 and 2 or chronic or chronic kidney disease (CKD); and non-high risk (NHR) individuals with retroviral disease, asthma and systemic lupus erythematosus.

Results: A total of 275 patients were included in the study, being 109 (5.1% DM type 1, 13.1% DM type 2, 6.9% CKD, 11.6% CKD) and 166 (11% asthmatics, 16.7% lupus and 35.3 % carriers of retroviruses) not high risk. The HR group had a predominance of male gender (60% vs. 36%, p = 0.016), arterial hypertension (73% vs. 18%, p <0.0001), dyslipidemia (36% vs. 11% 0.0001) and abnormal ABI (33% vs. 14%, p <0.0001) compared to the NHR group, respectively. There was no difference in age (53.3 ± 16 years vs. 41.7 ± 13.3 years, p = 0.07), smoking (31% vs. 30%, p = 0.85) and dyslipidemia (24% vs. 32%, p = 0.23) between groups. The presence of hypertension was associated with altered ABI (X2: 6.67, p = 0.009). In the HR group, the presence of hypertension increased the risk of presenting abnormal ABI by 2 times (p = 0.001) and in the NHR group increased risk by 5.7 times (p <0.0001).

Conclusion: Hypertension increased the risk of abnormal ABI, especially in patients with lower cardiac risk. This information may assist clinicians and health care providers in choosing which patients would benefit from more expensive methods for the evaluation of subclinical atherosclerosis, such as medial-intimal thickness or calcium score.