Factors affecting the validity of the oscillometric Ankle Brachial Index to detect peripheral arterial disease

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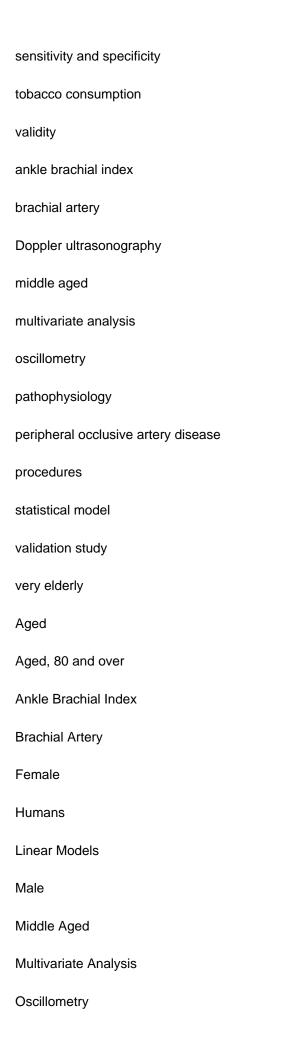
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BACKGROUND: The use of oscillometric Ankle Brachial Index (ABI) to diagnose peripheral arterial disease (PAD) has raised concern, especially due to a lack of agreement and sensitivity. This study aimed to evaluate those factors affecting the validity of oscillometric ABI in comparison to Doppler ABI to detect PAD. METHODS: Through univariate and multivariate linear regression, we studied those factors affecting the differences between oscillometric and Doppler ABI; through univariate and multivariate logistic regression we analyzed the false negative rate of oscillometric ABI to detect PAD. RESULTS: We analyzed 197 consecutive subjects (394 legs) from two settings: Primary Care and Vascular Service. The means of oscillometric ABI and Doppler ABI were 1.094 (95% CI: 0.843-1.345) and 1.073 (95% CI: 0.769-1.374) (P<0.001), respectively. In men, covariates explaining the differences between oscillometric and Doppler ABI were Doppler ankle blood pressure (?=-0.610, P<0.001), ankle circumference (?=0.176, P=0.004) and oscillometric brachial blood pressure (?=0.136, P=0.037); in women, those were weight (?=0.351, P<0.001) and Doppler ankle blood pressure (?=-0.318, P<0.001). Sensitivity and specificity of oscillometric ABI to detect PAD were 80.6% and 97.4%, respectively, and covariates explaining the rate of false negatives in PAD population were setting (Exp(?)=17.21, P=0.009) and tobacco (packs/year) (Exp(?)=1.049, P=0.002). CONCLUSIONS: Although some factors influencing the lack of agreement between oscillometric and Doppler ABI were identified, the correction of oscillometric ABI seems impractical, since Doppler is needed, the bias is not always uniformly distributed and its clinical relevance is

small. According to sensitivity, borderline oscillometric ABI in Primary Care settings and smokers suggest PAD. © 2017 EDIZIONI MINER VA MEDICA. Ankle Brachial Index Oscillometry Peripheral arterial disease Sensitivity and specificity aged ankle brachial index Article body weight calcification cohort analysis comparative study diagnostic accuracy diagnostic test accuracy study Doppler flowmetry false negative result female human major clinical study male observational study oscillometry peripheral occlusive artery disease prospective study

receiver operating characteristic



Peripheral Arterial Disease

Prospective Studies

Sensitivity and Specificity

Ultrasonography, Doppler