

# The accuracy of an oscillometric ankle-brachial index in the diagnosis of lower limb peripheral arterial disease: A systematic review and meta-analysis

Herráiz-Adillo Á.

Cavero-Redondo I.

Álvarez-Bueno C.

Martínez-Vizcaíno V.

Pozuelo-Carrascosa D.P.

Notario-Pacheco B.

**Introduction:** Peripheral arterial disease (PAD) remains underdiagnosed and undertreated, partly because of limitations in the Doppler ankle-brachial index (ABI), the non-invasive gold standard.

**Objective:** This systematic review and meta-analysis aims to compare the diagnostic accuracy of the oscillometric ABI and the Doppler ABI, and to examine the influence of two approaches to analysis: legs vs subjects and inclusion of oscillometric errors as PAD equivalents vs exclusion. **Methods:**

Systematic searches in EMBASE, MEDLINE, Web of Science and the Cochrane Library databases were performed, from inception to February 2017. Random-effects models were computed with the Moses-Littenberg constant. Hierarchical summary receiver operating characteristic curves (HSROC) were used to summarise the overall test performance. **Results:** Twenty studies (1263 subjects and 3695 legs) were included in the meta-analysis. The pooled diagnostic odds ratio (dOR) for the oscillometric ABI was 32.49 (95% CI: 19.6-53.8), with 65% sensitivity (95% CI: 57-74) and 96% specificity (95%CI: 93-99). In the subgroup analysis, the 'per subjects' group showed a better performance than the 'per legs' group (dOR 36.44 vs 29.03). Similarly, an analysis considering oscillometric errors as PAD equivalents improved diagnostic performance (dOR 31.48 vs 28.29).

The time needed for the oscillometric ABI was significantly shorter than that required for the Doppler ABI (5.90 vs 10.06 minutes, respectively). **Conclusions and relevance:** The oscillometric ABI showed an acceptable diagnostic accuracy and feasibility, potentially making it a useful tool for PAD diagnosis. We recommend considering oscillometric errors as PAD equivalents, and a 'per subject'?

instead of a 'per leg' approach, in order to improve sensitivity. Borderline oscillometric ABI values in diabetic population should raise concern of PAD. © 2017 John Wiley & Sons Ltd