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Popliteal Artery Entrapment Syndrome (PAES) and Ankle-Brachial Index (ABI), any association?

Felice Sirico, Veronica Baioccato, Eduardo Capuano, Umberto C. Ferrari, Francesco Gambardella, Stefania Montagnani

Human Anatomy and Sports Medicine Section, Department of Public Health, University "Federico II", Naples, Italy

Popliteal Artery Entrapment Syndrome (PAES) is an uncommon pathology. Often, it affects young athletic males, with symptoms like calf claudication, weakness, numbness, pain, coldness of the foot, cramps, foot drop and paresthesia. The etiology of this syndrome is related to anatomical variations determining an altered relationship between popliteal artery and the surrounding structures. Based on described anatomical variations, PAES has been classified in several types (type I to V). In other cases, the compression of the popliteal artery may be caused by the hypertrophic gastrocnemius muscle, without anatomical variations, defining a "functional popliteal entrapment" (type VI). [1].

The Ankle-Brachial Index (ABI) is the ratio of the systolic blood pressure measured at the ankle to that measured at the brachial artery. It's a non-invasive measure of peripheral artery disease and can serve as a prognostic marker for cardiovascular events and functional impairment [2].

The ABI score is often pathological in patients affected by PAES. Nevertheless, to define diagnosis and type of PAES are often needed imaging studies and invasive procedures.

The aim of the present study is to systematically review the available literature to define if ABI score could be useful to predict a specific type of PAES.

Electronic databases have been searched using specific Keywords. Articles have been screened and full-texts of relevant papers have been retrieved. Case reports and case series with indications of symptoms, type of PAES, ABI score have been included. Results about ABI score (dependent variable) have been pooled and compared among types of PAES (independent variable). No statistical significance has been noted (ANOVA: $F=1.9$, $p=0.09$).

The use of ABI is insufficient to predict the type of PAES and its prognosis. Nevertheless, this non-invasive method could be useful to suspect PAES and as a tool in follow up in these patients.

References

[1] Anatomic popliteal entrapment syndrome is often a difficult diagnosis. Politano et al, Vasc Endovascular Surg. 2012 Oct;46(7):542-5.

[2] Measurement and interpretation of the ankle-brachial index: a scientific statement from the American Heart Association. Aboyans V et al, American Heart Association Council on Peripheral Vascular Disease; Council on Epidemiology and Prevention; Council on Clinical Cardiology; Council on Cardiovascular Nursing; Council on Cardiovascular Radiology and Intervention, and Council on Cardiovascular Surgery and Anesthesia. Circulation. 2012 Dec 11;126(24):2890-909.

Keywords

PAES, ABI, popliteal artery, blood pressure