

Screening of peripheral arterial disease in asymptomatic diabetic patients

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Background. Peripheral arterial disease (PAD) is an important complication of diabetes, with consequences on quality of life and survival. PAD is a risk factor for increasing mortality and cardiovascular events. ADA and AHA indicate every year screening for PAD in patients with type 2 diabetes and over 40 years old, but literature data show that screening is underutilized and PAD underdiagnosed. The most used screening test is ankle brachial index (ABI), it requires about 15 minutes to be performed and it has demonstrate low sensitivity in asymptomatic diabetic patients. Moreover alternative tests like pulse oximetry and toe pressure failed to demonstrate better efficacy and usefulness compared to ABI. **Aim of the study:** to compare accuracy of screening tests in asymptomatic diabetic patients and to evaluate efficacy of arterial sound interpretation like a new proposed diagnostic test. **Materials and methods:** 324 limbs, in 162 diabetic asymptomatic consecutive outpatients presented in a primary care service, were evaluated. We investigate all the limbs with: transcutaneous oximetry; pulse oximetry at rest and after uplift of the limb, ABI at rest and after walking test, temperature and a new test: the arterial sound interpretation at ankle level and Doppler waveform analysis. We defined PAD as monophasic waveforms on waveform analysis. **Results:** Prevalence of PAD was 18%. Patients with peripheral arterial disease were older than patients without, with a longer history of diabetes, and higher prevalence of hypertension, cardiovascular disease and renal failure (all $p < 0.01$). Diagnostic test specificity, sensitivity and K test values for agreement with color-duplex, are reported in table 1.

<i>Test</i>	<i>Sens</i>	<i>Spec</i>	<i>K-test</i>	<i>Test</i>	<i>Sens</i>	<i>Spec</i>	<i>K-test</i>
ABI	58	82	0.35	TcPO2 < 50mmHg	62	68	0.21
ABI after walking test	38	91	0.31	TcPO2 < 40mmHg	48	82	0.20
Pulse-oximetry hand/foot	24	75	0.01	Temperature difference hand/foot >2	83	36	0.09
Pulse-oximetry after elevation	37	84	0.20	Arterial sound interpretation	90	95	0.81

Conclusions: This study, according to literature data, confirm low ABI sensitivity for PAD screening in diabetic asymptomatic patients and found fair agreement with color duplex. Transcutaneous oximetry, pulse oximetry and ABI after walking test are not effective for PAD screening. Arterial sound interpretation presents good sensitivity and sensibility, very good agreement with color duplex and short performing time. This test, if data will be confirmed in a larger number of people, can be proposed for screening of diabetic patients