Introduction

Lower-extremity peripheral arterial disease (PAD) can be detected noninvasively with the ankle-brachial index
(ABI), a ratio of Doppler-recorded systolic blood pressures
in the lower and upper extremities.***(. Fung YC , 1984)***
Approximately one-third of patients with peripheral arterial occlusive disease (PAOD) show classical symptoms of intermittent claudication. About 30% of them will die within 5 years, three-quarters of them because of cardiovascular diseases (CVD).***(Int Angiol 2000)***
Therefore, the significant threat for patients
with PAOD is premature myocardial infarction (MI) or death.
Patients with PAOD frequently also have coronary heart disease or cerebrovascular disease.***(Diehm C 2004.et al)***

Indications

Although other methods exist to assess the peripheral vasculature more objectively, the ankle–brachial index represents a simple, reliable method for diagnosing peripheral arterial disease. More specific indications include evaluation of leg pain, evaluation for ischemia of the legs (symptoms of claudication, pain at rest, and the presence of foot ulcers or gangrene), screening for atherosclerosis, and evaluation of vascular compromise in patients with trauma of the lower legs. ***(Gerhard-Herman M 2007 et al)***
Measurement of the ankle–brachial index may also be useful in determining the prognosis for patients with diffuse vascular disease and for evaluating the success of interventional or surgical procedures, such as angioplasty, stenting, or lower-extremity bypass surgery.

Interpretation

With a patient at rest, a normal ankle–brachial index ranges from 0.91 to 1.30.

A reading above 1.30 is usually suggestive of incompressible tibial arteries. Decreases in the ankle–brachial index are consistent with peripheral arterial disease. Mild-to moderate peripheral arterial disease usually produces an ankle–brachial index in the range of 0.41 to 0.90. A reading below 0.40 suggests the presence of severe peripheral arterial disease Depending on the patient's presentation and symptoms***,(N Engl J Med 2007)***

Limitations

Use of the ankle–brachial index does have limitations. These include inaccurate measurements as a result of calcified or incompressible vessels (which would produce falsely elevated readings) and the presence of a subclavian-artery stenosis (which could also falsely elevate the ankle–brachial index on the side of the stenosis).

A difference of more than 10 mm Hg between the two arm pressures suggests the presence of a subclavian-artery stenosis.

Ankle–Brachial Index for Assessment of Peripheral Arterial Disease ***(S. Marlene Grenon)***

Contraindications

The few contraindications for the measurement of the ankle brachial index include Excruciating pain in the patient's legs or feet and the presence of deep venous thrombosis, which could lead to thrombus dislodgment. In a patient with suspected deep venous thrombosis, it would be prudent to perform a duplex ultrasound study to exclude this possibility before measuring the ankle–brachial index. Although the readings may be altered when vessels are calcified or incompressible (such as in elderly patients, patients with diabetes, or patients with end-stage renal failure requiring dialysis), these conditions are not absolute contraindications to measuring the ankle–brachial index ***(S. Marlene Grenon)***