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ELDER CARE

A Resource for Interprofessional Providers

Peripheral Arterial Disease

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Peripheral arterial disease (PAD) of the lower extremity is a common manifestation of atherosclerosis. It is present in up to 20% of older men and women, and estimated to affect more than 200 million people worldwide. The major risk factors for PAD are smoking, hypertension, and diabetes. PAD is an important problem in older adults due to its prevalence, its often-subtle symptoms, and its importance as a marker for widespread vascular disease. Patients with asymptomatic PAD are at greater risk for functional decline compared to those without PAD. Most importantly, identifying and treating PAD can improve an individual's functional status and quality of life.

The presence of PAD in the lower extremity signifies a high likelihood that atherosclerosis is also present elsewhere – particularly in the coronary and cerebral circulations. Indeed, myocardial infarction (MI) and stroke are 3 times more likely in people with PAD – even those without symptoms. For patients who have PAD symptoms, the risk of death is even higher, with 25-33% dying from cardiovascular disease over a 5-year follow-up period.

Peripheral artery disease often goes unrecognized. While identification of classic intermittent claudication is usually straightforward, only 20% of people with PAD present with a typical claudication history, and many have no symptoms at all. Usual claudication symptoms include cramping of the lower extremities with exercise, often leading to limping, which is relieved by rest. Frequently, older adults may present with atypical symptoms which are easily confused with other common medical problems, such as those listed in Table 1.

For this reason, although routine PAD screening is not recommended, providers must nonetheless be alert for PAD in older individuals who have any symptoms that might suggest PAD – especially in those who have a smoking history, hypertension, or diabetes.

Diagnosis

Findings on physical examination, such as bruits, pulse abnormalities, loss of hair on the toes, and alterations in gait may point to the diagnosis of PAD, but physical findings have not been found to correlate with the presence or absence of disease.

A more accurate approach is to measure the ankle-brachial index (ABI), a simple test that can be performed in routine office practice. ABI should be performed in high-risk patients, even if asymptomatic. The proper method for measuring the ABI is outlined in Table 2 and illustrated in Figure 1. Table 3 reviews the interpretation of ABI data. Measuring ABI after exercise (on a treadmill) may also have a role. Some studies have found abnormal post-exercise ABI results in patients with normal resting ABIs, and such findings can be predictive of the need for future revascularization surgery.

Treatment

Because PAD is a marker for widespread atherosclerosis, patients with PAD should undertake interventions to reduce their risk of MI and stroke. Those with symptoms of coronary artery disease should undergo appropriate evaluation and treatment. Those with symptomatic PAD should undergo specific treatments (Table 4) designed to reduce severity of their symptoms, improve ambulation, and lower the risk of critical ischemia that may ultimately require amputation. It has been reported that for each 0.1-unit decrease in the ABI, the rate of limb-threatening ischemia goes up by nearly 25%. Critical ischemia is a particular concern for those with diabetes. Limb loss is infrequent (2%) in people with PAD, but is 3 times more common when diabetes is present. A low ABI has also been associated with cognitive impairment, especially in non-hypertensive and diabetic patients.

Table 1. Conditions Commonly Confused with PAD
Arthritis of knees or hips
Diabetic neuropathy
Mechanical injury
Sciatica
Venous disease
Lumbar spinal stenosis

TIPS FOR THE DIAGNOSIS OF PERIPHERAL ARTERIAL DISEASE IN OLDER ADULTS

- Consider the diagnosis of PAD, regardless of symptoms, in elders with a history of HTN, diabetes, or smoking.
- Measure ABIs (see Table 2) to confirm the diagnosis of PAD. History and physical are not sufficiently reliable to confirm or exclude the diagnosis.
- Don't forget that PAD is a sign of widespread vascular disease, including coronary and cerebral atherosclerosis. Institute risk factor reduction and treatments to lower the risk of MI and stroke.

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Table 2. How to Measure the Ankle-Brachial Index (ABI)

1. Patient lying in supine position

2. Use blood pressure cuff and hand-held Doppler device to measure…..

→Right arm and ankle systolic blood pressures in mm Hg

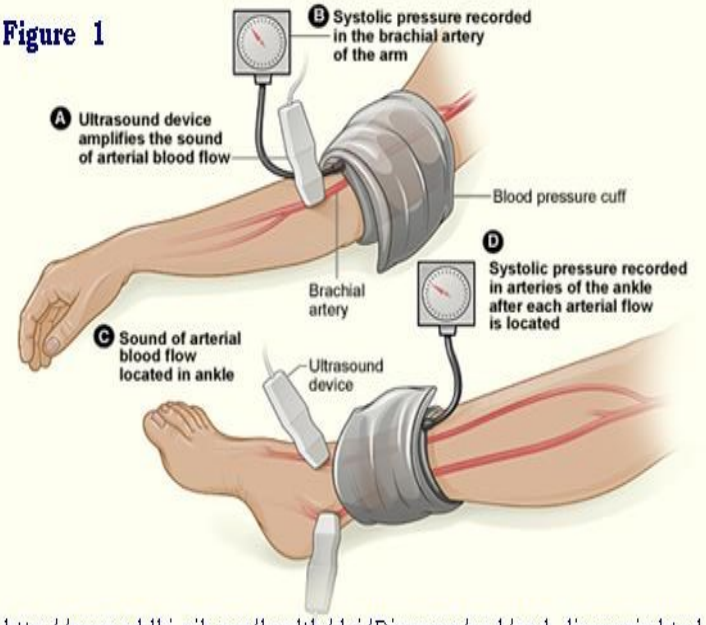
→Left arm and ankle systolic blood pressures in mm Hg

3. For ankle blood pressure, measure pressure in both the dorsalis pedis and posterior tibial arteries, and use the higher of the two

4. Calculate the right ABI = the highest right ankle systolic pressure/arm systolic pressure

5. Calculate the left ABI = the highest left ankle systolic pressure/arm systolic pressure

Figure 1



http://www.nhlbi.nih.gov/health/dci/Diseases/pad/pad_diagnosis.html

Table 3. Interpreting the ABI	
0.90 or higher	Normal
0.71 – 0.90	Mild PAD
0.41 – 0.70	Moderate PAD
0.40 or lower	Severe PAD

Table 4. Treatments for PAD

Treatment	Comment
Behavioral	
Smoking Cessation	Improves leg symptoms and decreases vascular complications
Walking Exercise	≥30-minute sessions at least 3 times per week improves leg symptoms
Medications	
Antihypertensives	Angiotensin-converting enzyme (ACE) inhibitors preferred goal = 130/80 mm Hg
Statins	LDL goal <100 mg/dL; benefit over and above lipid-lowering action
Antiplatelet agents	Aspirin is usual first-line treatment. Clopidogrel is an alternative
Cilostazol	Vasodilator w/anti-platelet activity; improves leg symptoms; contraindicated in heart failure
Revascularization	
Surgery	Critical ischemia or lifestyle-limiting symptoms not responsive to above treatments
Angioplasty, with or without stent placement	Same indications as surgery; commonly used for short-segment and unilateral lesions

References and Resources

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