### PERIPHERAL ARTERY DISEASE GO-TO GUIDE

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Learn more about timely detection and diagnosis of PAD. Use our resources to educate your patients.

Helping Your Patients with PERIPHERAL ARTERY DISEA –Lower Extremity: A Clinician's Guide

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## A Primer on Peripheral Artery Disease -



Studies have also demonstrated that PAD is associated with elevated inf ammatory markers linked to the development of heart disease, including C-reactive protein. Intermittent claudication symptoms are common in patients with PAD and



Depending on the clinical presentation, and the resting ABI values, additional physiological studies may be needed, including exercise treadmill testing or measurement of the toe-brachial index. Exercise treadmill testing is important to measure the functional limitations of a patient with PAD, and is also useful in diagnosing symptomatic patients with lower extremity PAD when the resting ABI is normal or borderline. Other imaging tests may be used in highly symptomatic patients or in patients undergoing revascularization procedures.

#### Additional imaging tests include:

- Duplex Ultrasonography: Depicts a change in f ow pattern and provides anatomical and functional information about the artery being investigated. It's non-invasive and requires no contrast media (dye) or radiation.
- Magnetic Resonance Angiography (MRA): MRA images large and medium-size vessels. The test uniquely provides cross-sectional images without using contrast media.



- Computed Tomography (CT) Angiography: Another modality that images arterial disease, it uses X-ray and contrast media to create pictures of blood vessels and pinpoints the location of any blockages in the leg arteries. It produces three-dimensional images of the vessels. It provides rapid, noninvasive assessment of the peripheral arteries and can reveal blockages, or stenoses, in the scanned anatomical territory.
- Early diagnosis of PAD is important to managing the disease. Lifetime risk stratif cation tools may be impactful in diagnosing and managing PAD. Just as we have parallel tools for risk stratif cation (such as the CHADsVASc score for stroke risk in patients with a trial f brillation), increasing physician familiarity with a risk stratif cation tool for PAD might provide more resources to objectively evaluate the patient and intervene accordingly.

## **Differential Diagnoses for PAD**

In some cases, patients may have symptoms that appear to signal a PAD diagnoses, such as leg pain, claudication or nonhealing wounds, but physiological testing is normal, so the symptoms may not be PAD-related. These are diagnoses and characteristics of conditions that mimic PAD:

#### Other Diagnoses for Leg Pain or Claudication

• Symptomatic Popliteal (Baker's) Cyst: Characterized by swelling and tenderness behind the knee. The pain is pre116.8 (o)6.4 (m) I.8 6.8 (o s)6 a



Other Therapies for PAD:

patients are following a heart-healthy diet, avoiding tobacco smoke, exercising regularly and losing weight (if your patient is overweight or obese).

Here are suggested recommendations about

#### Exercise

• Advise patients that an individualized, safe exercise prescription is necessary. Structured exercise therapy is an important component of care for the PAD patient and helps improve functional status and decrease symptoms.

#### Weight Management

• Point out the importance of losing weight and becoming more physically active if your patients are sedentary, overweight or obese. Weight loss is crucial for controlling CVD risk factors. Encourage patients to lose about 5% to 10% of baseline weight within six months.

#### **Controlling Hypertension**

Lifestyle changes and adhering to medication prescriptions can help your patients manage their hypertension. Here are some tips for instructing your patients about controlling hypertension:

- Advise your patients to eat a heart-healthy diet, reduce sodium intake to 1,500 mg/day for enhanced BP lowering and limit alcohol.
- Point out the importance of participating in regular physe o ce sodioD (h)3.8A0.25e6 (n)9.9 (i

#### **Glycemic Control and Smoking Cessation Programs**

Two of the most important health risks for patients with PAD are diabetes and exposure to tobacco smoke. Here are the recommended guidelines for smoking cessation and glycemic control in patients with PAD:

• Advise your patients who smoke to quit at every vis (i)6.8 (c)3.9

Supervised exercise has benef ts and is safe for patients with PAD, even when they have contraindications to exercise, such as cardiovascular disease, amputation, wheelchair conf nement and other major comorbidities that would preclude exercise. The eff cacy of structured community- or home-based exercise programs in patients with PAD is supported by strong research evidence, which is more recent and convincing than studies on supervised exercise programs in clinics or health care institutions. Unstructured community- or home-based programs providing general recommendations to patients with claudication to simply walk more aren't effective for relieving claudication, although increasing activity can improve the risk factors for PAD.

Here are recommendations for structured exercise therapy:

• In patients with claudication, recommend a supervised exercise program to improve

- Warm-up and cool-down periods precede and follow each session of walking.
- Counseling should be provided on how to start and maintain an exercise program,

#### **Revascularization for Claudication and Atherosclerosis**

Claudication doesn't commonly progress to critical limb ischemia. So the aim of most revascularization procedures is improving claudication symptoms, function and quality of life, rather than limb salvage. Revascularization should



- Effectiveness of the procedure can depend on the location of the stenosis. Longterm patency is often greater after endovascular procedures in the aortoiliac than the femoropopliteal segment.
- In femoropopliteal disease, durability of the revascularization is reduced with greater lesion length, occlusion rather than stenosis, the presence of multiple diffuse lesions, diabetes, chronic kidney disease, renal failure and smoking.

#### Surgical Revascularization for Claudication and Atherosclerosis

Surgical procedures can effectively treat claudication and improve quality of life and walking ability. However, there is little evidence that surgical procedures are superior to other treatment. Although symptoms may improve more with surgery than

#### Critical Limb Ischemia: Surgical or Endovascular Revascularization

The goal of revascularization for critical limb ischemia is to provide inline blood f ow to the foot through at least one patent artery. This helps decrease ischemic pain, aids wound healing and helps preserve a functional limb. Randomized controlled trials have demonstrated that endovascular revascularization is a more effective treatment option than open surgery.

Treatment guidelines provide these recommendations for using revascularization procedures for CLI:

- In patients with CLI, revascularization should be performed whenever possible to reduce tissue loss. Endovascular procedures for patients with CLI should be considered for nonhealing wounds and gangrene.
- Before amputation in a patient with CLI, an evaluation for revascularization should be conducted by an interdisciplinary care team.
- Evaluating lesion characteristics is useful for selecting the appropriate endovascular approach for a patient with CLI.

## Health Literacy

Health literacy are skills (both cognitive and social) that allow a person to access, understand and use information that benef ts their health. Only 12% of Americans have "prof cient" health literacy. Also, most patients read at or below a 6th grade level. It's clear that lack of health literacy can interfere with a patient's understanding of and adherence to a PAD or cardiovascular disease treatment plan.

#### Active Listening and Motivational Interviewing

Active listening is key to understanding the patient's issues in adhering to a treatment plan. This requires avoiding distractions and keeping the focus on the patient while they're talking. This technique should include asking relevant questions, making the appropriate level of eye contact (without staring, which can be intimidating), remaining

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When engaging with patients, health care professionals should take time to establish the stage at which a patient might be to help determine whether they are motivated. Using a positive and patient tone, ask the patient:

- What they know about PAD.
- To list their personal reasons and specific goals for managing PAD.
- What you (as the clinician) can do to help.

If a patient isn't ready to change, it's best to begin with more education about their condition and the benef ts of symptom management. Remind patients why change is important. Also, continue to teach them the skills they need to manage their PAD.



# Long-Term Follow-Up for Patients with PAD

PAD is a lifelong medical condition, and clinicians need to develop a comprehensive care plan for patents. This follow-up plan should include regular clinical evaluations by a health care professional with experience in treating PAD. Ongoing care for patients with PAD will involve cardiovascular risk reduction with medical therapy and lifestyle changes, optimizing patient function with structured exercise and revascularization when needed.

The continued reevaluation of patients with PAD is necessary to assess cardiovascular risk factors, limb symptoms and functional status. It's recommended that patients with PAD who have undergone lower extremity revascularization have periodic clinical evaluations and ABI measurements. A change in ABI of 0.15 is considered clinically signif cant. Duplex ultra sound imaging tests can le in the routine surveillance of patients who have undergone infrainguinal, autogenous vein bypass grafts and for those who have had endovascular procedures.

The bottom line and good news for clinicians is that efforts to promptly identify and treat PAD and to educate patients about the disease will result in more durable control of the disease and prevention of complications.

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- AHA's Life Long Learning Catalog
- 2016 AHA/ACC Guideline on the Management of Patients with Lower Extremity Peripheral Artery Disease
- 2018 Optimal Exercise Programs for Patients With Peripheral Artery Disease
- 2019 Implementation of Supervised Exercise T61 (y)-5 (fD)-3.1 (o)0.5 (r)-5 (P)7.7 (a)1.4 (t)6.4 (i)1.