

ACC/AHA Guidelines for the Management of Lower Extremity Peripheral Arterial Disease

A collaborative report from the American Association for Vascular Surgery/Society for Vascular Surgery, Society for Cardiovascular Angiography and Interventions, Society for Vascular Medicine and Biology, Society of Interventional Radiology and the ACC/AHA Task Force on Practice Guidelines

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Financial Disclosure

- Christopher J. White, MD
 - Financial conflict of interest related to topic.
 - Scientific Advisory Board - Baxter

Classification of Recommendations



Class I: Evidence and/or general agreement that procedure or treatment is beneficial, useful, and effective

- Class II: Conflicting evidence and/or divergence of opinion about usefulness or efficacy of a procedure or treatment



- Class IIa: Weight of evidence or opinion favors usefulness or efficacy






- Class IIb: Usefulness or efficacy is less well established by evidence or opinion



- Class III: Evidence and/or general agreement that procedure is not useful or effective and in some cases may be harmful







Levels of Evidence

-  **Level of Evidence A:** Data derived from multiple randomized clinical trials or meta-analyses
-  **Level of Evidence B:** Data derived from a single randomized trial or nonrandomized studies
-  **Level of Evidence C:** Only consensus opinion of experts, case studies, or standard of care

Classification of PAD

QuickTime™ and a decompressor are needed to see this picture.

Critical Limb Ischemia

-  Patients with CLI should undergo expedited evaluation and treatment of factors that are known to increase the risk of amputation. (*Level of Evidence: C*)
-  Patients with CLI in whom open surgical repair is anticipated should undergo assessment of cardiovascular risk. (*Level of Evidence: B*)
-  Patients with a prior history of CLI or who have undergone successful treatment for CLI should be evaluated at least twice annually by a vascular specialist owing to the high incidence of recurrence. (*Level of Evidence: C*)
-  Patients at risk of CLI (ABI less than 0.4 in a nondiabetic individual, or any diabetic individual with known lower extremity PAD) should undergo regular inspection of the feet to detect objective signs of CLI. (*Level of Evidence: B*)

Critical Limb Ischemia (cont)

- I The feet should be examined directly, with shoes and socks removed, at regular intervals after successful treatment of CLI. (*Level of Evidence: C*)
- I Patients with CLI and features to suggest atheroembolization should be evaluated for aneurysmal disease (e.g., abdominal aortic, popliteal, or common femoral aneurysms). (*Level of Evidence: B*)
- I Systemic antibiotics should be initiated promptly in patients with CLI, skin ulcerations, and evidence of limb infection. (*Level of Evidence: B*)
- I Patients with CLI and skin breakdown should be referred to healthcare providers with specialized expertise in wound care. (*Level of Evidence: B*)

Critical Limb Ischemia (cont)

- ▶ Patients at risk for CLI (those with diabetes, neuropathy, chronic renal failure, or infection) who develop acute limb symptoms represent potential vascular emergencies and should be assessed immediately and treated by a specialist competent in treating vascular disease. (*Level of Evid: C*)
- ▶ Patients at risk for or who have been treated for CLI should receive verbal and written instructions regarding self-surveillance for potential recurrence. (*Level of Evidence: C*)

CLI: Pharmacologic Therapy

- II_b** Parenteral administration of PGE-1 or ilopros for 7 to 28 days may be considered to reduce ischemic pain and facilitate ulcer healing in patients with CLI, but its efficacy is likely to be limited to a small percentage of patients. (*Level of Evid: A*)
- II_b** The efficacy of angiogenic growth factor therapy for treatment of CLI is not well established and is best investigated in the context of a placebo-controlled trial. (*Level of Evidence: C*)
- III** Parenteral administration of pentoxifylline is not useful for the treatment of CLI. (*Level of Evidence: B*)
- III** Oral iloprost is not an effective therapy to reduce the risk of amputation or death in patients with CLI. (*Level of Evid: B*)

CLI and Endovascular Therapy

- I For individuals with combined inflow and outflow disease with CLI, inflow lesions should be addressed first. (*Level of Evidence: C*)
- I For individuals with combined inflow and outflow disease in whom symptoms of CLI or infection persist after inflow revascularization, an outflow revascularization procedure should be performed. (*Level of Evidence: B*)
- I If it is unclear whether hemodynamically significant inflow disease exists, intra-arterial pressure measurements across suprainguinal lesions should be measured before and after the administration of a vasodilator. (*Level of Evidence: C*)

CLI and Surgical Therapy

- I For individuals with combined inflow and outflow disease with CLI, inflow lesions should be addressed first. (*Level of Evidence: B*)
- I For individuals with combined inflow and outflow disease in whom symptoms of CLI or infection persist after inflow revascularization, an outflow revascularization procedure should be performed. (*Level of Evidence: B*)
- I Patients who have significant necrosis of the weightbearing portions of the foot (in ambulatory patients), an uncorrectable flexion contracture, paresis of the extremity, refractory ischemic rest pain, sepsis, or a very limited life expectancy due to comorbid conditions should be evaluated for primary amputation of the leg. (*Level of Evidence: C*)

CLI and Surgical Therapy

- I When surgery is to be undertaken, aortobifemoral bypass is recommended for patients with symptomatic, hemodynamically significant, aorto-bi-iliac disease requiring intervention. (*Level of Evidence: A*)
- I Iliac endarterectomy, patch angioplasty, or aortoiliac or iliofemoral bypass in the setting of acceptable aortic inflow should be used for the treatment of unilateral disease or in conjunction with femoral-femoral bypass for the treatment of a patient with bilateral iliac artery occlusive disease if the patient is not a suitable candidate for aortobifemoral bypass grafting. (*Level of Evidence: B*)
- I Axillofemoral-femoral bypass is indicated for the treatment of patients with CLI who have extensive aortoiliac disease and are not candidates for other types of intervention. (*Level of Evidence: B*)

CLI and Surgical Therapy

- I Bypasses to the above-knee popliteal artery should be constructed with autogenous saphenous vein when possible. (*Level of Evidence: A*)
- I Bypasses to the below-knee popliteal artery should be constructed with autogenous vein when possible. (*Level of Evidence: A*)
- I The most distal artery with continuous flow from above and without a stenosis greater than 20% should be used as the point of origin for a distal bypass. (*Level of Evidence: B*)
- I The tibial or pedal artery that is capable of providing continuous and uncompromised outflow to the foot should be used as the site of distal anastomosis. (*Level of Evidence: B*)



CLI and Surgical Therapy

- I Femoral-tibial artery bypasses should be constructed with autogenous vein, including the ipsilateral greater saphenous vein, or if unavailable, other sources of vein from the leg or arm. (*Level of Evidence: B*)
- I Composite sequential femoropopliteal-tibial bypass and bypass to an isolated popliteal arterial segment that has collateral outflow to the foot are both acceptable methods of revascularization and should be considered when no other form of bypass with adequate autogenous conduit is possible. (*Level of Evidence: B*)
- I If no autogenous vein is available, a prosthetic femoral-tibial bypass, and possibly an adjunctive procedure, such as arteriovenous fistula or vein interposition or cuff, should be used when amputation is imminent. (*Level of Evidence: B*)

CLI and Therapy

- I** Unless contraindicated, all patients undergoing revascularization for CLI should be placed on antiplatelet therapy, and this treatment should be continued indefinitely. (*Level of Evidence: A*)
- I** Patients who have undergone placement of aortobifemoral bypass grafts should be followed up with periodic evaluations that record any return or progression of ischemic symptoms, the presence of femoral pulses, and ABIs. (*Level of Evidence: B*)
- I** If infection, ischemic ulcers, or gangrenous lesions persist and the ABI is less than 0.8 after correction of inflow, an outflow procedure should be performed that bypasses all major distal stenoses and occlusions. (*Level of Evidence: A*)

CLI and Surgical Therapy

-  Patients who have undergone placement of a lower extremity bypass with autogenous vein should undergo for at least 2 years periodic examinations that record any return or progression of ischemic symptoms; a physical examination, with concentration on pulse examination of the proximal, graft, and outflow vessels; and duplex imaging of the entire length of the graft, with measurement of peak systolic velocities and calculation of velocity ratios across all lesions. *(Level of Evidence: A)*
-  Patients who have undergone placement of a synthetic lower extremity bypass graft should undergo periodic examinations that record any return of ischemic symptoms; a pulse examination of the proximal, graft, and outflow vessels; and assessment of ABIs at rest and after exercise for at least 2 years after implantation. *(Level of Evidence: A)*

CLI and Surgical Therapy

IIa

Prosthetic material can be used effectively for bypasses to the below-knee popliteal artery when no autogenous vein from ipsilateral or contralateral leg or arms is available.

(Level of Evidence: B)

CLI and Therapy

- III Surgical and endovascular intervention is not indicated in patients with severe decrements in limb perfusion (e.g., ABI less than 0.4) in the absence of clinical symptoms of CLI. (*Level of Evidence: C*)