

Peripheral arterial disease: Why early detection still eludes us

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Peripheral arterial disease (PAD) presents a significant challenge in clinical practice, frequently progressing silently until patients experience debilitating symptoms or critical limb ischemia. The insidious nature of the disease means many individuals remain undiagnosed, missing opportunities to intervene before severe complications arise. Recognizing PAD early can fundamentally alter its trajectory, preventing severe complications and improving quality of life.

KEY TAKEAWAYS

- **The Pivot:** PAD is often missed in primary care, but simple screening can identify at-risk individuals before symptomatic progression.
- **The Data:** Ankle-brachial index (ABI) measurement is a non-invasive, cost-effective tool for early detection.
- **The Action:** Implement routine ABI screening for at-risk populations to facilitate timely intervention and reduce cardiovascular morbidity.

Peripheral arterial disease, a common circulatory problem where narrowed arteries reduce blood flow to the limbs, most commonly the legs, affects millions globally. This reduction in blood flow causes symptoms such as leg pain when walking (claudication), but many patients remain asymptomatic or attribute their symptoms to other conditions, delaying diagnosis. The underlying pathology involves atherosclerosis, a systemic disease that also impacts coronary and cerebral arteries, making PAD a strong indicator of broader cardiovascular risk.

The disease mechanism involves the gradual buildup of plaque within the arterial walls, leading to stenosis and eventual occlusion. Risk factors mirror those for other atherosclerotic conditions: smoking, diabetes, hypertension, dyslipidemia, and advanced age. Understanding these risk factors is paramount for identifying individuals who would benefit most from early screening and intervention, particularly in primary care settings where these conditions are routinely managed.

The Silent Progression of PAD

PAD often progresses without overt symptoms in its early stages, making it a silent threat. Patients may experience mild discomfort that they dismiss as normal aging or muscle fatigue, rather than recognizing it as a sign of vascular compromise. This asymptomatic phase is a critical window for intervention, as irreversible damage to the limb can occur before symptoms become severe.

When symptoms do manifest, they typically begin with intermittent claudication, characterized by cramping or pain in the leg muscles during exercise, which resolves with rest. As the disease advances, pain can occur even at rest, particularly at night, indicating more severe ischemia. The progression to critical limb ischemia, marked by chronic

rest pain, non-healing wounds, or gangrene, carries a high risk of amputation and mortality.

The challenge for clinicians lies in proactively identifying these patients, especially those without classic claudication. A thorough medical history, including assessment of cardiovascular risk factors, and a focused physical examination are essential. Palpation of peripheral pulses, auscultation for bruits, and inspection of the skin for trophic changes can provide important clues. For a comprehensive guide to clinical examination, the 3M Littmann Classic III Stethoscope remains an indispensable tool for assessing vascular sounds.

But relying solely on symptoms or physical examination is insufficient for early detection. Many patients with significant arterial narrowing will have normal or near-normal pulses at rest, and their symptoms may be atypical or absent.

This highlights the need for objective diagnostic tools that can identify the disease before it reaches advanced stages, preventing the cascade of complications associated with late diagnosis.

The Utility of Ankle-Brachial Index

The ankle-brachial index (ABI) is a simple, non-invasive, and highly effective diagnostic tool for detecting PAD. It involves measuring systolic blood pressure at the ankle and comparing it to the systolic blood pressure in the arm. A ratio of less than 0.90 is diagnostic of PAD, indicating reduced blood flow to the lower extremities. This measurement can be performed quickly in an outpatient setting, requiring minimal equipment.

The ABI offers a quantitative assessment of arterial perfusion, allowing for early identification of PAD even in asymptomatic individuals. Its utility extends beyond diagnosis; it also serves as a prognostic indicator for cardiovascular events. Patients with a low ABI have a significantly increased risk of myocardial infarction, stroke, and cardiovascular death, independent of traditional risk factors. This makes ABI screening a powerful tool for global risk stratification. Implementing routine ABI screening in at-risk populations, such as those over 65, individuals over 50 with a history of diabetes or smoking, or those with other cardiovascular risk factors, could dramatically improve early detection rates. This proactive approach allows for timely initiation of risk factor modification, antiplatelet therapy, and supervised exercise programs, which are cornerstones of PAD management. For general practitioners, integrating ABI measurement into routine check-ups for these groups is a straightforward step that yields substantial clinical benefit. The Omron M3 Comfort Blood Pressure Monitor can be a valuable asset for accurate blood pressure measurements in both clinic and home settings, supporting ABI calculations.

Still, the ABI is not without its limitations. In patients with diabetes or chronic kidney disease, arterial calcification can lead to falsely elevated ABI values (typically >1.30), masking the presence of PAD. In such cases, alternative diagnostic methods, such as toe-brachial index (TBI) or duplex ultrasound, may be necessary to accurately assess vascular status. Despite these caveats, the ABI remains the most accessible and widely recommended initial screening tool for PAD, providing a critical entry point for further investigation and management. Our previous coverage on leg vein physiology also touches on the importance of understanding vascular health beyond just arterial flow.

Managing PAD: Beyond Detection

Once PAD is detected, management focuses on alleviating symptoms, preventing disease progression, and reducing overall cardiovascular risk. Lifestyle modifications, including smoking cessation, regular exercise, and dietary changes, are fundamental. Smoking cessation is perhaps the single most impactful intervention, as it directly addresses a primary driver of atherosclerosis. Supervised exercise programs have consistently shown to improve walking distance and reduce

claudication symptoms.

Pharmacological interventions include antiplatelet agents, such as aspirin or clopidogrel, to reduce the risk of thrombotic events. Statins are essential for managing dyslipidemia and stabilizing atherosclerotic plaques. For patients with diabetes, strict glycemic control is essential, as elevated blood glucose accelerates disease progression. Hypertension management also plays a vital role in reducing shear stress on arterial walls.

In cases of severe claudication or critical limb ischemia, revascularization procedures, either endovascular (angioplasty, stenting) or surgical (bypass surgery), may be necessary to restore blood flow. The decision to intervene invasively depends on the severity of symptoms, the extent of arterial involvement, and patient comorbidities. Early detection through ABI screening allows for these interventions to be considered before limb-threatening complications develop, preserving limb function and improving patient prognosis. This proactive approach aligns with the principles of early detection in other chronic conditions, where timely intervention significantly impacts long-term outcomes.

The long-term management of PAD requires a multidisciplinary approach, involving primary care physicians, cardiologists, vascular surgeons, and diabetologists. Regular follow-up is necessary to monitor disease progression, assess treatment efficacy, and adjust therapies as needed. Educating patients about their condition and the importance of adherence to treatment plans is also critical for successful outcomes. The ongoing challenge is to ensure that these established management strategies are applied consistently, starting with early and accurate diagnosis.

CLINICAL IMPLICATIONS

The persistent underdiagnosis of peripheral arterial disease in primary care is a missed opportunity for preventing significant morbidity and mortality. Clinicians often wait for overt symptoms, but by then, the disease has frequently progressed to a stage where interventions are more complex and less effective. A simple ABI measurement could identify these patients years earlier, allowing for aggressive risk factor modification and medical therapy that genuinely alters their prognosis.

The argument that ABI screening is too time-consuming or costly does not hold up against the burden of critical limb ischemia, amputations, and major adverse cardiovascular events that could be averted. Integrating this non-invasive test into routine care for at-risk populations is a pragmatic step. It is a small investment for a substantial return in patient health, particularly when considering the systemic nature of atherosclerosis.

For patients, early detection means avoiding the debilitating pain of claudication, the threat of limb loss, and the increased risk of heart attack or stroke. It empowers them to take control of their cardiovascular health before irreversible damage occurs. The onus is on us, as clinicians, to move beyond reactive symptom management and embrace proactive screening for a condition that is both prevalent and treatable.

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REFERENCES

1.

1. Tuttolomondo A, Pecoraro R, Simonetta I, et al. Neurological complications of Anderson-Fabry disease. *Curr Pharm Des.* 2013;19(33):6014-30. doi:10.2174/13816128113199990387
2. 2. Clavelou P, Besson G, Elziere C, et al. [Neurological aspects of Fabry's disease]. *Rev Neurol (Paris).* 2006;162(5):569-80. doi:10.1016/s0035-3787(06)75051-2
3. 3. AlFawaz AA, Safar AH, Al-Mukhaizeem A, Kamal E, Alloush M, Hanbal E. Risk Factors for Wound Infections after Vascular Surgery: Kuwait Experience. *Med Princ Pract.* 2022;31(4):392-398. doi:10.1159/000525158
4. 4. Sultan AA, Karthikeyan S, Grigorian A, et al. Cerebral blood flow in relation to peripheral endothelial function in youth bipolar disorder. *Prog Neuropsychopharmacol Biol Psychiatry.* 2024;135:111087. doi:10.1016/j.pnpbp.2024.111087
5. 5. Mathlouthi A, Zarrintan S, Khan MA, Malas M, Barleben A. Contemporary outcomes of limb-salvage procedures using Vascular Quality Initiative-Medicare-linked data: Racial and ethnic disparities persist. *J Vasc Surg.* 2022;75(6):2013-2018. doi:10.1016/j.jvs.2022.01.120
6. 6. Yoris A, Abrevaya S, Esteves S, et al. Multilevel convergence of interoceptive impairments in hypertension: New evidence of disrupted body-brain interactions. *Hum Brain Mapp.* 2018;39(4):1563-1581. doi:10.1002/hbm.23933

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