

Identifying peripheral arterial disease in primary care practices

Hirsch AT, Criqui MH, Treat-Jacobson D, Regensteiner JG, Creager MA, Olin JW, et al. Peripheral arterial disease detection, awareness, and treatment in primary care. *JAMA* 2001;286(11):1317-24.

Background: The incidence of cardiovascular morbidity and mortality is high among patients with peripheral arterial disease (PAD). The ankle-brachial index (ABI) is a simple, noninvasive and reliable measure that can be used to diagnose PAD in the lower extremities.¹

Questions: Can the ABI be used to detect PAD in primary care settings? Do patients with PAD receive adequate risk-factor identification and management?

Design: This cross-sectional, prospective study had 3 goals:

- to determine the feasibility of using the ABI to detect PAD in primary care practice;
- to describe the treatment of PAD compared with other forms of cardiovascular disease (defined as coronary artery or cerebrovascular disease or abdominal aortic aneurysm); and
- to document physician and patient awareness of the diagnosis of PAD.

Patients from 350 primary care practices in the United States were eligible for the study if they were older than 70 or were between the ages of 50 and 69 and had a history of diabetes mellitus or smoking. Patients completed a standardized questionnaire used to detect symptoms of claudication. Their weight and blood pressure were recorded, and the ABI was measured using a 5-mHz Doppler device to record systolic pressure at the brachial artery and at the dorsalis pedis and posterior tibial arteries. The ABI was calculated by dividing the higher

of the 2 ankle measurements by the brachial measurement. An ABI of 0.90 or less in either leg was considered diagnostic of PAD.

Patients' medical charts were audited for evidence of a prior diagnosis of PAD or cardiovascular disease (CVD), and for modifiable atherosclerotic risk factors (diabetes mellitus, hypertension, smoking, hyperlipidemia). The researchers also determined whether these risk factors were being treated and whether antiplatelet agents had been prescribed.

Results: A total of 6979 patients were screened, and complete data were gathered for 6417 (92%). About half (47%) had a normal ABI (mean 1.09 [standard deviation 0.13]) and no prior history of CVD. Of the remaining 3392 patients, 1527 (45%) had CVD only, 1040 (31%) had CVD and PAD, and 825 (24%) had PAD only. Of the 1865 patients with PAD, the condition had not previously been diagnosed in 823 (44%) of them. The mean ABI in the PAD group was 0.78 (the value was the same in the groups with new or prior PAD). Although patients with a prior diagnosis of PAD were more likely than those with newly diagnosed PAD to be symptomatic, the presence of classic claudication was uncommon in both groups, with fewer than 10% reporting this symptom.

Chart audits revealed that patients with a new diagnosis of PAD but without concomitant CVD were no more likely than those with a normal ABI to be receiving antiplatelet medication. Hypertension and hyperlipidemia, when present, were more likely to be treated in patients with CVD than in those with PAD only. Patients with a prior diagnosis of PAD were more likely than their physicians to be aware of the diagnosis (83% v. 49%, $p < 0.01$).

Commentary: The prevalence of PAD was 29% in this group of high-risk primary care patients. Use of cross-sectional methodology may have led to an overestimate of prevalence, since the study physicians may have been more likely to enrol patients with possible PAD. Nevertheless, in many cases the PAD was newly diagnosed, and physicians were often unaware of the diagnosis in patients with existing PAD. As well, many PAD patients were not taking antiplatelet agents, and their hypertension and hyperlipidemia were not being managed as aggressively as they were in patients with CVD.

Implications for practice: Patients with PAD rarely present with classic claudication symptoms. The ABI is a simple measurement that can be used to establish a diagnosis of PAD. Although most Canadian primary care physicians do not have a Doppler device in their office to measure ABI, many have access to it through local vascular testing centres. Once PAD is detected, atherosclerotic risk factors should be identified and optimally managed in an effort to reduce the high rate of adverse cardiovascular outcomes in this group of patients.

Kathryn Myers

Division of Internal Medicine
Queen's University
Kingston, Ont.

The Clinical Update section is edited by Dr. Donald Farquhar, head of the Division of Internal Medicine, Queen's University, Kingston, Ont. The updates are written by members of the division.

Reference

1. Criqui MH, Denenberg JO, Bird CE, Fronck A, Klauber MR, Langer RD, et al. The correlation between symptoms and non-invasive test results in patients referred for peripheral arterial disease testing. *Vasc Med* 1996;1:65-71.