

TASC II Anatomic Classification for Infrapopliteal Arterial Disease: A Framework for Clinical Practice and Future Research

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Keywords

arteries, critical limb ischemia, drug-eluting stents, endovascular treatment, infrapopliteal disease, peripheral artery disease, revascularization, surgery, tibial disease

Ὁ βίος βραχύς, ἡ δὲ τέχνη μακρὴ, ὁ δὲ καιρὸς ὀξύς, ἡ δὲ πείρα σφαλερὴ, ἡ δὲ κρίσις χαλεπὴ. Life is short, the Art long; opportunity fleeting, experiment treacherous, judgment difficult.

The aphorism of Hippocrates recognizes the challenges that doctors face through their practice of the Art of Medicine.¹ It reflects the diachronic endeavor of practitioners of medicine to effectively treat the illness through the application of knowledge, production of evidence, and utilization of human virtues, such as judgment and astuteness. Constant advances and progress in modern medicine present unprecedented challenges with health decision making and research. The treatment of peripheral arterial disease (PAD) has seen dramatic evolutionary changes over the past decade. Updates of literature, techniques, and practices by expert committees are an essential tool to facilitate and guide clinical practice.

The TASC Steering Committee, consisting of an international expert panel of specialists in vascular surgery, vascular medicine, interventional radiology, and cardiovascular interventions, in cooperation with and with input from national and international scientific societies, provide a constructive update and synopsis of the available evidence related to new interventional treatments for lower limb PAD and describe an anatomic classification of infrapopliteal arterial occlusive disease.² This document aims to complement the previously published guideline,³ in view of the emerging innovations in endovascular revascularization strategies. Both the literature update and anatomic classification tool provide a valuable guide for vascular specialists for the management of chronic lower limb ischemia and constitute a framework for future clinical research in this area. However, they should be viewed within the context of

inherent weaknesses of the existing evidence and the continuing evolution of therapeutic methods and health care services for PAD.

The authors are to be commended for highlighting the crucial role that local facilities and expertise should play in the choice between open surgery and endovascular treatment. Rapid changes in diagnostic methods, endovascular techniques, and vascular services have resulted in a tremendous variation in practice across the world.^{4,5} Such a variation reflects the paucity of solid evidence, uncertainty about optimal management, and varying willingness of vascular specialists to embrace and adopt evolving endovascular technologies. Even though the authors assume that endovascular intervention is being performed more commonly now (“a rapid shift”), such a paradigm shift does not represent the practice. For example, in England, Hospital Episode Statistics data support the contrary: although percutaneous treatment is now more common, the number of operations is growing at a faster rate than the number of angioplasties (Figure 1).

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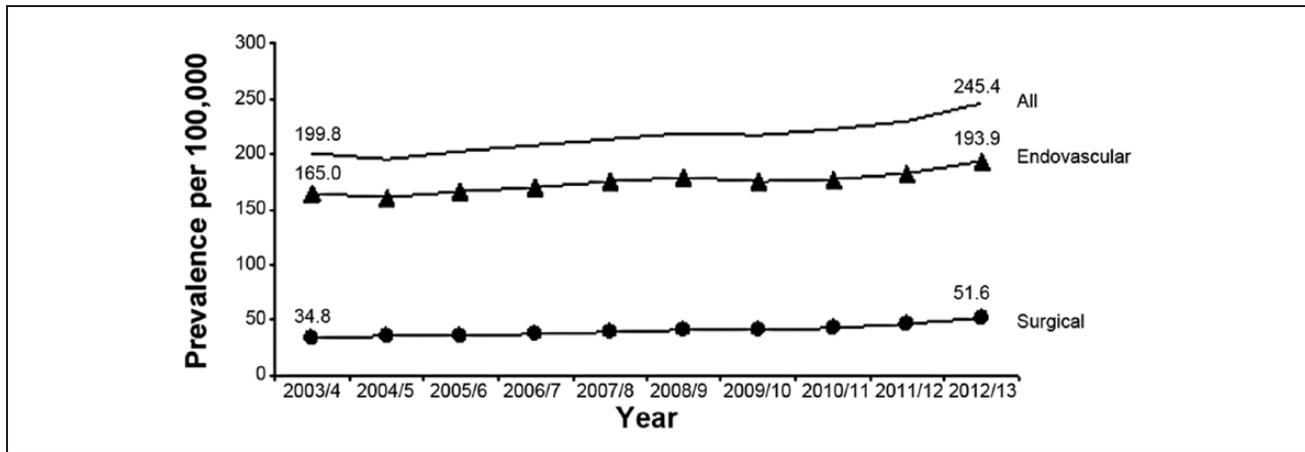


Figure 1. Age-adjusted prevalence of lower limb revascularization procedures in England between 2003 and 2013 in patients aged 50 to 84 years (courtesy of NHS England).

Regional vascular services should be encouraged to record, monitor, and assess their practices through audited processes. Furthermore, of paramount importance is the authors' recommendation to record and benchmark vascular and endovascular procedures in national databases to improve quality of care. Controlled registries at an international level would provide a real picture of modes of treatments undertaken and highlight practice disparities and real-world, pragmatic outcomes to address the intriguing controversy surrounding the optimal management of the patient with chronic lower limb ischemia. The real-world CRITISCH registry is an example of a multicenter, prospective, interdisciplinary, externally monitored registry aiming to assess current practices for critical limb ischemia (CLI) in 27 German centers.⁶

The TASC II classification of tibial disease is very welcome and will help with decision making. However, anatomic classification is only one side of the coin; risk scoring systems and patient comorbid status form the other, with patient expectation being an additional important parameter that needs to be considered. This should represent a holistic approach to management, with multidisciplinary involvement of surgeons, interventionists, physicians, and allied health care professionals being of paramount importance.⁷ CLI teams should be designed to foster interdisciplinary cooperation.

The enthusiasm accompanying new technologies may result in practices being driven by industry rather than overall patient-centered care; the role of a plastic surgeon or a podiatrist in a diabetic foot scenario might be as important as applying drug-eluting technology. The TASC Steering Committee correctly suggest the "patient-limb-lesion" approach to the management of PAD, taking into consideration the overall health of the patient, the desired outcome, and quality of life. Revascularization strategies need to be

tailored to the individual patient comorbidity while at the same time acknowledging health care resources.

Although the anatomic classification for infrapopliteal disease is an important tool for reporting standards and data comparisons in clinical research, the need for patient-oriented rather than procedure-oriented outcomes should be emphasized in studies evaluating new technology in CLI, such as drug-eluting stents, drug-coated balloon, or endovascular brachytherapy. Patency, restenosis, lumen loss, and target lesion revascularization are significant outcome parameters demonstrating the effectiveness of the procedure; it is uncertain, however, whether they can translate into beneficial clinical outcomes. In the context of critical lower limb ischemia, what matters more is wound healing, clinical improvement, amputation-free survival, and quality of life.

The (admittedly qualified) recommendation in favor of drug-eluting stents in tibial disease needs to be viewed cautiously. Although there are 4 randomized clinical trials supporting their superiority over bare metal stents,⁸ these trials enrolled selected patients, for example, those with short, mostly stenotic lesions. They were industry-sponsored, used specific types of stents, and recruited patients with a wide range of disease, including claudication and CLI; only one demonstrated an advantage on a clinical endpoint. The external validity of these trials is, therefore, inadequate, and even though technically they may represent level I evidence, readers should be encouraged to critically view the existing data in this area. The authors rightly call for large pragmatic trials to elucidate the efficacy of drug-eluting technology in a real-world setting.

Last, endovascular and surgical techniques for reconstruction of arterial occlusive disease of the lower limb should be viewed as complementary rather than competitive strategies. Patients most commonly demonstrate a

multilevel pattern of disease, and interventional treatment should be tailored to the needs of the individual patient. Hybrid endovascular and open arterial reconstruction for lower limb ischemia has the advantage of obviating the need for major surgery and expanding the potential therapeutic application of both approaches.⁹

In view of the considerable variability in the management of patients with CLI reflected in widely disparate practice patterns across the world, ongoing pragmatic trials, such as the BASIL-2¹⁰ and BEST-CLI trials,¹¹ are expected to shed light on optimal practices. Until further high-level evidence is available, specialists should be encouraged to critically view pertinent data and apply treatment strategies adjusted to individual patient needs through an interdisciplinary team effort.

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