Leading article

New vascular guidelines for treating acute and chronic limb-threatening ischaemia

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Peripheral artery disease (PAD) affects an estimated 200 million people worldwide, two-thirds of whom live in low–middle-income countries (LMICs)[1]. Two recently published guidelines, the Global Vascular Guidelines (GVG)[2] and European Society for Vascular Surgery (ESVS) guidelines[3], have put the spotlight on chronic limb-threatening ischaemia (CLTI) and acute limb ischaemia (ALI) respectively.

Guidelines should be seen as an opportunity to encourage change. When a vascular service was introduced in Viborg County, Denmark, in the late 1980s, the amputation rate declined by 25 per cent to a national level[4]. Since then, the rates of vascular reconstruction have continued to increase, and amputation rates have declined in Denmark. The association between the number of vascular reconstructions and the amputation rate has now disappeared, and only 40 per cent of patients have a vascular reconstruction before amputation[5]. With fewer than a dozen vascular specialists on the African continent, south of Egypt and north of South Africa, these documents are timely and it is evident that there is room for improvement in both high- and low-income countries.

The GVG focus on the highest-risk patients with PAD, those with CLTI. Several new key concepts have emerged that may influence the way CLTI is managed and reported. The GVG represent a collaboration between three major vascular societies (Society for Vascular Surgery, ESVS and World Federation of Vascular Surgeons), comprising 58 contributors, ten of whom were from LMICs. The ESVS guidelines have provided a timely analysis of the available evidence for the diagnosis and management of ALI. Although the major trials of thrombolysis date back to the early 1990s, modern management of ALI has evolved significantly, and many patients received endovascular therapy as first option. Key evidence statements may well change the delivery of routine care both for patients with CTLI and those with ALI.

The ESVS recommendations outline the features of ALI that lead to early diagnosis, and early management by non-vascular doctors. Once diagnosed, ALI must be treated in hospitals that have vascular specialists and a full range of open and endovascular treatments available around the clock. It is no longer reasonable to perform blind embolectomy without adequate preoperative imaging and quality control on completion of both open and endovascular procedures. This may mean that patients will require urgent transfer to a vascular specialist centre. Both open and endovascular treatments such as thrombolysis appear equally effective in many patients, but have different adverse event profiles. The guidelines aim to help clinicians choose between treatments for individual patients, but are inevitably hampered by a lack of robust data. When and how to revascularize is often determined by local and national cultures, and personal expertise. In Denmark, ALI is treated mainly by open surgery, whereas in Sweden an endovascular approach is favoured[4,6]. Intuitively, a one-technique-suits-all approach seems inferior to having more skills and facilities available. Consequently, the recommendation of expert treatment in centres mastering both open and endovascular techniques is very important and relevant.

Technical improvements in coronary revascularization have made endovascular revascularization technically feasible in most patients. Cardiologists have developed and validated the SYNTAX algorithm to guide decision-making[7]. Now, leading vascular specialists have created a similar syntax for CLTI in the GVG. The GVG recognize that indications and patient outcomes are not related simply to the anatomical distribution of PAD, as suggested previously in the Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC) II guidelines[8]. The problem is much more complex than that. The state of any wounds, the severity of perfusion deficit, fitness of the patient and availability of autogenous vein are critically important to decision-making and outcomes. By creating a new approach, the GVG have realized an opportunity to allow standardization of interventions and comparison of outcomes. The Wound, Ischaemia and foot Infection (WIfI) system[9] enables vascular specialists to classify the severity of

CLTI and is of prognostic value in patients with, or without revascularization. The indication for attempting revascularization is based on the risk to the patient, the severity of limb ischaemia and the complexity of the arterial lesion(s). Average- and high-risk patients are defined according to estimated procedural and 2-year all-cause mortality. These components are then merged in a novel Global Anatomic Staging System (GLASS), which involves defining a preferred target artery path to revascularization and estimation of limb-based patency. This results in three stages of intervention complexity. The optimal revascularization strategy is influenced by the availability of autogenous vein for open bypass. Although this new approach to classifying patients with CLTI is appealing, the underlying methods have not yet been validated. The recommendations for revascularization are based on best available data, pending evidence from ongoing RCTs on the treatment of CLTI across Europe and North America. Vein bypass may be preferred for average-risk patients with advanced limb threat and high-complexity disease, whereas those with less complex anatomy, intermediate-severity limb threat or high patient risk may be better offered endovascular intervention.

This complex algorithm merges all the crucial factors needed for clinical decision-making in CLTI. However, there may have been some key omissions. For example, it seems important to consider whether the proportion of patients who are turned down for attempted limb salvage revascularization procedures can be reduced; a second method of imaging in these patients will identify an additional 15 per cent whose limbs may be salvageable[10].

The GVG also offer other useful guidance, including the use of interdisciplinary teams to deliver modern vascular care to people with CLTI. Unfortunately, there is little guidance on what comprises a minimum workforce, or an infrastructure for safe vascular care. This would have been invaluable to patients, surgeons and healthcare commissioners, particularly in LMICs. Vascular specialists spend a great deal of time debating open or endovascular strategies, using a panoply of techniques and technological adjuncts; however, the sobering reality is that most patients afflicted by ALI and CLTI worldwide have little or no access to revascularization. Universal access to specialist vascular care is the challenge. The new ALI and CLTI guidelines are a clarion call to change clinical practice in these much neglected high-risk patients. Once adopted, they have the potential to influence practice, guide interventions and provide standards for monitoring outcomes globally.

Disclosure

The authors declare no conflict of interest.

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