



## Invited Commentary

## Scoring for the Legs

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Recent expansion of endovascular techniques for the treatment of infrapopliteal artery disease has increased the expectation to realistically provide a safer, easier, quicker and effective therapy for many patients with critical limb ischaemia (CLI). Nevertheless, due to the limited numbers, spread among a variety of different techniques, centres and diseases (extension and severity) and the recent introduction (not allowing to validate durability of the results), these novel approaches have still not proved to substantially improve outcomes and remain under investigation in ongoing studies. Periprocedural risk exposure and predictability of success/failure for the leg with these new approaches in CLI patients remain largely uncertain. Failure rate of distal leg revascularisation techniques relies on several factors (location, extension and severity of artery lesion, run-off status, plantar arch integrity, calcification, diabetes, local status, infection, gangrene, etc.) or, most likely, on a combination of these. A number of scoring systems have been usefully applied to predict outcome after aortic aneurysm or cardiac surgery, while similar methods are lacking in the more challenging field of revascularisation in the legs, with only a few recently conceived.<sup>1</sup> In this issue of EJVES, a Japanese experience from Iida et al. proposed a new anatomical score to predict the 2-year major adverse limb event (MALE), defined as freedom from major amputation or any re-intervention after angioplasty of isolated infrapopliteal lesions in patients with CLI.<sup>2</sup> By using this score system adopted from cardiac experience (SYNTAX angiographic score for coronary vessel)<sup>3</sup> and thereby including only anatomical predictability criteria, the authors were able to individuate limbs with infrapopliteal lesions at high likelihood of unsuccessful endovascular treatment. According to Iida et al. lesion calcification, target vessel diameter <3.0 mm, lesion length >300 mm and no below-the-ankle run-off were positively associated with MALE by multivariate analysis. Over a total of 1057 infrapopliteal angioplasty procedures, freedom from MALE at 2 years rates were 59% in limbs with only one of these adverse risk factors, but only 29% for limbs with three or four adverse predictors.

Even though the authors tested exclusively simple balloon angioplasty and no more sophisticated techniques for infrapopliteal revascularisation, their system score may help identify legs with CLI that can improve less from endovascular therapy and should be

better excluded from useless attempts of invasive intervention and assigned to medical therapy alone. Multiple unsuccessful revascularisation procedures and related recurrent/prolonged readmissions are indeed known risk factors with a major impact in increasing morbidity and decreasing the quality of life in CLI patients.

The score for treatment of infrapopliteal lesions of Iida et al. suggests that selection of a procedure for revascularisation should be based more on anatomic features (i.e., whether the patient satisfies anatomic criteria for endovascular treatment) than on demographic or clinical features. Nevertheless, concerns remain regarding the lack of any patient-related clinical information in the Iida et al. study. Indeed, for the coronary angiographic SYNTAX score (from which the Japanese score was derived), the ultimate goal was to create an angiographic tool to predict prognosis based on disease complexity in coronary vessels, with the primary end point of a composite of major adverse cardiac events (MACEs) including death from cardiac causes and myocardial infarction (MI) in addition to ischaemia-driven target lesion revascularisation (TLR).<sup>3</sup> In the Japanese score, the survival risks were focussed only on the leg (amputation or revascularisation) and not on the patients. Even though mortality risk may directly occur after a coronary intervention (as for the SYNTAX population) rather than after a leg procedure, the co-morbid setting of patients with CLI should raise the question on the suitability of interventional risk exposure that cannot be ignored. CLI patients constitute a 'frail' population with multiple co-morbidities and increased burden of mortality (especially cardiovascular mortality), morbidity and poor functional outcome. The opportunity to apply an invasive treatment (even if minimally invasive), especially if potentially repetitive and partially effective, in patients with advanced CLI is challenging because of the higher procedure-related risk exposure and the uncertain probability to reverse an often enduring advanced disease of the distal leg. Scoring systems to predict success of treatment for leg survival in CLI settings should be aware also of the patient and not only of limbs outcome.

## References

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