

## Letters to the Editor

Concerns on Article: The Impact of Isolated Tibial Disease on Outcomes in the Critical Limb Ischemic Population. *Ann Vasc Surg* 2010;24:349-359

To the Editor:

I read with interest the recent article by Gray et al. published in the April issue of your journal<sup>1</sup> (*Ann Vasc Surg* 2010;24:349-359) on the influence of isolated below-knee peripheral artery disease (PAD) on outcome after endovascular or open surgery in critical limb ischemia (CLI). However, in my opinion, there are some points of concern.

In Gray's article, the seven classes system of Graziani et al.<sup>2</sup> (Table I) was adopted and tested to predict outcomes after revascularization.

In no part of our article was it mentioned that categorization in seven classes was ordered according to the transcutaneous partial pressure of oxygen (TcPO<sub>2</sub>) measurement; on the contrary, a possible correlation with oximetry was found on retrospective evaluation.

Clearly and in no part of our article, was it mentioned that categorization in seven classes could be used as predictors of outcomes just because it was found that:

- a. In diabetics (all patients were diabetics with ischemic foot ulcer) the high risk of limb loss occurs frequently as a consequence of the over imposed infection on the outstanding CLI.<sup>3</sup>
- b. The prognosis is strictly influenced by the quality, timing, and appropriateness of foot care procedures (infection control, debridement, ulcerectomy, abscesses drainage, minor amputations as toe amputation, transmetatarsal, Lisfranc, Syme, etc.) of which no mention can be found in Gray's paper.
- c. CLI represents only one of the parameters that influences the prognosis, and its surrogate parameter (classes) was used for the evaluation of the possible benefits of specific devices or treatment modalities, and for creating homogeneous groups of patients with similar morphologic PAD severity (retrospectively statistically supported by the TcPO<sub>2</sub> values), as was clearly mentioned in our article.
- d. Moreover, TcPO<sub>2</sub> value cannot be considered as a precise predictor of outcome for the same aforementioned reasons in points a and b and because of the possible influence of several factors like room temperature, outstanding edema, etc., which affect its detection.<sup>3</sup>

CLI definition should logically incorporate the evaluation of the collateral circulation efficiency as the most important determinant, in cases where it is inadequate.

Table I. Morphological categorization of below-the-groin arterial lesions in ischemic diabetic foot, in 7 classes of progressive involvement severity

Class 1	Isolated, one vessel tibial or peroneal artery obstruction
Class 2a	Isolated femoral/popliteal artery or two below-knee arteries obstructed but with patency of one of the two tibial arteries
Class 2b	Isolated femoral/popliteal artery or two below-knee tibial arteries obstructed but with patency of the peroneal artery
Class 3	Isolated, one artery occluded and multiple stenosis of tibial/peroneal and/or femoral/popliteal arteries
Class 4	Two arteries occluded and multiple stenosis of tibial/peroneal and/or femoral/popliteal vessels
Class 5	Occlusion of all tibial and peroneal arteries
Class 6	Three arteries occluded and multiple stenosis of tibial/peroneal and/or femoral/popliteal arteries
Class 7	Multiple femoro-popliteal obstructions with no visible below the knee arterial segments

Modified from Ref 2. Obstructions = ¼ significant vessel stenosis (50-99% lumen diameter loss) or occlusion (100% lumen loss).

To predict the outcome by morphology after revascularization is one of the most desirable clinical tools and recently a new index score calculation has been suggested for coronary revascularization,<sup>4</sup> the results of which are still debatable.<sup>5</sup>

Although differently from the myocardium, lower limbs are exposed to the additional risk of overinfection before and after revascularization, probably influencing the amputation rate of Gray's series too.

The inadequacy of a scoring system to express the overall blood supply evaluation in CLI reflects some peculiarities that complicate the task further:

1. There are many cases of severe PAD, particularly in Leriche syndrome, with minimal symptoms (ischemia), as a result of additional collaterals support from thoracic collaterals (mammary and thoracic lateral arteries); similar anatomical support is not available in the run-off districts.
2. In diabetics, severe ischemia can be caused even by mild disease because of their impaired collateral development.<sup>6</sup>