

Transcutaneous oximetry is a useful tool to highlight ischemia in different areas of the foot.

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Introduction: Transcutaneous oximetry (TcPO₂) is a tool currently used to assess foot perfusion. It is included in the TASC criteria to define Critical Limb Ischemia (CLI). Usually it is performed on the dorsum of the forefoot and this point is the only one used for clinical evaluation of peripheral perfusion. The angiosome principle divides the foot into five different angiosomes originating from the three main crural arteries: Anterior Tibial Artery (ATA), Peroneal Artery (PA) and Posterior Tibial Artery (ATP). Some observations suggest that targeted primary angioplasty following the angiosome model could be an effective option to treat lesions in corresponding part of the foot. The aim of our study is to demonstrate that the TcPO₂ performed only on the dorsum of the forefoot could be misleading in the assessment of the effective foot perfusion and therefore it could be useful to evaluate TcPO₂ at least in two points to better define the peripheral perfusion of different areas of the foot. **Materials and Methods:** From our database of 550 CLI diabetic patients currently followed at the Diabetic Foot Unit at the University of Rome Tor Vergata, because a previous PTA, we have selected 191 patients for having an arterial disease localized exclusively below the knee. We have retrospectively analyzed the TcPO₂ values recorded on the dorsal area of the foot and on an area close to the lesion. In addition we have evaluated the pattern of the arterial disease found when the patients have been revascularized. **Results:** Those patients had at the entry a tcPO₂ at the dorsum < 30 mmHg indicating a CLI in 151 cases (78,74%) but in 40 cases (21,26%) tcPO₂ had a value > 30. Those patients had an additional TcPO₂ performed close to the lesion that was localized in all cases at the rearfoot. TcPO₂ at this level was 20.5±5 mmHg significantly lower of the TcPO₂ recorded at the dorsum of the foot that was 49.3±7 (p=0.0179). We have analyzed the pattern of arterial disease (as significant stenosis and or obstructions) in those patients: ATA was involved in 15 subjects (37.5%) and never alone, ATP was involved 20 subjects (50% of the cases) and in 6 cases (15%) as the only involved artery. PA was involved in 20 subjects (50% of the cases) and in 15 (35% of the cases) as the lonely involved artery. **Conclusion:** Our study shows the usefulness to perform TcPO₂ on two points of the foot to analyze the perfusion of different areas and to guide clinician in a proper diagnosis approach and treatment.