

## Deep vein insufficiency, not the method choice, determines the outcome of endovascular treatment in CEAP 6 patients



We have read two interesting reports recently published in *JVS-VLD* by O'Banion et al.<sup>1,2</sup> In the first paper, the authors described a short-term outcome of superficial venous reflux treatment using cyanoacrylate (CA) or radiofrequency (RF) ablation in CEAP 6 patients.<sup>1</sup> The second paper concerned the auxiliary perforator treatment in the same patients in the follow-up period.<sup>2</sup> In both papers, the authors concluded that CA shows superiority over RF in time required to wound healing<sup>1</sup> and requires less perforator interventions.<sup>2</sup>

Although both papers contain valuable observations, in our opinion, they provide the surprising interpretation of attached results.

The authors concluded that CA is better than RF ablation because, in contrast to the latter, it enables the perforator treatment in the primary approach. However, this statement is unfounded, as the authors did not include the calf segment in the primary RF procedure. They explained their decision by intention to avoid nerve injury, although, actually, it is the matter of accurate and careful vein separation from the adjacent nerve by tumescent anesthesia.<sup>3</sup> Moreover, in the follow-up period, the authors used RF to close incompetent perforators, even in the CA group.<sup>2</sup> Interestingly, if patients from the RF group were treated including the calf segment, would they require any auxiliary procedures for their perforators?

The main limitation of both studies is the significant difference in the venous insufficiency severity between the treated groups. It is noteworthy that the insufficiency of the superficial system alone affected 41% patients from the CA group, whereas in the RF-treated patients, it concerned 9% individuals only.<sup>1</sup>

It is obvious that deep vein insufficiency is a much worse condition compared with the sole involvement of the superficial system. Because of higher venous hypertension, those patients reveal the increased risk of ulceration, decreased healing rate, and higher risk of ulcer recurrence.<sup>4</sup> Also, to enable sufficient blood outflow, they require much higher compression compared with others.<sup>5</sup> Thus, to evaluate the impact of particular treatment on wound healing, the assessment of healing rate in each patient before and after the procedure would be required.

In our opinion, the treatment outcome depends mainly on the vein condition and, to a lesser extent, on the method choice. Although the authors identified this issue, unexpectedly, they missed it in final conclusions.

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## Reply



We appreciate Szary et al's interest and letter to the editor regarding our papers comparing outcomes of CEAP 6 patients undergoing cyanoacrylate vs thermal ablative techniques.

It should be noted that there was no conclusion of superiority between devices within either of the papers as Szary et al reported. Rather, we concluded from our review of retrospectively collected data in CEAP 6 patients that those treated with VenaSeal had a shorter time to wound healing compared with radiofrequency ablation (RFA). In addition, VenaSeal treatment was associated with the decreased need for perforator intervention.<sup>1,2</sup> To evaluate overall superiority, a prospective, randomized trial would be necessary. Currently, Spectrum, a global post-market randomized controlled trial, is underway in efforts to answer these important questions.

Thermal saphenous nerve injury is a well-documented risk of RFA. A review of 17 randomized controlled trials reported nerve injury in the distribution of the endothermal treated saphenous vein in 12% of limbs acutely, which improved over time. However, symptoms persisted in 2.6% of patients at 5 years. Notably, in great saphenous vein (GSV) below-knee treated segments, the incidence of persistent symptoms was 7.7% at 5 years, likely due to the proximity of the saphenous nerve to the GSV below the knee.<sup>3</sup> Because of the above significant