

## Applying the correct CHIVA strategy in a randomized, controlled trial



This interesting randomized, controlled trial by González Cañas et al<sup>1</sup> compares the results of three surgical techniques in the treatment of varicose pathology. This study includes ablative techniques, such as stripping and radiofrequency, and, in contrast, the CHIVA hemodynamic technique. This is the first study that compares the CHIVA technique with radiofrequency and, in addition, it is the first study where this hemodynamic strategy resulted in worse results than stripping, as can be seen in the Cochrane review<sup>2</sup> already published.

Because of this outcome, and to interpret these differences in results, we would like to express our concern about some questionable points regarding the CHIVA strategy used. The authors of the study stated that the patients in the CHIVA group were treated following the CHIVA 1 + 2 strategy. This is a strategy that is only used to treat type 3 venous-venous shunts<sup>3,4</sup> performing the interruption of the escape point and the insufficient collaterals in a single surgical time. This strategy does not offer optimal results because it leaves the great saphenous vein without drainage, at risk of thrombosis, and without allowing a stable long-term system.

One publication by Cappelli et al<sup>5</sup> reported that the evolution of the nondrained strategy CHIVA 1 + 2 offers worse results than the drained strategy CHIVA 2 in cases of type 3 venous-venous shunt. This article established a clear limitation of CHIVA 1 + 2 strategy, if not its exclusion, for these cases, with the aim of obtaining the best possible results.

In the series included by the González Cañas et al,<sup>1</sup> patients with this type of venous shunt accounted for 72% of the total CHIVA group. This means that either they have not applied the same strategy in all these cases, or a suboptimal technique has been systematically applied.

In conclusion, we consider that the CHIVA strategy chosen was not the best approach to apply this hemodynamic technique and the results should be interpreted with caution.

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## Reply



We appreciate the interest in our article.

The aim of this study was to demonstrate the efficacy and safety of radiofrequency ablation using a noninferiority study compared with stripping and CHIVA. Both techniques are used in our vascular department for the treatment of great saphenous vein insufficiency.

The CHIVA technique consists of restoring a physiologic drainage by a hemodynamic investigation without any venous ablation. Hemodynamic correction identifies the specific overloaded networks, subsequently suppressing them by targeted ligations that are customized on each specific reflux pattern.<sup>1</sup> This principle was used as a landmark for all our CHIVA procedures.

Some published studies obtained good results with the CHIVA strategy compared with stripping,<sup>2</sup> but few randomized studies have been published to date. The most relevant ones were included in a systematic Cochrane review by Bellmunt et al.<sup>3</sup> This review concluded that CHIVA showed more favorable results than vein stripping for clinical recurrence (relative risk, 0.63; 95% confidence interval, 0.51-0.78).

Bellmunt et al<sup>3</sup> included a study by Parés et al,<sup>4</sup> where no mention is made as to the type of CHIVA strategy used for type 3 shunts. Likewise, Carandina et al<sup>5</sup> use a single strategy for all type 1 shunts, without mentioning the strategy used for type 3 shunts. The study by Iborra et al<sup>6</sup> does not provide any details regarding the procedures used. Zamboni et al<sup>7</sup> mention that, for type 3 shunts, "the procedure may include a second step," which implies that a two-step procedure was used in some of the seven patients included in their study. However, owing to the very limited sample size, we should be cautious in drawing conclusions.

Regarding the limitation of the CHIVA 1+2 strategy established by Cappelli et al,<sup>8</sup> these results should be