Reviewer’s report

Title: Immunohistochemistry comparing Endoscopic Vein Extraction vs. Open Vein Harvesting on Saphenous Vein Endothelium

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Reviewer: Ricardo Corso

Reviewer’s report:

Minor Essential Revisions:

Is the question posed by the authors new and well defined?
Yes. The author questions the vein endothelial preservation comparing two different surgical saphenous vein harvesting techniques using four different well known immunohistochemical staining examination protocols, Endothelial Nitric Oxide (eNOS), endothelial Caveolin (e-Caveolin), von Willebrand factor (vWf), and cadherin, previously published and extensively tested for this purpose.

Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
For the study design some consideration on the method on groups sample size determination should be more detailed. Previous publications related to the same objective considered much larger populations to conclude similar results. The numbers of patients in each studied group are distributed in almost 2:1 rate, in spite of no statistical differences in population analyses. The author should comment whether this difference could have affected the results in any way.

As a prospective cohort study the method to choose each surgical technique is not clear whether it was randomized or not along the data collecting period. The criteria to apply one of the two surgical methods in each group should be better specified.

In the Material and Methods the description of the surgical technique in the third paragraph “the ligation of the side branches is done with 7-0 prolene sutures”. I was curious to know whether this is the real routine stitch option of the author surgical team for the total side branches ligation after harvesting the vein or is used only in case of vessel basal disruption or localized leakage sites on the vein graft.

The process of saline/blood graft pressurization with any kind of solution is known as an additional reason for endothelial lesion of the vein. It is not clear whether the three vein samples separated for immunohistochemical examinations are collected from the saphenous vein of each patient before or after the graft final preparation, what could have influenced and altered the final results whether the author uses any solution injection on vein preparation. I suggest the inclusion of a comment whether the author uses classical pressurization or any “minimal touch” technique in the final graft preparation and
in what moment the vein specimen are separated and sent for HTC examinations.

Are the data sound and well controlled?
In the results the patient group populations were considered comparable according to the statistical analyses, but in the data table results number 2 the incidence of diabetics is significantly larger in the EVH group compared to the OVH group, \( p=0.007 \). This information should be added to the patient’s group characteristics paragraph even if it has not influenced the final results any way.

Are the discussion and conclusions well balanced and adequately supported by the data?
The different patient group population sizes and not randomization inclusion criteria should be considered as limitations in the conclusions of the possible equivalence of endothelial preservation of the two different compared techniques obtained in this study.

Figure 1 depicts the EVH surgical technique with the use of a device, which is different to the Vasoview Hemopro 2 cited in the Material and Methods text. I suggest to use a photo with the device used in all the EVH group as described by the author to avoid misunderstanding of future readers, which are not familiar to this procedures and different device options existent in the market.

Do the title and abstract accurately convey what has been found?
In the title the word “Extraction” used for the endoscopic technique suggests the use of a vein extractor like in lower limb varicosectomy. I suggest avoid using this term as a synonym to the word “harvesting” which means care vessel collection with minimal tissue trauma.

I suggest the inclusion of a abbreviations list in the beginning of the article or description at the first citation of each abbreviation as for many terms used along the text, which lack meaning explanation, ex: HTN, CVA, RCT, FBS, PBS, and some others.

Minor issues not for publication:
First comma, first paragraph of the Abstract, there is extra space after (vWf).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests