A novel composite coronary bypass graft strategy using the saphenous vein bridge: could the venous valves induce worse patency results?

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We have read carefully and with great interest the pilot study by Tremblay et al. [1]. In this study, a novel composite bypass grafting (CABG) is shown using a direct anastomosis of the left internal mammary artery (LIMA) to a saphenous vein component placed as a bridge from the left anterior descending artery (LAD) to other anterolateral coronary arteries. First of all, we would like to congratulate the authors on the way the study was presented. It showed a simple technique as well as a didactic method.

In the past 20 years, we have been dedicated to the study of CABG without extracorporeal circulation and without manipulation of the aorta. From the beginning, we have preferred composite grafts of the LIMA and of the great saphenous vein (GSV) without valves, particularly when bypassing the left coronary artery system.

We have published the reasons that led us to use valveless segments of the GSV in the composition of the graft [2]. Regarding the study by Tremblay, we have considered the venous segments that were used. As the arterial circulatory system is pressured, competitive, and potentially bidirectional since it is valve free, it has been thought that the venous grafts placed in the arterial circulation should obey this anatomical physiological principle. In our experience with the GSV, these segments without valves are found without technical difficulties, especially the little ones used to graft the diagonal artery and the ramus diagonalis.

We support the belief of some authors that a venous segment containing a valve when used to bypass an artery with an overestimated stenotic lesion is more likely to occlude. That happens because the physiologically competitive flow in the grafted site could lead to stasis of blood, and subsequent thrombosis, especially at rest, and possibly precociously [3]. Based on what was said above and analyzing the results presented by the authors, we see that the patency of the vein graft to the LAD was 100%, while the patency of the vein graft to the diagonal artery was 85%, being exactly the venous segment potentially having a valve. On the other hand, it has been reported that the sites of valves are primary locations of development of atheromatous plaques [4, 5].

We have attentively read the trial protocol by Drouin et al. published to expand this study [6]. Nevertheless, we suggest an analysis of the results of venous segments without valves in a group of patients, if possible, as we believe this could enrich the study.

We would like to remark that the matter of the pilot study is of great importance in our field, and that this innovative and reproducible technique could represent a great improvement in the quality of life of those suffering from coronary disease, especially the elderly, the ones with anatomical complexity and those with severe disease.

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REFERENCES


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Reply to Lobo Filho et al.

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Reply to Lobo Filho et al.

We would like to thank professor Lobo Filho et al. [1] for the interest in our manuscript [2] presenting an alternative to conventional coronary artery bypass grafting (CABG) involving a composite-sequential graft to bypass the anterolateral coronary artery territory. Current practice guidelines strongly recommend using the left internal mammary artery (LIMA) to bypass the left anterior descending artery (LAD). The use of composite grafts allows reducing the need for aortic manipulations and associated stroke risk while still providing complete revascularization. In this context, we developed a new strategy using the LIMA for blood inflow and a saphenous vein bridge (SVG) (LIMA-SVB) to distribute the LIMA blood almost directly to the LAD but also to other anterolateral coronary targets such as diagonals, ramus inter-medius or high first obtuse marginal branches. In this technique, a short saphenous vein graft (SVG) is anastomosed to the LAD and the other anterolateral coronary arteries, and the LIMA is connected to the roof of the SVG just above the SVG-LAD anastomosis. This simple strategy is useful in several patients as it is associated with numerous advantages: easy-going off-pump CABG, limiting the length of the SVG required, ease of performing a direct SVG anastomosis to the LAD, increased blood flow in the LIMA pedicle, and favourable clinical and radiological outcomes [2]. As mentioned by Lobo Filho et al. [3], we also believe that the use of an SVG in combination with the LIMA could improve the long-term patency of the SVG.

As suggested [3, 4], we believe that the use of a valveless SVG may improve the patency of the conduit. Since the instauration of the LIMA-SVG technique