



EDITORIAL COMMENT

Saphenous vein graft failure and secondary revascularization. Should we go back to native arteries?

Falla de injerto venoso safeno y revascularización secundaria. ¿Debemos regresar a las arterias nativas?

Received in October 22, 2009; accepted in October 26, 2009.

The growing population with saphenous vein graft (SVG) failure after successful coronary bypass surgery has become an important medical problem. It is estimated that 39% of all SVG are occluded after 10 years.¹ Reoperation is technically demanding and it's associated with high mortality and morbidity rates. Notwithstanding many technical improvements, managing these patients remains a challenge. There are no clear criteria to which could be a better option: a new bypass surgery or percutaneous coronary intervention (PCI). Even more, the confusion increases when the interventionalist has to decide whether to treat the native coronary artery or the SVG itself.

In this issue of the Archivos de Cardiología de México, Eid-Lidt et al revisited the question. In their case-control cohort of 127 subjects, around 60% were treated by PCI to the native arteries and 40% by PCI to the SVG. They showed a statistically significant 30 days MACE (Major Adverse Cardiac Event)-free survival difference from 2.5% to 10.2% favoring the group in which native arteries were treated instead of SVG. This MACE free-difference became a trend at 3 years follow-up. It was mainly driven by acute PCI results that showed a greater risk of no-reflow phenomenon (10.2% vs. 1.2%, $p=0.021$), associated to a thrombus higher prevalence of (46.9% vs. 5.1%, $p=0.0001$) and a low frequency of embolic protection device usage (8.1%), which led into a better TIMI (Thrombolysis in Myocardial Infarction risk score)-3 flow in favor of native artery PCI (96.1% vs. 85.7%, $p=0.03$).

Surprisingly, information comparing these two strategies is sparse. Meliga et al compared SVG vs. native artery chronic total occlusion PCI in 24 patients, distributed in two groups; they found no difference in 3 years MACE-free survival.² I found no other studies comparing both

strategies. It's suggested that treating occluded SVG could be as safe and effective as treating chronically occluded native arteries in this group of selected patients. Meliga's study differs from Eid-Lidt's in scope; the former focused on occluded arteries, while the latter had no TIMI-0 flow on baseline angiogram. Most communications in this regard evaluated only subjects managed by one of this two strategies, but didn't include any comparison among them, which becomes an important strength of Eid-Lidt's paper.

No-reflow continues to be a serious problem in SVG intervention. In this study, no-reflow occurred in 10.1% of SVG patients, and only 1.2% of native arteries therapy. No-reflow is associated with a death odds ratio ranging from 1.9 to 10.7.³ Therefore, this problem, once developed, should be prevented and treated promptly; possibly the best prevention strategy is to avoid lesions in large vessels, with important atheromatous and thrombus burden, since these are involved in the different mechanisms associated to no-reflow, like distal embolism and microvascular injury. This underscores the importance of appropriate embolic protection by filters, distal occlusion plus aspiration, or proximal occlusion, all of which have proved to be useful in SVG intervention, deriving in a class I A recommendation by current practice guidelines.⁴ Other approaches include PTFE, bovine pericardial graft⁵ and, recently, a fine mesh covered stent⁶ for thrombus and large atheromas isolation, as well as a wider use of IIb/IIIa inhibitors to prevent microembolization.

Chronic total occlusions are observed one third of coronary angiograms, remaining as one of the last frontiers in PCI. Recent developments in guidewires and techniques influence results, with a reported recanalisation rate of

almost 90%, with less than 5% complications (including death),⁷ which compare favorably to those for a second surgery.

In summary, when the interventionalist faces the phantom of a repeated revascularization in a patient with a previous coronary bypass surgery, the appropriate analysis for the best percutaneous strategy should balance risks and benefits and include observation for blunt stumps, aorto-ostial lesions, and long segment and calcified chronic total occlusions; this features are associated with a worse outcome and, on the other hand, a worse general SVG condition. We should anticipate possible no-reflow phenomenon and have ready every implement to treat it, such as OTW balloons, nitrates, verapamil, adenosine and IABP. When deciding to treat the graft, instead of the native artery, protection devices should be used. It is the responsibility of the interventionalist to become familiar and proficient in the use of devices and techniques for successful chronic total occlusion treatment. After this analysis and facing the results, one should ask: Should we go back to the native arteries?

References

1. Goldman S, Zadina K, Moritz T, et al. Long-term patency of saphenous vein and left internal mammary artery grafts after coronary artery bypass surgery: results from a Department of Veterans Affairs Cooperative Study. *J Am Coll Cardiol* 2004; 44:2149-2156.
2. Meliga E, García GH, Kukreja N, et al. Chronic total occlusion treatment in post-CABG patients: saphenous vein graft versus native vessel recanalisation-long-term follow-up in the drug-eluting stent era. *Catheter Cardiovasc Interv* 2007;70:21-25.
3. Niccoli G, Burzotta F, Galiuto L, et al. Myocardial no-reflow in humans. *J Am Coll Cardiol* 2009; 54:281-292.
4. Silber S, Albertsson P, Aviles FF, et al. Guidelines for percutaneous coronary interventions. The Task Force for Percutaneous Coronary Interventions of the European Society of Cardiology. *Eur Heart J* 2005; 26:804-847.
5. Colombo A, Almagor Y, Gaspar J, et al. The pericardium covered stent (PCS). *Euro Intervention* 2009; 5:394-399.
6. Dimopoulos AK, Manginas A, Pavlides G, et al. PCI in severely degenerated saphenous vein graft using a novel mesh-covered stent together with a conventional embolic protection system. *Hellenic J Cardiol* 2009;50:429-435.
7. Rathore S, Matsuo H, Terashima M, et al. Procedural and in-hospital outcomes after percutaneous coronary intervention for chronic total occlusions of coronary arteries 2002 to 2008: impact of novel guidewire techniques. *JACC Cardiovasc Interv* 2009; 2:489-497.

José Ramón Azpiri-López

Department of Clinical Cardiology and Endovascular Therapy, Hospital Christus Muguerza Alta Especialidad Hidalgo No. 2525 Pte. Monterrey, N.L., 64060, México. Tel: 52 (81) 8348 7333.
E mail: drazpiri@yahoo.com