EDITORIAL

Bilateral internal thoracic artery grafts in left main coronary artery disease

Doble puente mamario en la revascularización de tronco de coronaria izquierda

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"Our surgical technique should be adapted to the patient and not the patient to our technique"

Bilateral internal mammary artery (BIMA) grafting remains as a niche, rather than a routine. Observational studies have demonstrated the benefits of BIMA, however randomized trial did not corroborate these advantages (1). For the BIMA enthusiasts, the Arterial Revascularization Trial (ART) was a huge disappointment (2). Will ROMA trial change the history?

Dr. Navia and colleagues compare whether CABG without extracorporeal circulation using both mammary arteries has an additional benefit to conventional revascularization using only one mammary (SIMA) in terms of long-term survival for left main coronary artery disease. This is a risk adjusted retrospective observational study (n = 723), in which SIMA was used in 144 patients and BIMA in 579. Survival at 10 years was significantly higher in unadjusted group of patients with BIMA compared to SIMA surgical strategy (79.0% ± 3.4% vs 67.0% ± 4.9%, respectively, p log-rank <0.01). This benefit was also seen in the risk-adjusted analysis (93.0% ± 4.6 vs 69.0% ± 5.7 respectively, p = 0.03). The use of BIMA was an independent predictor of 10-year survival (HR 0.57, IC 95%: 0.37-0.87; p = 0.01).

The authors at the Cardiovascular Institute of Buenos Aires should be congratulated on their continuous efforts to use BIMA off-pump bypass strategy for majority for their patients needing CABG surgery. It is not necessary to emphasize that this factor is a crucial element in order to obtain an excellent clinical result. However, the additional better outcomes in any surgical approach depend strictly to the patient's selection. In the present study, the usual risk factors for CABG surgery which negatively affect the long-term outcomes are less frequent among BIMA patients compared to the general CABG patient's population. Only 15% of patients were female, 25.2% were diabetic, 2,8% had COPD, 18,7% had low ejection fraction (EF, <45%), and 5,6% had kidney failure. The mean body mass index among BIMA patients was approximately 27. Another aspect to take in consideration is that from 3,757 patients, only 20% fulfilled with inclusion criteria and from this 20%, 80% were treated with BIMA technique, and the remaining 20% with SIMA technique. So, it is very clear that there was a high selection process. Therefore, BIMA strategy is an excellent choice in well selected low risk patients who have a very high life expectancy. In our hospital, at Quebec Heart and Lung Institute, Mohammadi et al. demonstrated that the use of a second internal Mammary artery does not prolong late survival in patients with low EF undergoing CABG, despite a similar operative mortality between matched BIMA and SIMA groups (n = 2, 1.8% vs n = 1, 0.9%, respectively, P = 0.6) (3). Farkash et al. also shown that there were not short or long-term benefit derived by the use of BIMA grafting for myocardial revascularization in patients with low LVEF (4). In adittion, Mohammadi et al. found that insulin-dependent diabetes mellitus, chronic renal failure, peripheral vascular disease, and low ejection fraction were all independent risk factors for late cardiac death (all P<0.0001) among patients undergoing CABG (5). These factors are significantly higher among SIMA patients and despite all statistical adjustment methods play an important negative role on the long-term survival.

Finally, we should mention the RAPCO trials (Radial Artery Patency and Clinical Outcomes) where the long-term patency of the radial artery (RA), the right internal mammary artery (RIMA) and the saphenous vein (SV) were analyzed as a second conduit. The estimated 10-year patency and late survival rate were significantly higher among RA compared to the free RITA and the SV grafts (6). It seems that RA could be potentially an excellent arterial graft option in patient at higher risk of sternal wound complications.

In conclusion, there is little doubt that with multiple artery revascularization, we provide one of the best surgical quality in terms of conduits. However, to claim

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that conduit is the only important prognostic factor is to deny the incredibly nuanced complexity of contemporary coronary surgery, which depends on many different factors including degree of coronary stenosis, size and quality of target vessel and distal run-off and not only on the type of conduits used. Thus, it would be judicious to analyze on a case-by-case basis for the sake of better early and late clinical outcomes. Patients' comorbidities, coronary arteries quality, age, sex, weight should be taking in consideration at the moment of selecting our CABG graft strategy.

We would like to encourage and congratulate Dr. Navia and his team for the tireless effort in the myocardial revascularization surgery improvement.

Conflict of interest

None declared.

(See authors' conflict of interests forms on the web/Additional material.)

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