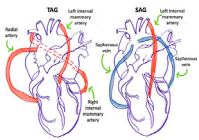


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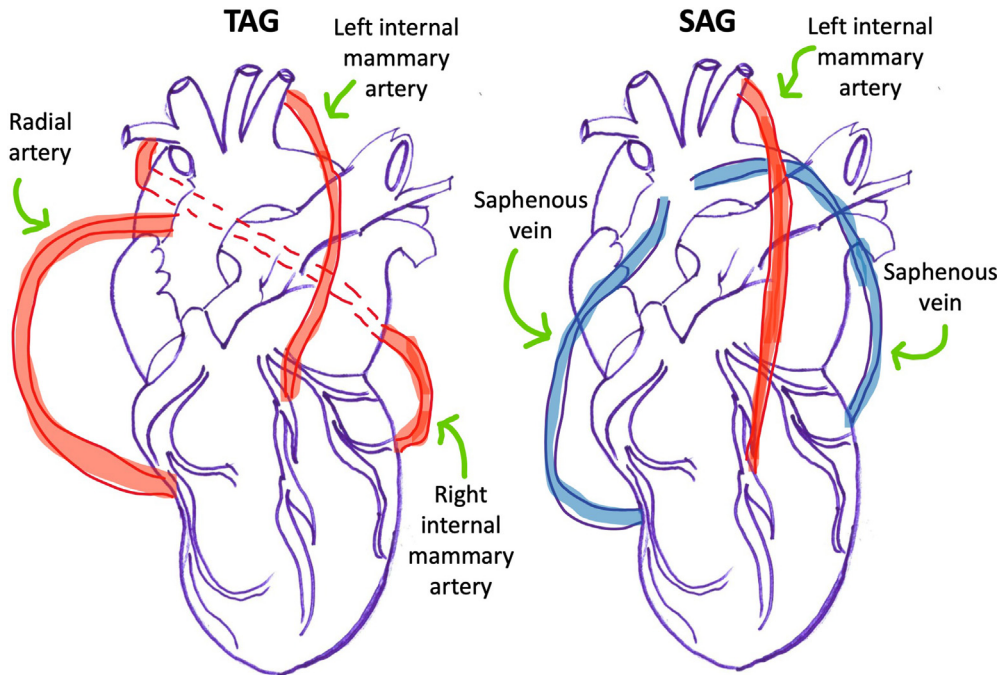


**MULTIPLE AND TOTAL ARTERIAL GRAFTS ARE NOT A MIRAGE ANYMORE!**

**To the Editor:**

The use of single arterial graft (SAG) is the most used technique for coronary artery bypass grafting (CABG), although a body of literature reports an increasing use of multiple (MAG) and total arterial graft (TAG).<sup>1,2</sup> Unfortunately, the use of MAG/TAG is still underused, being reported between 10% and 35% in Europe and North America.<sup>3</sup> Factors such as higher consuming time, greater prone to spasm, and technical harvesting lead surgeons to

prefer SAG to MAG/TAG (Figure 1). In addition, the latest guidelines encourage percutaneous coronary intervention in 3-vessel coronary artery disease patients with limited coronary calcification and favor the use of CABG in patients with extensive coronary calcifications. Conduit selection is another determining factor. Alboom and colleagues<sup>4</sup> covered this topic by analyzing patient data from the multicenter Cardiovascular Outcomes for People Using Anticoagulation Strategies (COMPASS) CABG substudy. The operations were performed in 22 countries and 88 centers. A total of 1068 patients received 3480 grafts and underwent graft patency evaluation with computed tomography angiography at 1 year after surgery. Among 3480 grafts, there were 1068 left internal mammary artery grafts, 2239 saphenous vein (SV) grafts, 91 radial artery (RA) grafts, and 82 right internal mammary artery (RIMA) grafts. Unexpectedly, the RIMA grafts had the highest overall rate of graft failure (26.8%) whereas the rate of SV and RA graft failure was comparable (10.4% and 9.9%, respectively). This study provides many messages that are as interesting as misleading: (1) the choice of MAG/TAG would not be desirable because of the higher failure rate of RIMA graft; (2) the applicability of sequential anastomoses and



**FIGURE 1.** Different surgical techniques for coronary artery bypass grafting. *Left*, TAG technique; *right*, SAG technique. *Red lines* represent arterial grafts; *blue lines* represent saphenous vein grafts. TAG, Total arterial graft; SAG, single arterial graft.

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composite Y-graft configuration would adversely affect the arterial conduit patency; and (3) the use of skeletonized mammary artery would increase the incidence of graft failure. In the study a high number of left internal mammary artery and SV grafts were compared with a very low number of RA and RIMA grafts. In other words, it is likely that bilateral internal mammary arteries (BIMAs) were used in 7% of patients whereas TAG might have been used in an even lower percentage. However, the results of this study are nonconsistent with recent studies. In a recent trial a 3-year satisfactory angiographic result in BIMA Y-graft configuration and longer benefit (up to 7 years) of BIMA Y-graft compared with in situ RIMA was reported.<sup>5</sup> Results from Arterial Revascularization Trial showed a better long-term outcome in MAG/TAG patients compared with SAG patients and the rate of late mortality was significantly decreasing when TAG revascularization was applied.<sup>6</sup> The previously mentioned trials were conducted on hundreds of MAG/TAG patients. Even the use of the RA in addition to BIMA is associated with a better long-term survival compared with BIMA and SV grafting.<sup>7</sup> Moreover, the effect of skeletonized artery of patency is to be related to surgeon-related factors rather than to the intrinsic biology of skeletonized artery.<sup>8</sup>

We believe that emphasis should be placed on increasing use of MAG/TAG, especially in patients with a long life expectancy. This does not mean that SAG should be abandoned; the message to be given is not to insist on harvesting long segments of poor SV because the great benefit of MAG/TAG is not a mirage anymore.

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