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Commentary: Right gastroepiploic artery: An overlooked contender for second arterial conduit

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The debate over the second-best arterial conduit during coronary artery bypass surgery (CABG) remains unsettled. The right internal thoracic artery (RITA), radial artery (RA), and right gastroepiploic artery (RGEA) are options to complement the left internal thoracic artery (LITA) for multiple arterial grafting. There are unique disadvantages to each of the aforementioned second arterial conduits. The use of a second internal thoracic artery is associated with increased risk of sternal wound infection (particularly if non-skeletonized),¹ whereas there are concerns about early vasospasm with RA use.² Although the RA and LITA can be harvested simultaneously, the RITA and RGEA cannot. The abdomen needs to be entered for the RGEA. Finally, concerns exist regarding early vasospasm and greater prevalence of atherosclerotic lesions with RGEA compared with the other arterial conduits.³

In this issue of the *Journal*, Kim and colleagues⁴ compared the outcomes of RGEA (n = 389) versus RITA (n = 159) as the second arterial conduit during total arterial revascularization CABG. In the majority of cases, these conduits were the second limb of an “Y” composite graft rather than the more common in situ configuration, with the first limb being the in situ LITA–left anterior descending. The authors performed propensity-score

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Right internal thoracic artery, radial artery, and right gastroepiploic artery (RGEA) are options of second arterial grafts. Kim et al reported excellent outcomes with the largely overlooked RGEA.

matching to adjust for differences in baseline characteristics and formed 152 well-matched pairs. The average number of distal anastomoses per patient was greater in the matched RGEA group (3.1 ± 0.8 vs 2.9 ± 0.7 , $P = .03$), driven by a greater number of distal anastomoses performed using the second-limb conduit (RGEA vs RITA, 2.0 ± 0.8 vs 1.7 ± 0.6 , $P \leq .01$). With a remarkable long-term median follow-up of 12 years, there were no differences in survival (52.9% vs 49.4% , $P = .47$), cardiac mortality-free survival (92.1% vs 90.9% , $P = .56$), freedom from target vessel revascularization (83.0% vs 91.4% , $P = .23$), freedom from reintervention (68.8% vs 76.2% , $P = .73$), and freedom from major adverse cardiac and cerebrovascular events (56.4% vs 64.6% , $P = .36$) up to 15 years.

This study results must be interpreted in the context of some limitations. First, the RGEA group had more anastomosis. One of the advantages of a skeletonized RGEA is the length of its conduits, making it easier to revascularize the obtuse marginal and posterior descending artery in a sequential fashion, coming off as the second limb of the “Y.” Nonetheless, the greater number of distal anastomoses (despite adjusting for baseline extent of coronary disease) may have biased the study’s long-term results, as the RGEA group would then have a more complete revascularization. Furthermore, patients from the RGEA group were under a very rigid postoperative medical management, using dual antiplatelet therapy for 2 months, and calcium channel blocker and oral nitrates for 1 year, to avoid

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vasospasm, with high degree of adherence to medical therapy. Perhaps the results would not be as encouraging as observed had the secondary prevention regimen not being so aggressive or if the adherence to therapy was suboptimal. Finally, these results are unlikely generalizable to other centers, where RGEA is not frequently employed as an arterial conduit, since the center of Kim and colleagues had extensive experience with RGEA artery use as a conduit.

The only randomized controlled trial comparing RGEA graft patency with other conduits demonstrated a nonsignificant trend toward an increased risk of functional and complete graft occlusion when compared with the RITA, RA, or saphenous venous graft (SVG).⁵ The Society of Thoracic Surgeons Clinical Practice Guidelines on Arterial Conduits for CABG recommends the use of RGEA in patients with poor conduit options or as an adjunct to more complete arterial revascularization (Class IIb).⁶ As such, the RGEA has not been as popular as the RITA or RA as a second arterial conduit throughout the world. Based on this study results, surgeons may consider the use of RGEA as an arterial conduit if a total arterial revascularization is being desired, particularly in cases of porcelain aorta, with increased risk of sternal complications, if positive Allen test, after transradial access coronary angiography making the RA not usable, or if no SVG is available. Also, this is probably only appropriate by a surgeon who is very skilled in arterial revascularization. Besides arterial grafts, the surgeon may also consider using “no-touch” SVG, as it is the current practice in the center of Kim and colleagues, after their outstanding results in the SAVE RITA (Saphenous Vein

Versus Right Internal Thoracic Artery as a Y-Composite Graft) trial.⁷ Importantly, if RGEA is considered, preoperative computed tomography angiography should be performed to screen for atherosclerotic disease in the conduit, as reported in this current study. Overall, Kim and colleagues should be congratulated for one more of their center’s great contributions to the CABG field. The chase for the second-best arterial conduit still goes on, with the largely forgotten RGEA remaining a candidate.

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