Right internal thoracic artery or saphenous vein grafting? Insanity: Doing the same thing over and over again and expecting different results

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The choice of grafts for coronary artery bypass grafting is still debated. Many surgeons believe that using multiarterial grafting (MAG) to bypass the left coronary system provides survival benefit to the patient,¹ whereas others argue that as long as bilateral internal thoracic arteries (ITAs) or radial arteries are appropriately used, the survival increases regardless of which coronaries are grafted.²

In their current study, Benedetto and colleagues³ conducted a retrospective analysis of 15,119 patients who underwent isolated primary coronary artery bypass grafting between 1996 and 2015. They stratified 7223 eligible patients into those receiving right ITA (RITA; n = 245, 3.4%) versus those treated with saphenous vein grafting (n = 6978, 96.6%) to the right coronary artery (RCA). The main finding of this study is that in matched patients, RITA to RCA grafting was associated with increased late survival (~>9 years) compared with saphenous vein grafting to RCA. Furthermore, the small group of RITA to RCA grafting was stratified again to assess survival differences between free (n = 47) and in situ (n = 198) RITA subgroups.³

Certain caveats must be considered. First, so few patients received RITA to RCA over 20 years that one could argue that no form of statistical analysis could adjust for and match those groups. Second, most of the matched patients (>90%) underwent operation in the early years of the study period (1996-2004). Finally, it is obvious that the analysis for free versus in situ RITA to RCA grafting was underpowered to obtain meaningful findings.³

However, the authors should be commended for this study because the *weakness* becomes its *strength*. The authors acknowledge that RITA to RCA grafting never gained popularity in their center. They previously reported results on the same cohort in a matched comparison between the RITA and the radial artery for the second-best arterial conduit.⁴ They concluded that in low-risk patients, the use of the RITA as a second arterial conduit instead of the radial artery improved survival when used to graft the left but not

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Central Message

As expected, RITA grafting to the RCA is associated with improved late survival compared with saphenous vein grafting, and the beneficial impact on survival appears at approximately 9 years.

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the right coronary system. With this background, the authors performed this second investigation for another dilemma surgeons encounter daily: Is there any benefit in grafting the RCA with the RITA or should we keep doing the same thing over and over again? With the conduction of detailed statistical analysis, they provide a clear answer.

Of note, all ITAs in this cohort were harvested in a pedicled fashion. This must be acknowledged when considering the outcomes of single versus bilateral ITA, because the technique of harvest affects many aspects of ITA use, including graft length, site of anastomosis, and stretching of the ITAs; all of these can influence graft patency and patient survival.⁵ The routine use of a skeletonized technique may substantially ameliorate those and other concerns.⁶

In this era of competitive surgical and percutaneous treatment options for myocardial revascularization,⁷ and with the estimation that an 80% rate of MAG has the potential to prevent more than 10,000 deaths annually,⁸ MAG should become a subspecialty in cardiac surgery⁹ and the standard in surgical revascularization.

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