See Article page 1548.

Commentary: MAGA: Multiple arterial grafting agony

Matthew C. Henn, MD, and
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How do you teach an old dog new tricks? Build trust, recognize and respect the canine's limits, keep training sessions short, and never underestimate the power of positive reinforcement. Gaudino and colleagues¹ eloquently and comprehensively provide support for the routine use of the radial artery (RA) conduit as well as the bilateral internal mammary arteries for multiple arterial grafting (MAG) in coronary artery bypass grafting (CABG). However, they also point out the disappointingly low use of MAG over the past several decades in the United States, and provide some compelling speculation as to why that is the case. The authors are extremely experienced in the use of RA conduit, making them uniquely positioned to gain the trust of the old dogs in the cardiac surgery profession.

The hard truth is that we as a profession have not adopted routine use of the RA conduit. In fact, the RA conduit is used in <6% of primary isolated CABG procedures, as reported from the Society of Thoracic Surgeons database.² Many factors contribute to the lack of RA utilization, but lack of evidence should not be one of them. While multiple observational and comparative studies have shown excellent results with RA conduit use,³⁻⁷ perhaps the most convincing data have come from the Radial Artery Database International Alliance (RADIAL) investigator group.^{8,9}

The RADIAL project is an individual patient data meta-analysis that included >1000 patients from 6 randomized clinical trials that compared the use of RA conduits vs saphenous vein conduits as the second conduit

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CENTRAL MESSAGE

Multiple arterial grafting (MAG) is superior to single arterial grafting, and use of the radial artery is easily learned but is underutilized. Establishing MAG as the standard of care is needed.

for CABG with a minimum of 2 years of follow-up. The 5-year⁹ and 10-year⁸ results demonstrated superior patency of the RA vs the saphenous vein at 5 years (91.9% vs 80.1%; $P < .001$) and improved clinical outcomes with reduced death, myocardial infarction, or repeat revascularization in patients with RA grafting at 5 years (12.5% vs 18.7%; $P = .01$) and 10 years (hazard ratio, 0.73; 95% confidence interval, 0.61-0.88).^{8,9}

One of the primary limitations is a lack of confidence in the technique, likely resulting from a lack of training and familiarity for the surgeon and the team. However, the technique of RA harvest and use as a conduit are easily learned and adopted with a committed surgical team. Gaudino et al¹⁰ composed an excellent primer on the technical aspects of RA conduit use that covers preoperative planning, surgical strategy, technical details, and postoperative management.¹⁰

With mounting evidence on the benefits of RA use, it is time to provide even greater incentive for its use. Such an incentive may just be the type of positive reinforcement that would produce wider RA use in surgical practice. All cardiac surgeons performing CABG should learn the technique and be familiar with use of the RA conduit, and if they are not going to use it, to have a reason why. Our task as cardiac surgeons is to establish MAG as the standard of care if we believe it to be so; then policy can be pursued to realize that goal. We can better proclaim the value of MAG to our cardiology colleagues and enlist their support. We need to recognize that contemporary surgical coronary

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revascularization covers such a breadth and depth of techniques that it is becoming a subspecialty within cardiac surgery, and consider establishing CABG fellowships. Those performing MAG need to impart the philosophy to trainees and practice partners not already facile with MAG.

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See Article page 1548.

Commentary: All we like iSheep: Reflections of an early adopter

Fraser D. Rubens, MD

In this manuscript, Gaudino, Kurlansky, and Fremes¹ have presented a convincing claim that the use of the radial artery as a second arterial conduit in coronary artery bypass grafting has failed to penetrate daily practice despite overpowering evidence of its clinical value on long-term outcomes. There are few investigators better positioned to collate these data, as they have contributed the most important articles on this topic. However, the reader is left with the nagging reservation that they have answered the “what,” but they have not addressed the “why.” We are no further ahead on

What are the factors that inhibit uptake of low-risk modifications to CABG?

CENTRAL MESSAGE

Penetration of radial artery use in CABG remains low. This is probably already indisputable. The time has come to figure out why we cannot change this practice pattern.

understanding why there is such a resistance to use the radial artery in the United States (this is not an issue for the rest of the world), despite the overwhelming strength of supportive data.

The essay touches base on the potential rationale of fear of increased complications; however, these arguments relate to the use of a second internal thoracic artery. Catastrophic vascular compromise of the hand after radial artery

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