I

in the course of a recent reoperative median sternotomy for aortic valve replacement in a patient who had a previous quadruple coronary artery bypass graft surgery, an injury to one of the previously placed vein grafts occurred. We needed to repair this injury with an interposition vein graft. The physician assistant (PA) assigned to the case was asked to harvest a short section of the greater saphenous vein. Because of the urgency of the situation, an open vein harvest (OVH) was thought to be the quickest way. The PA looked at me speechless with a great deal of apprehension. She stated that she had never seen an OVH, let alone done one before. An OVH was performed with the help of another PA.

The Northern New England Cardio Vascular Disease Study Group registries are one of the most credible registries to stay. OVH may not be dead and buried, but it is certainly moving in that direction.

The Case Against EVH

Vein Graft Patency

The inferiority of EVH was reported by Lopes and colleagues1 in the New England Journal of Medicine about a year ago. This was an ad hoc analysis of a randomized study looking at local vein treatment. Graft failure rates were significantly higher in the EVH group 12 to 18 months after surgery. At 3 years, the composite end point of death, myocardial infarction, or repeat revascularization was 20.2% for EVH versus 17.4% for OVH (P<0.001). This study was conducted at 107 centers in the early days of EVH. (Since that time, the devices have been modified at least 5 times.) At least 20% were performed off pump, and the use of the left internal mammary artery was much lower than expected. All these factors were not adjusted for. The evolution of EVH devices, operator experience, and administration of anticoagulation before harvesting the veins undoubtedly would yield different results if the same study were repeated today. The 2 other publications from the same cohort of patients2,3 underscore the inferiority of vein graft patency in coronary artery bypass graft surgery, which has been known for decades. It is a fact that graft failure rates depend on the quality of the conduit and the target vessels. It is noteworthy that many of the revascularization interventions were angiographically driven rather than clinically directed. This means that in the real world, many of these interventions would not be done and the major adverse cardiac outcomes would be fewer than reported in these studies. It is most interesting that many of the surgeons who were authors of that study2 have not changed their practice regarding EVH (T. Bruce Ferguson Jr., MD, personal communication, 2010).

Financial Consideration

It is evident that EVH is considerably more expensive than OVH by many hundreds of dollars. It is a complex issue in this era of healthcare constraints to justify this increased expense. However, the reduction in pain, leg wound infections, and hospital stay may put both techniques at financial parity.

The Case for EVH

Vein Graft Patency

In their excellent and well-referenced Discussion, the authors succinctly summarize all the publications looking at this
issue. Apart from the Lopes et al study mentioned previously, all other publications on the subject show that, at a minimum, EVH is not inferior to OVH with regard to graft patency, clinical outcomes, or histological changes.

**Leg Wound–Associated Morbidity**

Leg wound infections after OVH are common and can lead to serious complications. Of all the endoscopic and/or minimally invasive procedures in cardiac surgery, EVH seems to be the one that has had the most impact in significantly reducing wound-related morbidity. This has been extensively analyzed and reported. Compared with OVH, the endoscopic technique eliminates the need for a long incision, reduces pain, and most important, eliminates serious wound infections. Consequently, the length of hospital stay is reduced and the need for multiple hospital readmissions is eliminated. Nowhere are these improvements more apparent than in patients at risk for serious complications such as the obese, diabetics, and patients with peripheral arterial disease. Needless to say, patient satisfaction is real and measurable.

**Operator Experience**

The new generation of PAs are skilled in the use of EVH. In fact, as mentioned earlier, they are not trained in OVH, resulting in a natural selection bias in favor of EVH. This is analogous to cell phones and land-based lines. You keep your land-based phone at home because you grew up with it and cannot emotionally give it up in case someone who does not have your cell phone number might call. In contrast, the newer generation can happily survive without ever using a home phone.

In summary, the study by Dacey and colleagues is an important landmark comparing EVH and OVH with equivalent outcomes. It is highly likely that this may be the last study of its kind comparing the 2 techniques because EVH seems to be the technique of choice in many centers. We always strive to do what is best for our patients, and we believe that EVH is high on the patient satisfaction list. In addition to other factors favoring EVH, we believe that OVH will be obsolete in a few years.

**Disclosures**

None.

**References**


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Demise of Open Vein Harvesting
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