Once more with emphasis: Two internal thoracic artery grafts are even better than one!

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In this issue of the *Journal*, Medalion and associates¹ in Tel Aviv describe their experience with coronary artery bypass grafting (CABG) in older patients. Their report supports the aggressive use of arterial grafts, in particular bilateral internal thoracic artery (ITA) grafts, whenever feasible, regardless of the age of the patient. Medalion and associates¹ point out early in this article that evidence for the benefit of the left ITA graft to the left anterior coronary artery was demonstrated more than 30 years ago and validated often since then.^{2,3} Confirmation of the similar benefit of using both thoracic arteries when grafting patients with multivessel coronary artery disease (CAD) has been presented, published, and promoted for many years as well.⁴⁻⁶ CABG surgeon experts from around the world have championed the use of bilateral ITA grafts whenever feasible, primarily because of the demonstrable improvement in late patency of ITA relative to saphenous vein grafts.⁷

Despite all this compelling evidence favoring arterial grafts, in particular the improved outcomes in patients receiving bilateral ITA grafts, many surgeons have resisted using the right ITA as a second arterial graft in patients with multivessel CAD. The good news for patients with CAD today who require CABG is that virtually all coronary surgeons worldwide will place the left ITA graft to an obstructed left anterior descending coronary artery. The bad news is that despite all the evidence supporting the use of the right ITA as a graft primarily to the circumflex coronary artery distribution, there are still relatively few patients, especially in the United States, who receive bilateral ITA grafts despite favorable anatomy for this conduit configuration.^{8,9} How can this neglect of the right ITA graft be explained?

There have been specific concerns raised through the years about the safety of bilateral ITA grafts, and these have provided “plausible deniability” for surgeons who have resisted using the right ITA as a graft. An early concern was that bilateral ITA grafting increased the occurrence of sternal healing failure or sternal wound infections.¹⁰ Improvements in harvesting techniques and the avoidance

Despite this evidence in 1999, utilization of BITA grafts remains low.

Central Message

Two internal thoracic artery grafts are the best grafting option for patients with multivessel disease, regardless of age. Bilateral internal thoracic artery grafts are both safe and effective.

See Article page 607.

of right ITA harvest in a very few select patients, primarily those with severe obstructive lung disease, have led to minimal a priori contraindications for bilateral ITA use. Even patients with diabetes have been shown to tolerate bilateral ITA harvest when this is accomplished with limited chest wall tissue trauma.¹¹ How to configure the right ITA within the mediastinum, the best choice of target coronary artery, and other clinical and technical questions have been evaluated and discussed widely and frequently by cardiac surgeons throughout the world.

Although there are few remaining “good excuses” for not implanting bilateral ITA grafts in most patients with multivessel CAD, the “patient is too old to benefit from bilateral ITAs” argument continues to provide some surgeons with a rationale for failing to use a right ITA graft. Refuting this last-ditch excuse for underutilization of bilateral ITA grafts in older patients is the primary message to be taken from this impressive series by Medalion and associates.¹

Because the superiority of an ITA graft relative to a saphenous vein graft includes better early as well as late graft patency, it never has made sense to deny older patients arterial grafts on the basis that they might not survive long enough to benefit from the second arterial graft. In this report of CABG surgery performed during the past 2 decades in over 1000 patients aged 70 years and older, the rate of bilateral ITA use was a commendable 56%.¹ Although a few centers have reported an even higher percentage of bilateral ITA graft use, this experience from Israel, in which more than half of older patients undergoing CABG received bilateral

ITA grafts, demonstrates excellent patient care because the use of both ITA arteries represents the best grafting option available. Equally notable in this report, and not surprising, are the excellent short and long-term outcomes of the patients who had bilateral ITA grafts.¹ Although case selection undoubtedly accounts for some differences in outcomes among patient groups and favors the patients receiving bilateral grafts in this series, these excellent results confirm both safety and efficacy in these older patients.

Despite the Medalion and associates' use of propensity matching,¹ always a challenge when relying on diverse and archived patient records, the jury is still out regarding the superiority of radial artery grafting across the board relative to saphenous vein grafts in the older population. What is clear from this report, as accurately stated by Medalion and associates,¹ is that the use of bilateral ITA grafts in older patients is both safe and efficacious. Acknowledging that surgeons have many individual clinical considerations for optimal graft selection when evaluating patients for CABG, there are few remaining excuses for failing to use bilateral ITA grafts whenever feasible and appropriate. The time has come for all CABG surgeons, including those in North America where there has been a low percentage of bilateral ITA graft utilization, to take whatever extra operative time is required to provide patients with multivessel CAD with bilateral ITA grafts whenever clinically appropriate.

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