

Oops, I injured the internal thoracic artery! Never mind?



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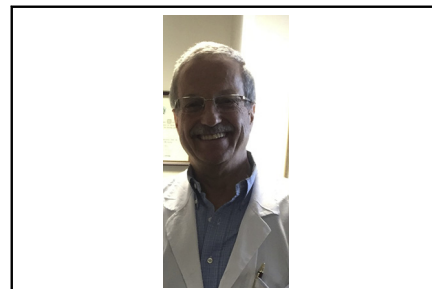
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Central Message

Conversion from bilateral to single internal thoracic artery grafting might not be innocent. Patients are exposed to the incremental risk of mortality and morbidity with no added benefit.

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Cardiac surgeons worldwide are still reluctant to adopt the bilateral internal thoracic artery (BITA) grafting, preferring the combination of a single internal mammary artery (SITA) with use of either the radial artery or saphenous vein grafts. At present, the rate of BITA grafting strategy use is approximately only 4%.¹

There are several reasons underlying this phenomenon. One reason is inconclusive evidence. Short-term outcomes after both grafting strategies are similar. The advantage of BITA relative to SITA becomes apparent after a decade, and mostly in younger patients.² The data documenting the long-term survival advantage of BITA rely on retrospective analyses of large registries or sophisticated meta-analyses.³ In fact, the differences in survival between the grafting strategies may be narrowing as a result of improved long-term patency of saphenous vein graft secondary to widespread use of aspirin and statins and other secondary prevention measures, as well as wiser use of the radial artery.²⁻⁴ A second reason is that BITA grafting is technically more demanding. A third reason is that BITA grafting is time-consuming because of its technical challenge and because the 2 conduits are harvested sequentially by a single surgeon, whereas simultaneous conduit harvesting can be performed with SITA. A fourth reason is that BITA grafting is associated with increased risk of sternal wound complications.³ A fifth reason is a lack of financial reimbursement for a technically more demanding and longer procedure. Finally, cardiac surgeons' report cards currently focus on 30-day outcomes. The surgeon gets quality credit points for SITA to the left anterior descending coronary artery grafting only. The 10-year interval to treatment equipoise when the benefit of BITA relative to SITA justifies the added risk is an important component of the surgeon's choice of grafting strategy.⁵ In light of these considerations, in the era of public reporting of surgeons' performance, it is almost natural for cardiac surgeons to switch to a mode of risk aversion and avoid the longer, technically more demanding, and possibly more hazardous BITA grafting.

The study published by Benedetto and colleagues⁶ in the current issue of the *Journal* investigated the incidence and impact of intraoperative conversion from BITA to SITA grafting strategy in the Arterial Revascularization Trial. The conversion rate was substantial (15.3%), with a large variability among the 28 participating centers and surgeons. The most common cause for conversion was injury to the internal thoracic artery during harvest. At 5 years, conversion from BITA to SITA was not associated with increased mortality or major cardiac and cerebrovascular events.

At first glance, this observation should encourage more surgeons to adopt BITA grafting as their primary approach. The findings in this study should be interpreted with caution, however, because of 3 limitations. First, in a large proportion of cases (37.8%), the decision to convert was based on the surgeon's assessment of the coronary targets, perceived high risk for sternal complications, and time constraint. These factors underscore the importance of surgeon's experience and commitment and introduce the risk of bias. Second, although the conversion rate was substantial, the overall adverse events rate was low. Third, a 5-year follow-up is relatively short, particularly given the fact that the hinge point for saphenous vein graft failure is at 10 postoperative years. The study thus may be underpowered to detect differences in clinical outcomes between the 2 groups. A close look at the progressively diverging Kaplan-Meier survival and major cardiac and cerebrovascular events curves strongly suggests that with longer follow-up, intraoperative conversion from BITA to SITA is not

such an innocent event. In fact, it may be associated with a significant increase in mortality and major cardiac and cerebrovascular events.

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