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Commentary: Sternal wound complications and internal mammary harvesting technique: An unresolved debate

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Sternal wound complications (SWCs) following coronary artery bypass grafting (CABG) are a dreaded complication. Risk factors include diabetes, obesity, female sex, older age, preoperative hemodynamic instability, and renal failure requiring dialysis.^{1,2} Despite the known short-term implications of deep sternal wound infections (DSWI),³ the long-term impact is largely unknown and not well elucidated in the literature. For instance, in two 10-year follow-up studies of 36,078 and 3760 patients respectively, DSWI following CABG was significantly associated with long-term mortality.^{2,4} Conversely, in a propensity analysis of 7978 patients, DSWIs post-CABG were not significantly associated with worse long-term survival,⁵ leaving the cardiac surgical community at a crossroads in the context of single versus multiarterial revascularization.

We read with great interest the post hoc analysis of the randomized arterial revascularization trial by Gaudino and colleagues,⁶ which examined whether an association between SWCs and 10-year mortality following CABG exists. Patients were stratified according to presence or absence of postoperative SWCs. Of the 3102 patients included with a median follow-up time of 10 years, the incidence of SWC was 3.7% (115 patients), including 74% of patients with

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CENTRAL MESSAGE

While the occurrence of sternal wound complications has been shown to be associated with long-term mortality, further data from randomized trials are warranted to establish clinical equipoise.

DSWI. The independent predictors of SWCs were the presence of diabetes, female sex, history of stroke, and history of bilateral internal thoracic artery (ITA) grafting. Interestingly, the use of skeletonization was not associated with the occurrence of SWC in the multivariable regression model. However, the occurrence of SWC was independently associated with long-term mortality.

The findings of this post-hoc analysis should be interpreted with caution, given the limitations inherent to its design: it can neither conform to the population nor the randomization model to reliably draw statistical inferences. Furthermore, data on harvesting technique were available in only approximately two-thirds of patients. Finally, additional confounders such as surgeon experience and the impact of patient crossover influence the interpretability of the study findings. However, this study provides some food for thought and adds to the growing discussion regarding the optimal ITA-harvesting technique (pedicled vs skeletonized) within the larger debate regarding single versus multiarterial grafting. The skeletonization approach has been shown to reduce the risk of sternal complications, especially in patients at risk of DSWI.^{7,8} One recent study using the Society of Thoracic Surgeons' Database further demonstrated comparable operative mortality between bilateral and single ITA but did show a 2-fold risk of DSWI with bilateral ITA harvesting. To further complicate this debate, a recent post hoc analysis of the COMPASS (Cardiovascular Outcomes for People Using Anticoagulation Strategies) randomized clinical trial showed

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that the skeletonized technique was associated with a greater rate of graft occlusion and worse clinical outcomes than the pedicled technique.⁹ Considering all of this, the bottom line is that there is an urgent need for more randomized trials to assess the safety and patency of the skeletonized approach in the context of multiarterial total revascularization. Hopefully, the results of the ongoing ROMA (Randomized comparison of the Outcome of single vs Multiple Arterial grafts) trial will shed some light to this unresolved debate.¹⁰

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