Title: Early Versus Delayed Redo-Sternotomy: Does Timing Affect Outcomes?

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Objective:

The perioperative risk of redo-sternotomy for patients who need repeat coronary artery bypass grafting (CABG) and valve surgery is not well established regarding the optimal timing for reoperation.

Methods:

Patients undergoing redo-sternotomy for CABG and valve surgery were identified from the TriNetX database and categorized into three cohorts based on the interval from their initial sternotomy: <1 year, 1–5 years, and >5 years. Patients who underwent emergent washout for bleeding control were excluded. Two independent propensity score–matched (PSM) analyses compared <1 year vs. 1–5 years and 1–5 years vs >5 years. PSM was performed based on demographics, comorbidities, prior cardiac procedures, medications, and laboratory parameters. Primary outcomes included all-cause mortality, MACE, and emergency department or hospital readmissions. Secondary outcomes included postoperative infection, atrial fibrillation, AKI, dialysis, cardiogenic shock, respiratory failure, and cerebrovascular events.

Results:
After PSM in the <1 year vs 1–5 years analysis (N=305 in each group), redo-sternotomy within 1 year showed no significant differences in mortality (14.4% vs 10.8%; p=0.18), MACE (33.8% vs 36.4%; p=0.50) or readmissions (56.1% vs 53.4%; p=0.52). Combined cerebrovascular events were significantly reduced in the <1 year group (16.6% vs 21.6%; p=0.01).

In the 1–5 years vs >5 years analysis (N=439 in each group), outcomes were similar between groups, with no significant differences in mortality (9.8% vs 8.7%; p=0.56), MACE (29.8% vs 28.3%; p=0.60), or readmissions (55.1% vs 51.0%; p=0.22). Atrial fibrillation was significantly higher in the 1-5 years group (46.0% vs 54.4%; p=0.01). All other secondary outcomes, including combined cerebrovascular events, were comparable.

Conclusion:
Redo-sternotomy within <1 year not associated with increased rate of adverse events compared to later intervals when adjusted for baseline characteristics.