

Endoscopic versus open vein-graft harvesting in coronary-artery bypass surgery

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Background: Vein-graft harvesting with the use of endoscopy (endoscopic harvesting) is a technique that is widely used to reduce postoperative wound complications after coronary-artery bypass grafting (CABG), but the long-term effects on the rate of vein-graft failure and on clinical outcomes are unknown.

Methods: We studied the outcomes in patients who underwent endoscopic harvesting (1753 patients) as compared with those who underwent graft harvesting under direct vision, termed open harvesting (1247 patients), in a secondary analysis of 3000 patients undergoing CABG. The method of graft harvesting was determined by the surgeon. Vein-graft failure was defined as stenosis of at least 75% of the diameter of the graft on angiography 12 to 18 months after surgery (data were available in an angiographic subgroup of 1817 patients and 4290 grafts). Clinical outcomes included death, myocardial infarction, and repeat revascularization. Generalized estimating equations were used to adjust for baseline covariates associated with vein-graft failure and to account for the potential correlation between

grafts within a patient. Cox proportional-hazards modeling was used to assess long-term clinical outcomes.

Results: The baseline characteristics were similar between patients who underwent endoscopic harvesting and those who underwent open harvesting. Patients who underwent endoscopic harvesting had higher rates of vein-graft failure at 12 to 18 months than patients who underwent open harvesting (46.7% versus 38.0%, $P < 0.001$). At 3 years, endoscopic harvesting was also associated with higher rates of death, myocardial infarction, or repeat revascularization (20.2% versus 17.4%; adjusted hazard ratio, 1.22; 95% confidence interval [CI], 1.01 to 1.47; $P = 0.04$), death or myocardial infarction (9.3% versus 7.6%; adjusted hazard ratio, 1.38; 95% CI, 1.07 to 1.77; $P = 0.01$), and death (7.4% versus 5.8%; adjusted hazard ratio, 1.52; 95% CI, 1.13 to 2.04; $P = 0.005$).

Conclusion: Endoscopic vein-graft harvesting is independently associated with vein-graft failure and adverse clinical outcomes. Randomized clinical trials are needed to further evaluate the safety and effectiveness of this harvesting technique.