

Clampless Off-Pump Versus Conventional Coronary Artery Revascularization

A Propensity Score Analysis of 788 Patients

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Abstract

Background—This study aimed to assess if clampless off-pump coronary artery bypass grafting (CABG) decreases risk-adjusted mortality, stroke rate, and morbidity in unselected patients in comparison to conventional CABG.

Methods and Results—Between July 2009 and November 2010, data of 1282 consecutive patients undergoing isolated

CABG were prospectively recorded. In 30.8% (n_395), clampless off-pump revascularization was used, either with the

PAS-Port automated central venous anastomosis system (n_310) or as total arterial revascularization without central anastomoses (n_85). Propensity score (PS) matching was performed based on 15 preoperative risk variables to correct

for selection bias. In-hospital mortality and stroke rate as primary end point, as well as major complications and follow-up outcome of clampless off-pump (lessOPCAB) and conventional CABG (cCABG) were compared in 394 matched patient pairs (total: 788 patients). The clampless off-pump technique decreased the in-hospital rate of death (odds ratio, 0.25; 95% confidence interval, 0.05–1.18, $P_{0.080}$) and stroke (odds ratio, 0.36; 95% confidence interval,

0.13–0.99, $P_{0.048}$) significantly. Complications such as low cardiac output syndrome, prolonged ventilation and rethoracotomy were also reduced by lessOPCAB. Over a 2-year follow-up period overall survival, cerebrovascular and

major adverse event rate were significantly lower in the lessOPCAB group, while the repeat revascularization rate was comparable.

Conclusions—In a retrospective PS-matched analysis, clampless off-pump CABG lowers mortality, stroke rate and other

morbidity in an unselected group of patients with coronary artery disease. (*Circulation*. 2012;126[suppl 1]:S176–S182.)

Key Words: coronary artery bypass grafting _ off-pump surgery _ clampless _ aortic manipulation _ anastomotic device