

## Meta-analysis of short-term and mid-term outcomes following off-pump coronary artery bypass grafting.

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#### Abstract

**BACKGROUND:** Uncertainty continues to surround the relative benefits and harms of conventional coronary artery bypass grafting (CABG) and off-pump coronary artery bypass grafting (OPCABG). Possible reasons are that high-quality studies have not comprehensively examined relevant patient outcomes and have enrolled a limited range of patients. Some studies may have been too small to detect clinically important differences in patient outcomes. The present study addresses these issues using meta-analysis.

**METHODS:** We comprehensively retrieved randomized and nonrandomized controlled studies according to predetermined criteria. We performed meta-analyses for each outcome and empirically determined whether potential biases that might result from differences in study design or patient characteristics actually biased a study's results. We also conducted sensitivity analyses and tested for publication bias.

**RESULTS:** Rates of perioperative myocardial infarction, stroke, reoperation for bleeding, renal failure, and mortality were lower after OPCABG than after CABG. Reductions in length of hospital stay, atrial fibrillation, and wound infection were also associated with OPCABG, but statistically significant differences among study results for these outcomes could not be explained by available information. Midterm (3 to 25 months) angina recurrence did not appear to differ between treatments; a trend was noticed toward lower reintervention rates with CABG, and a trend toward lower overall mortality with OPCABG, at least when performed at experienced centers. These midterm outcome results require confirmation.

**CONCLUSIONS:** Off-pump coronary artery bypass grafting appears to reduce length of hospital stay, operative morbidity, and operative mortality relative to on-pump CABG. More studies are required before firm conclusions can be drawn concerning the effect of OPCABG on midterm mortality, angina recurrence, and repeat intervention.