

CLINICAL TRIALS

Off-pump coronary artery bypass graft surgery reduces postoperative AKI risk

New research has demonstrated that use of the off-pump coronary artery bypass graft (CABG) technique in cardiac surgery reduces the occurrence of postoperative acute kidney injury (AKI) compared with on-pump CABG surgery. However, no difference in renal function at 1 year was apparent between the two techniques.

Postoperative AKI following cardiac surgery can occur in up to 30% of patients. To investigate the potential contribution of the cardiac intervention, 2,932 patients were enrolled in a kidney function substudy of the CORONARY trial that compared on-pump and off-pump CABG. In the off-pump group, AKI was detected by increased serum creatinine in 17.5% of patients versus 20.8% of patients in the on-pump group ($P=0.01$). Off-pump CABG surgery has shown reduced postoperative AKI risk in various smaller clinical trials, and CORONARY—the largest trial to date in this area—supports these findings.

However, no significant differences in estimated glomerular filtration rate were detected between trial groups (off-pump group 17.1%, on-pump group 15.3%) at 1 year, even in patients with pre-existing renal disease. This finding suggests that, although AKI predicts reduced kidney function 1 year later in observational studies, an intervention that reduces mild AKI does not necessarily preserve longer-term kidney function.

The authors concluded that there is no significant difference between off-pump or on-pump CABG surgery in terms of long-term kidney function, and that significant differences in kidney function at >1 year are unlikely given the findings at 1 year.

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Original article Garg, A. X., *et al.* Kidney function after off-pump or on-pump coronary artery bypass graft surgery: a randomized clinical trial. *JAMA* doi:10.1001/jama.2014.4952