

Post-op kidney risk reduced in 'off-pump' patients

June 4 2014, by Paul Mayne

(Medical Xpress)—Among patients undergoing coronary artery bypass graft (CABG) surgery, those who were not put on a heart-lung machine (off-pump) had a reduced risk of postoperative kidney injury compared to patients who were (on-pump), although there was no evidence of better preserved kidney function by one year after surgery, according to a Western-led study published in the June 4 issue of the *Journal of the American Medical Association*.

Led by Schulich School of Medicine & Dentistry professor Dr. Amit X. Garg, the study is being released early online to coincide with the European Renal Association-European Dialysis and Transplant Association Congress.

Schulich colleague Dr. Richard Novick was also among the paper's co-authors.

Up to 30 percent of [patients](#) develop mild or moderate acute kidney injury after cardiac surgery. The effects of mild or moderate acute kidney injury on long-term kidney [function](#) are not clear, and it has not been proven in any trial that an intervention that reduces the risk of acute kidney injury better preserves longer-term kidney function, according to background information in the study.

The international team of researchers conducted a substudy of the Coronary Artery Bypass Grafting Surgery Off- or On-pump Revascularization Study (CORONARY), which enrolled patients

undergoing CABG surgery and who were randomized to receive the off-pump or on-pump procedure. The substudy included 2,932 patients (from 63 sites in 16 countries).

The researchers found less acute kidney injury with off-pump (17.5 per cent) versus on-pump (20.8 per cent) CABG surgery within 30 days. In a subgroup analysis, the absolute risk reduction of acute kidney injury with off-pump versus on-pump CABG surgery was greater in those with chronic kidney disease compared with those without chronic kidney disease.

There was no significant difference between the 2 groups in the loss of kidney function at one year (off-pump, 17.1 per cent; on-pump, 15.3 per cent).

"The findings emphasize proof is needed to claim an intervention that reduces the [risk](#) of mild acute kidney injury better preserves long-term [kidney function](#) for the group that received it," the authors wrote. "This has implications for the development, testing, and use of interventions designed solely to prevent the degrees of acute kidney injury observed in CORONARY, and in determining acceptable adverse effects and costs of such interventions."

More information: Garg AX, Devereaux PJ, Yusuf S, et al. "Kidney Function After Off-Pump or On-Pump Coronary Artery Bypass Graft Surgery: A Randomized Clinical Trial." *JAMA*. 2014;311(21):2191-2198. [DOI: 10.1001/jama.2014.4952](https://doi.org/10.1001/jama.2014.4952).

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