Kidney injury common following vascular surgery

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Both acute kidney injury and chronic kidney disease were common in patients undergoing major vascular surgical procedures and were associated with an increase in long-term cardiovascular-specific death compared with patients with no kidney disease, according to a study published online by *JAMA Surgery*.

Azra Bihorac, M.D., M.S., of the University of Florida, Gainesville, and colleagues examined the association between acute kidney injury (AKI), chronic kidney disease (CKD) and long-term cardiovascular-specific mortality among patients who underwent inpatient vascular surgery between January 2000 and November 2010 at a tertiary care teaching hospital. Final follow-up was completed July 2014 to assess survival through January 2014.

Among the 3,646 patients undergoing vascular surgery, perioperative (around the time of surgery) AKI occurred in 1,801 (49 percent) and CKD was present in 496 (14 percent). The top 2 causes among the 1,577 deaths in this group were cardiovascular disease (54 percent) and cancer (11 percent). Adjusted cardiovascular mortality estimates at 10 years were 17 percent for patients with no kidney disease; 31 percent for patients with AKI without CKD; 30 percent for patients with CKD without AKI; and 41 percent for patients with AKI and CKD.

"These findings reinforce the importance of preoperative CKD risk stratification through the application of consensus staging criteria for CKD using estimated glomerular filtration rate [a measure of kidney

function] and albuminuria [the presence of excessive protein in the urine] for all patients undergoing major vascular surgery. Preoperative and postoperative risk stratification for AKI using clinical scores and urinary biomarkers similarly can help to direct the implementation of simple and inexpensive preventive strategies in the perioperative period that could prevent or mitigate further decline in kidney function," the authors write.

"The appropriate transition of patients undergoing surgery to follow-up in the outpatient setting with an emphasis on the prevention of kidney disease progression and mitigation of cardiovascular risk can be an important factor in improving the care of the patient undergoing vascular surgery who has AKI and/or CKD. Our findings present compelling evidence that such efforts are warranted and justifiable."

"The results of the study by Huber and colleagues should prompt a call to action in terms of earlier diagnosis, treatment, and prevention of postoperative AKI," write Christian de Virgilio, M.D., and Dennis Yong Kim, M.D., of the Harbor-UCLA Medical Center, Torrance, Calif.

"Novel biomarkers may furnish physicians with a narrow window to reverse or altogether avoid the development of AKI. Goal-directed intraoperative measures to maximize renal perfusion and the early use of renal replacement therapy may also have a role in prevention and treatment, respectively. Perhaps even more exciting is the application of preoperative therapeutic interventions such as remote ischemic preconditioning, which in a recent trial was associated with a significantly reduced rate of AKI following cardiac surgery. Regardless of the strategies used, it is readily apparent that it is time to start paying closer attention to postoperative AKI."

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