

## **Association of commonly used medications with prevalence and renal recovery after postoperative Acute Kidney Injury**

Shahab Bozorgmehri, MD, MPH, CPH<sup>1</sup>, Meghan Brennan, MS<sup>2</sup>, Tezcan Ozrazgat Baslanti, PhD<sup>2</sup>, Charles E. Hobson, MD, MHA<sup>3</sup>, Azra Bihorac, MD, MS, FASN<sup>2</sup>

<sup>1</sup> Department of Epidemiology, University of Florida, <sup>2</sup> Department of Anesthesiology, University of Florida <sup>3</sup> Department of Surgery, University of Florida

**Background:** Acute kidney injury (AKI) is a common clinical condition in postoperative patients associated with a significantly increased risk of morbidity and mortality. Although certain drugs have been associated with the onset of AKI, it is not known to what extent drug intake after AKI may impact renal outcome. We studied the association between the use of common postoperative medications and the prevalence of AKI as well as the recovery of renal function after the AKI episodes in postoperative patients.

**Methods:** We conducted a retrospective, single center study of 54,768 adult surgical patients admitted to a tertiary academic center from 2000-2010 for 2 days. AKI was defined using consensus RIFLE classification. Renal outcome was classified as complete, partial and no renal recovery according to consensus.

**Results:** AKI occurred in 21,361 (39%) patients, with RIFLE classes R, I and F, accounting for 21.3%, 10.3% and 7.4% respectively. Multivariate logistic regression showed that beta-blockers (OR 1.38, 95% CI 1.33-1.44), vasopressors (OR 2.05, 95% CI 1.93-2.12), inotropes (OR 2.35, 95% CI 2.08-2.67), diuretics (OR 1.72, 95% CI 1.65-1.80), nesiritide (OR 2.43, 95% CI 1.85-3.19), aminoglycosides (OR 1.28, 95% CI 1.20-1.36), vancomycin (OR 1.60, 95% CI 1.53-1.67), amphotericin B (OR 4.46, 95% CI 3.31-6.01), trimetoprim-sulfamethoxazole (TMP-SMX) (OR 1.31, 95% CI 1.19-1.44) and antivirals (OR 1.24, 95% CI 1.11-1.39) were significantly associated with higher risk for AKI, while ACE-inhibitors (OR 0.88, 95% CI 0.84-0.92), aspirin (OR 0.74, 95% CI 0.70-0.77), non-steroidal anti-inflammatory drugs (NSAIDs) (OR 0.91, 95% CI 0.81-0.96) and statins (OR 0.79, 95% CI 0.75-0.84) were associated with lower risk. In addition, use of amphotericin B (OR 1.71, 95% CI 1.31-2.24), diuretics (OR 1.53, 95% CI 1.35-1.74), vasopressors (OR 1.75, 95% CI 1.54-1.98) and beta-blockers (OR 1.18, 95% CI 1.04-1.35) was associated with increased risk for partial or no renal recovery in patients who developed postoperative AKI.

**Conclusion:** Our findings demonstrate that several commonly used postoperative medications may be associated not only with increased risk for AKI, but also decrease the likelihood of renal recovery after AKI episode.