Aspirin or blood pressure medication before and after surgery does not reduce risk of AKI

November 15 2014

In patients undergoing noncardiac surgery, neither aspirin nor clonidine (a medication primarily used to treat high blood pressure) taken before and after surgery reduced the risk of acute kidney injury, according to a study appearing in *JAMA*. The study is being released to coincide with its presentation at the American Society of Nephrology's annual Kidney Week meeting.

About 10 percent of the 200 million adults estimated to undergo major noncardiac surgery each year develop acute kidney injury (a sudden loss of kidney function). Perioperative (around the time of surgery) acute kidney injury is associated with poor outcomes, a long hospital stay, and high health care costs. Some studies suggest aspirin or clonidine administered during the perioperative period reduces the risk of acute kidney injury; however these effects are uncertain and each intervention has the potential for harm (bleeding with aspirin and abnormally low blood pressure with clonidine), which could increase the risk of acute kidney injury, according to background information in the article.

Amit X. Garg, M.D., Ph.D., of the London Health Sciences Centre and Western University, London, Ontario, Canada, and colleagues randomly assigned 6,905 patients undergoing noncardiac surgery from 88 centers in 22 countries to take aspirin (200 mg) or placebo 2 to 4 hours before surgery and then aspirin (100 mg) or placebo daily up to 30 days after surgery; oral clonidine (0.2 mg) or placebo 2 to 4 hours before surgery, and then a transdermal clonidine patch (applied to the skin) or placebo patch that remained until 72 hours after surgery. Acute kidney injury

was primarily defined as a certain increase in serum creatinine concentration (a substance commonly found in blood, urine, and muscle tissue and used as an indicator of kidney function).

The researchers found that neither aspirin nor clonidine reduced the risk of acute kidney injury. The percentage of patients in each study group who experienced acute kidney injury: aspirin 13.4 percent vs 12.3 percent (placebo); clonidine 13.0 percent vs 12.7 percent (placebo).

Aspirin increased the risk of major bleeding. In turn, major bleeding was associated with a greater risk of subsequent acute kidney injury (23.3 percent when bleeding was present vs 12.3 percent when bleeding was absent). Similarly, clonidine increased the risk of clinically important hypotension (abnormally low blood pressure). Such hypotension was associated with a greater risk of subsequent acute kidney injury (14.3 percent when hypotension was present vs 11.8 percent when hypotension was absent).

The authors write that future large trials to prevent acute kidney injury in the surgical setting should focus on interventions that target pathways other than inhibiting platelet aggregation and alpha 2-adrenergic agonism. "Interventions that prevent perioperative bleeding and perioperative hypotension may prove useful."

More information: DOI: 10.1001/jama.2014.15284