Pre-Operative Aspirin Can Benefit Surgery Patients

Aspirin taken within five days of cardiac surgery is associated with a significant decrease in the risk of major post-operative complications, including renal failure, a lengthy intensive care unit stay and even early death (30-day mortality), according to a study by researchers at Thomas Jefferson University and UC Davis Medical Center, which is set to appear in the journal *Annals of Surgery.*

According to the study's authors, the findings are significant because despite remarkable progress in cardiac surgery, the number of major complications from cardiac surgery remains high. "Therapies targeted to prevent or reduce major complications associated with cardiac surgery have been few and ineffective so far," said Jianzhong Sun, an anesthesiologist at Thomas Jefferson University and lead author of the study. "These complications are significant and costly both for the public health and the quality of patient life."

The study team evaluated the impact of pre-operative aspirin on major outcomes in adults (total 4,256 consecutive patients) who had cardiac surgery (mostly coronary artery bypass graft or valve surgery) at Thomas Jefferson University Hospital or UC Davis Medical Center between 2001 and 2009. Among 2,868 patients who met the inclusion criteria, 1,923 took aspirin at least once within five days preceding their surgery, versus 945 not taking aspirin.

The outcomes showed that pre-operative aspirin therapy (vs. non-aspirin) is associated with a significant decrease in the risk for 30-day mortality, major adverse cardiocerebral events, post-operative renal failure and average time spent in the intensive care unit. Beneficial effects of pre-operative aspirin use found in the current study "are in line with our previous findings and findings from early post-operative aspirin studies," wrote Sun and colleagues in their paper.

"We know that aspirin can be lifesaving for patients who have experienced heart attacks," said Nilas Young, chief of cardiothoracic surgery at UC Davis and a study co-author. "Now we know that this simple intervention can do the same for patients who undergo certain coronary surgeries. This outcome could lead to new pre-operative treatment standards in cardiac medicine."

The researchers acknowledge that bleeding remains a concern with pre-operative aspirin therapy. However, they said in the current era of cardiac surgery, the potential for bleeding may be avoided by using antifibrinolytic therapy, which prevents the breakdown of clotting factors in the blood, and/or a low dose of aspirin. "Overall, the outcome benefits provided by pre-operative aspirin therapy may override its possible risk of excess bleeding in patients undergoing cardiac surgery. Nonetheless, further studies are certainly needed to examine this potential side

effect carefully," Sun and colleagues wrote.

Added Zvi Grunwald, chair of anesthesiology at Jefferson, "While we are excited that the study clearly showed that pre-operative use of aspirin significantly reduced major complications and mortality in patients undergoing cardiac surgery, we do urge further study before recommending aspirin for cardiac surgery patients prior to surgery."

In addition to Sun and Young, study investigators included senior author Longhui Cao, Scott Silvestry, Will Sun and James Diehl of Thomas Jefferson University; Hong Lui of UC Davis; and Ning Zhao of the University of Pennsylvania Health System.

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