

Aspirin before heart surgery reduces the risk of post-operative acute kidney failure

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Aspirin taken for five days before a heart operation can halve the numbers of patients developing post-operative acute kidney failure, according to research presented at the European Anaesthesiology Congress in Paris today (Sunday).

Professor Jianzhong Sun (MD, PhD), professor and attending anaesthesiologist at Jefferson Medical College, Thomas Jefferson University (Philadelphia, USA), told the meeting that in a study of 3,219 [patients](#), pre-operative [aspirin therapy](#) was associated with a reduction in [acute renal failure](#) of about three in every 100 patients undergoing [coronary artery bypass graft](#) (CABG), valve surgery or both.

The patients were divided into two groups: those taking [aspirin](#) within five days before their operation (2,247 patients) and those not taking it (972 patients) [1]. Although the researchers had no record of the precise dose taken, doses of between 80-325mg per day is the normal dose for aspirin that is taken over a period of time.

After adjusting their results for various differing characteristics such as age, disease, and other medications, the researchers found that pre-operative aspirin was associated with a significant decrease in the incidence of post-operative [kidney failure](#): acute renal failure occurred in 86 out of 2247 patients (3.8%) taking aspirin, and in 65 out of 972 patients (6.7%) not taking it [1]. This represented an approximate halving in the risk of acute renal failure.

Prof Sun said: "Thus, the results of this clinical study showed that pre-operative therapy with aspirin is associated with preventing about an extra three cases of acute renal failure per 100 patients undergoing CABG or/and valve surgery."

Acute renal failure or injury is a common post-operative complication and has a significant impact on the survival of patients undergoing [heart surgery](#). "It significantly increases hospital stay, the incidence of other complications and mortality," said Prof Sun. "From previous reports, up to 30% of patients who undergo [cardiac surgery](#) develop acute renal failure. In our studies, about 16-40% of cardiac surgery patients developed it in various degrees, depending upon how their kidneys were functioning before the operation. Despite intensive studies we don't understand yet why kidney failure can develop after cardiac surgery, but possible mechanisms could involve inflammatory and neurohormonal factors, reduced blood supply, reperfusion injury, kidney toxicity and/or their combinations."

He continued: "For many years, aspirin as an anti-platelet and anti-inflammatory agent has been one of the major medicines in prevention and treatment of cardiovascular disease in non-surgical settings. Now its applications have spread to surgical fields, including cardiac surgery, and further, to non-cardiovascular diseases, such as the prevention of cancer. Looking back and ahead, I believe we can say that aspirin is really a wonder drug, and its wide applications and multiple benefits are truly beyond what we could expect and certainly worthy of further studies both in bench and bedside research."

Prof Sun said that more observational and randomised controlled clinical trials were required to investigate the role played by aspirin in preventing post-operative kidney failure, but he believed that the effect might also be seen in patients undergoing non-cardiac surgeries.

"For instance, the PeriOperative ISchemic Evaluation-2 trial (POISE-2) [2] is ongoing and aims to test whether small doses of aspirin, given individually for a short period before and after major non-cardiac surgeries, could prevent major cardiovascular complications such as heart attacks and death, around the time of surgery."

Other findings from Prof Sun's research showed that diabetes, high blood pressure, heart disease, heart failure, and diseases of the vascular system were all independent risk factors for post-operative [acute kidney failure](#).

More information: Abstract no: 4AP6-8

[1] These figures are slightly different to those in the abstract as they have been updated since the abstract was submitted.

[2] Details of the POISE-2 trial can be found at:
clinicaltrials.gov/ct2/show/NCT01082874

[3] This research received no funding.

Provided by European Society of Anaesthesiology

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