

High-dose statin before, after cardiac surgery does not reduce risk of kidney injury

February 23 2016

Among patients undergoing cardiac surgery, high-dose treatment with atorvastatin before and after surgery did not reduce the overall risk of acute kidney injury compared with placebo, according to study published by *JAMA*. The study is being released to coincide with its presentation at the Society of Critical Care Medicine's 45th Critical Care Congress.

Acute kidney injury (AKI) complicates recovery from cardiac surgery in up to 30 percent of patients. Statins affect several mechanisms underlying postoperative AKI. Previous studies have found mixed results regarding the effect of statins to reduce AKI in cardiac surgery patients.

Frederic T. Billings IV, M.D., M.Sc., of the Vanderbilt University School of Medicine, Nashville, Tenn., and colleagues randomly assigned cardiac surgery patients naive to [statin treatment](#) (n = 199) to 80 mg of atorvastatin the day before surgery, 40 mg of atorvastatin the morning of surgery, and 40 mg of atorvastatin daily following surgery (n = 102) or matching placebo (n = 97). Patients already taking a statin prior to study enrollment (n = 416) continued taking the pre-enrollment statin until the day of surgery, were randomly assigned 80 mg of atorvastatin the morning of surgery and 40 mg of atorvastatin the morning after (n = 206) or matching placebo (n = 210), and resumed taking the previously prescribed statin on postoperative day 2.

Among all participants (n = 615), AKI occurred in 64 of 308 (21 percent) in the atorvastatin group vs 60 of 307 (19.5 percent) in the

placebo group. Among patients naïve to statin treatment (n = 199), AKI occurred in 22 of 102 (22 percent) in the atorvastatin group vs 13 of 97 (13 percent) in the placebo group and there was a greater increase in serum creatinine concentration in the atorvastatin group compared to the placebo group. Among patients already taking a statin (n = 416), AKI occurred in 20 percent of the patients in the atorvastatin group vs 22 percent in the [placebo group](#).

"This double-blinded, placebo-controlled randomized clinical trial found no evidence that high-dose perioperative atorvastatin reduces the incidence or severity of AKI following cardiac surgery. Among patients naïve to statin treatment, high-dose perioperative atorvastatin increased serum concentrations of creatinine, and there was some evidence that statin treatment may increase AKI among patients naïve to statin treatment with preexisting chronic kidney disease. Among patients already taking a statin, there was no evidence that perioperative statin continuation or withdrawal affected postoperative AKI," the authors write.

"These results do not support the initiation of [statin therapy](#) to prevent AKI following cardiac surgery."

"Even though the use of statins in cardiac surgery is likely to continue to generate interest and trials in an attempt to demonstrate other so-far unproven benefits, any use as [kidney] protective agents in patients naïve to statin [treatment](#) undergoing cardiac surgery should now be abandoned," writes Rinaldo Bellomo, M.B.B.S. (Hons), M.D., F.R.A.C.P., F.C.I.C.M., of the University of Melbourne, Australia, in an accompanying editorial.

"The challenge of finding an adjuvant intervention capable of attenuating AKI during cardiac surgery, however, remains unmet and further exploration of promising or novel interventions and more studies

aimed at understanding the pathogenesis of AKI following [cardiac surgery](#) remain a clinical priority and are certain to follow."

More information: [DOI: 10.1001/jama.2016.0548](https://doi.org/10.1001/jama.2016.0548)
[DOI: 10.1001/jama.2016.0245](https://doi.org/10.1001/jama.2016.0245)

Provided by The JAMA Network Journals

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