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Perioperative statin use and risk of acute kidney injury following major surgery: a nationwide population-based cohort study

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Objectives:

Postoperative acute kidney injury (AKI) is independently associated with high morbidity and mortality following surgery. The effects of perioperative statin use on the occurrence of AKI are not well understood. The present study investigated the association between perioperative statin use and AKI following cardiac and non-cardiac major surgery in the Korean population.

Methods: All patients aged 30 years and over who underwent cardiac or non-cardiac major surgery between 2013 and 2015 were included in this nationwide population-based cohort study (n = 382,198). The primary outcome was defined as the occurrence of AKI after surgery. Four patterns of statin use were analyzed in this study according to perioperative and/or previous statin use. The generalized logit model was used to evaluate the association between statin use and the risk of AKI. Subgroup analysis was conducted to investigate the differences in the effect sizes of statin use patterns.

Results: Perioperative statin use was associated with an increased risk of AKI after surgery in patients who were naïve to statin prior to both cardiac and non-cardiac surgery (OR 1·35, 95% CI 1·11–1·64; OR 1·20, 95% CI 1·01–1·44, respectively). Non-cardiac patients who underwent perioperative statin therapy and who had previously taken statins had a higher risk of AKI following surgery, whereas withdrawal of statins led to a significant reduction in the occurrence of AKI in these patients (OR 0·82, 95% CI 0·76–0·87).

Conclusions: The results presented here demonstrate the association between perioperative statin use and the increased incidence of AKI following major surgery, especially within 3 months of surgery. Our findings reveal that the risk of AKI within 3 months of non-cardiac major surgery is reduced when statin treatment is withdrawn at the time of surgery.