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Statin Use and In-hospital Outcomes among Hospitalized Patients with Kidney Dysfunction

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Objectives : Statin is frequently prescribed in CKD patients. However, the association between statin use and acute kidney injury (AKI) in CKD patients remains unexplored. This study investigated whether statin use increases the risk of AKI in patients with renal dysfunction during hospitalization.
Methods : This retrospective study screened all adult admissions between January 1,2018 and December 31, 2020, and included patients with kidney dysfunction on admission (baseline estimated glomerular filtration rate<60 ml/min.1.73m^2). Exposure was defined as any statin prescription within 48 hours of admission. Patients were followed up until death or discharge or a maximum period of up to 30 days. The primary and secondary outcome are in-hospital AKI and in-hospital mortality, respectively.
Results : A total of 5376 patients were enrolled in this study. The median age was 72 years old, and 3184(59.2%) were male. 2129 (39.6%) of them were statin users. AKI developed in 149(7.0%) and 213(6.6%) of the statin users and statin non-users. Compared with statin non-users, statin users were associated with a significantly decreased risk of in-hospital AKI (adjusted hazard ratio [aHR], 0.74; 95% confidence interval [CI] 0.57-0.96). A significantly decreased risk of in-hospital AKI was observed in both atorvastatin users and rosuvastatin users. In subgroup analysis, the protective effect of statin was observed in patients who are older (aHR 0.66, 95%CI 0.48-0.92), female (aHR 0.62, 95%CI 0.41-0.94), or with cardiovascular disease (aHR 0.69, 95%CI 0.49-0.97). The association between statin and decreased risk of in-hospital mortality was also significant (aHR 0.44, 95%CI 0.23-0.82). For subgroup analysis, statin showed a significant protective effect in patients who were female (aHR 0.31, 95%CI 0.11-0.92), with baseline eGFR 30-45 ml/min.1.73m^2 (aHR 0.24, 95%CI 0.07-0.78) or with cardiovascular disease (aHR 0.43, 95%CI 0.20-0.91).
Conclusions : Statin is associated with decreased risk of AKI and may improve survival in patients with renal dysfunction.