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Comparing the Impact on Renal Outcomes of Acid Suppression Therapies: Potassium Competitive Acid Blocker vs. Proton Pump Inhibitor

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Objectives : Proton pump inhibitor(PPI) use is associated with an increased risk of acute kidney injury and incident chronic kidney disease(CKD). Relatively new gastric acid-reducing agents, potassium-competitive acid blockers(P-CAB), are likely to have a comparable effect with PPI, but the association between their use and renal outcome is less understood. We aimed to compare renal outcomes of patients treated with P-CAB and those with PPI.
Methods : We retrospectively identified all patients who received P-CAB(tegoprazan) or PPI(esomeprazole) in an outpatient center of an academic tertiary referral hospital in Korea(2019–2023). Patients with estimated glomerular filtration rate(eGFR) <30mL/min/1.73m² or those who received drugs less than 30 days were excluded. Renal outcomes were defined as creatinine doubling and a decline in eGFR of 50% or more(termed as "eGFR decline"). Cox proportional hazard analyses were used with adjusting multiple clinical covariates.
Results : There were 1,820 and 5,121 patients in P-CAB and PPI groups, respectively. The incidence rates for renal outcomes were lower in P-CAB group(creatinine doubling, 13.4 vs. 36.5, log-rank P<0.001; eGFR decline, 18.4 vs. 39.0, log-rank P<0.001, per 1,000 person-years). Hazard ratios(HRs) of P-CAB use were 0.42(95% confidence interval[CI] 0.30–0.59, P<0.001) for creatinine doubling and 0.50(95%CI 0.37–0.69, P<0.001) for eGFR decline compared to PPI use in unadjusted analyses. After adjusting multiple clinical variables, including patient demographics, total prescription days, major comorbidities, baseline eGFR, concomitant use of other drugs, adjusted HRs of P-CAB use for creatinine doubling and eGFR decline were 0.49(95%CI 0.35–0.70, P<0.001) and 0.59(95%CI 0.43–0.81, P=0.001), respectively.
Conclusions : The use of P-CAB is associated with a lower rate of renal function deterioration than PPI. Considering concerns regarding renal safety of PPI, use of P-CAB may be a relatively safer approach for patients who need long-term acid suppression. Future studies with different cohorts, incorporating other P-CABs and PPIs, are needed to support our findings.