Renal safety of tenofovir disoproxil fumarate and entecavir in liver transplant patients: a nationwide Korean registry study

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Background: Entecavir and tenofovir are currently the first-line drugs in liver transplantation (LT) patients for the prevention of hepatitis B virus recurrence. Despite its proven efficacy, the renal safety of tenofovir in LT patients has not been well defined. We aimed to assess the impact of tenofovir on renal function compared to that of entecavir after LT.

Methods: We analyzed 817 LT patients treated with entecavir (n=366) or tenofovir (n=451) between 2014 and 2017. The estimated glomerular filtration rate (eGFR) was calculated using the Chronic Kidney Disease Epidemiology Collaboration equation. Renal function deterioration was defined as progression of chronic kidney disease stage and $\geq 20\%$ eGFR decline from 1 month after LT.

Results: Mean eGFR at 1 month after LT was 91.1 ± 22.0 mL/min/1.73 m² for entecavir and 89.1 ± 23.7 mL/min/1.73 m² for tenofovir group (P=0.312). During a median follow-up of 29 months, the cumulative incidence of renal function deterioration was significantly higher in the tenofovir group than in the entecavir group (35.5% vs. 27.1%, P=0.01). Tenofovir (odd ratio [OR], 1.52; 95% confidence interval [CI], 1.11–2.08; P=0.009), old age (OR, 1.45; 95% CI, 1.01–2.09; P=0.044), low body mass index (OR, 2.02; 95% CI, 1.44–2.84; P<0.001), and diabetes mellitus (OR, 1.68; 95% CI, 1.18–2.08; P=0.009) were independent risk factors for renal function deterioration.

Conclusions: The use of tenofovir was significantly associated with renal function deterioration in LT patients. In the setting of LT, tenofovir should be used with caution in high-risk patients and renal function should be carefully monitored.

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