Pre- and post-transplant risk factors for renal dysfunction in the patients with preserved renal function at 1 month after liver transplantation: a national cohort study using Korean Organ Transplantation Registry (KOTRY)

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Background: Renal dysfunction (RD) is an important long-term complication after liver transplantation (LT) which is associated with patient survival. This study investigated pre- and post-transplant risk factors for RD in patient with preserved renal function at 1 month after LT using the Korean Organ Transplantation Registry (KOTRY) data.

Methods: We performed retrospective cohort study using data of recipients who underwent LT between April 2014 and December 2018 and were registered in KOTRY. We defined RD as 40% decline of eGFR from the value at 1 month and at least below 60 mL/min/1.73 m². We performed multivariable Cox regression analyses for pre-transplant and within-one-month risk factors for RD. For post-transplant risk factors, we performed matched analyses according to 8 factors: biopsy-proven acute rejection, infection, bile duct complication, recurrence of HCC, new-onset diabetes mellitus (DM) after transplantation, type of immunosuppressants, steroid withdraw, and type of anti-HBV prophylaxis.

Results: Among 2,274 eligible patients, 251 (11.3%) developed RD during 36.6±14.4 of mean follow-up period. From multivariable Cox regression analyses, age, female sex, lower body mass index, pre-transplant DM, alcoholic liver disease, above Milan hepatocellular carcinoma (HCC), low Karnofsky performance status score at 1 month, bile duct complication within 1 month and lower estimated glomerular filtration rate at LT were identified as independent risk factors for RD after LT. Among post-transplant factors after 1 month, patients with recurrence of HCC (P=0.013), infection (P=0.003), and tacrolimus-mono treatment (vs. tacrolimus-based dual treatment, P=0.022) showed higher RD than control patients without those factors.

Conclusions: This study comprehensively indicates pre- and post-transplant risk factors for RD after LT among patients with preserved renal function at 1 month. Clinicians should consider these risk factors for managing patients during long-term follow-up.

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