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Association between early allograft dysfunction and requirement of renal replacement therapy in liver transplant recipients

Heejin Cho, Jungho Shin, Sanggyun Suh, Suk-won Suh
Department of Internal Medicine-Nephrology, Chung-Ang University Hospital, Korea, Republic of

Objectives: Early allograft dysfunction (EAD) after liver transplantation can result in adverse graft and patient outcomes. However, the association between EAD and performance of renal replacement therapy (RRT) remains unclear. We retrospectively investigated the impact of EAD on RRT requirement within 7 days following liver transplantation.

Methods: EAD was defined as the presence of one or more of the following: total bilirubin ≥10 mg/dL or international normalized ratio ≥1.6 on day 7, or aspartate aminotransferase or alanine aminotransferase level >2000 U/L within the first 7 days after liver transplantation.

Results: A total of 76 patients underwent liver transplantation and EAD occurred in 15 (19.2%) recipients. The incidence of EAD was associated with the model for end-stage liver disease score and donor age (P = 0.053 and 0.011), whereas it was not related to recipient age and sex, donor sex, and deceased donor (P = 0.986, 0.464, 0.843, and 0.167, respectively). RRT was performed within 7 days of liver transplantation in 18 (23.1%) patients. Eight (13.1%) out of 61 recipients with normal early allograft function experienced RRT, whereas 10 (66.7%) out of 15 recipients with EAD experienced RRT (P <0.001). There was an association between EAD and RRT performance, independent of recipient age and sex, model for end-stage liver disease score, donor age and sex, and deceased donor (P = 0.003). In addition, the area under the curve for the probability of RRT need was estimated using the variable for EAD, and total bilirubin on day 7 predicted RRT requirements after liver transplantation (area under the curve 0.83; P <0.001).

Conclusions: EAD appears to increase the likelihood of performing RRT after liver transplantation. Therefore, efforts to prevent the occurrence of EAD are needed to improve the renal prognosis of liver transplant recipients.