Renal replacement therapy is an alarm sign of survival outcome in pediatric liver transplantation

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Background: Research regarding the impact of renal replacement therapy (RRT) on long-term survival outcome in pediatric liver recipients are scarce.

Methods: Two hundred twenty-four patients under 18 years of age who received liver transplantation (LT) in Seoul National University Hospital were enrolled. Patients were divided into two groups: patients who underwent RRT (group R) and the others (group N). Primary end point was post-transplant patients' and grafts' survival outcome.

Results: Twenty-five patients (11.2%) received perioperative or sequential RRT, including nine patients (36.0%) who underwent kidney transplantation eventually. The most common indication of RRT was metabolic liver disease (44%) followed by hepatorenal syndrome (40%). RRT was initiated on preoperative period (48%) and postoperative period (early postoperative period [20%] and long-term follow-up period [32%]). In group R, age at the point of LT (71.6 months vs. 19.1 months) was older and pediatric end-stage liver disease (PELD) score was lower (9.9 vs. 21.2), post-transplant hospital stay day (41 days vs. 27 days) was longer and the rate of hepatic artery thrombosis (8% vs. 3.5%) was higher than group N ($P<0.05$). Compared with group N, group R had significantly lower patients' (60% vs. 93%, $P<0.001$) and grafts' survival rates (68% vs. 93%, $P<0.001$). Post-transplant RRT was one of the risk factors of patients' survival outcome as well as non-biliary atresia patients, hepatic artery thrombosis and re-transplantation. However, preoperative RRT was not a risk factor of survival outcome.

Conclusions: Post-transplant survival outcomes of children requiring RRT were significantly worse than children without RRT. Physicians should pay more attention to patients requiring post-LT RRT although they are older and have lower PELD score.

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