ABO-incompatible living donor liver transplantation with a simplified desensitization and immunosuppression protocol: a single center retrospective study

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Background: New desensitization strategies have made ABO-incompatible living donor liver transplantation an attractive option for patients with end-stage liver disease. We aimed to report our experience with 20 consecutive patients who underwent ABO-incompatible living donor liver transplantation using a simple A1 desensitization and immunosuppression regimen.

Methods: We retrospectively analyzed 20 ABO-incompatible living donor liver transplantation cases (August 2015 to July 2019). The ABO-incompatible living donor liver transplantation protocol involved rituximab administration (375 mg/m² body surface area) at 2–3 weeks preoperatively, subsequent plasma exchanges (target isoagglutinin titer: $\leq 1:8$), basiliximab administration (20 mg on the day of surgery and postoperative day 4), and intravenous immunoglobulin administration (2 g/day from the day of surgery to postoperative day 7). No graft local infusion therapy or splenectomy was performed.

Results: Living donor liver transplantation involved a modified right lobe graft for 18 patients and a right posterior segment graft for one patient. The most common reason for liver transplantation was hepatitis B virus-associated liver cirrhosis (16 patients), and 14 patients had hepatocellular carcinoma. The mean age was 55.4 ± 6.3 years, mean model end-stage liver disease score was 14.7 ± 7.7 , and mean graft-to-recipient weight ratio was $1.07\% \pm 0.2\%$. The median initial anti-ABO antibody titers were 1:16 for immunoglobulin M (range, 1:2–1:256) and 1:48 for immunoglobulin G (range, 1:4–1:>2,048). The median number of plasma exchanges was 2 (range, 0–12). No cases involved biopsy-confirmed antibody-mediated rejection. No bacterial or fungal infections were observed. Biliary anastomotic stricture was observed in nine cases.

Conclusions: This ABO-incompatible living donor liver transplantation protocol with rituximab, plasma exchange, low-dose intravenous immunoglobulin, and immunosuppression (equivalent to ABO-compatible living donor liver transplantation) could be a safe and effective way to overcome antibody-mediated rejection and other complications.

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