Introduction: Liver transplantation is the only effective treatment for patients with acute or chronic liver failure. However, donor livers are always short supply and do not meet the demand for liver transplantation. ABO-incompatible (ABOi) living donor liver transplantation (LDLT) has become an attractive solution to expend option for patients with end-stage liver disease due to the development of various desensitization strategies.

Methods: We analyzed 12 ABOi LDLT cases that had been performed between August 2015 and July 2017 at Pusan national university Yangsan hospital. All patients were transplanted with a right lobe from donor and did not undergo simultaneous splenectomy and local infusion therapy. The same ABOi LDLT protocol was used in all patients. The protocol of ABOi LDLT is as follows; administration of rituximab (375 mg/m² body surface area) at 2 weeks preoperatively, followed by several sessions of plasma pheresis to decrease the preformed anti-donor blood type isoagglutinin antibody titer to ≤ 1:8 were started at 1 week prior to LDLT, basiliximab was administered as induction therapy (20mg on the days of surgery and on postoperative day 4), and immunoglobulin (1g bid until postoperative 7) without local graft infusion therapy and splenectomy.

Results: Twelve patients (11 men and one woman) performed LDLT. 11 patients used modified right lobe (MRL) graft, and one patient used right posterior segment graft. One year graft and patient survival rates were 100%. 9 patients underwent liver transplantation for hepatitis B virus (HBV) related hepatocellular carcinoma (HCC) and two patients recurred HCC. The mean age, mean model for End-stage Liver Disease (MELD) score and mean graft-to-recipient weight ratio (GRWR) of these patients was 55.08±6.93 years, 14.83±9.31 and 1.00±0.13. The mean initial immunoglobulin (lg) M and IgG anti-ABO titers were 48.17±74.47 (range, 2-256) and 320.33±446.02 (range, 4->1024). We underwent preoperative plasma exchange to 12 recipients (mean number of sessions, 3.50; range 1-11). After surgery, one patient received plasma exchange 6 times. There was no antibody-mediated rejections. One patient was diagnosed clinical acute rejection, and treated successfully with steroid pulse therapy. There were 7 cases of biliary anastomotic stricture (58.3%), and treated by percutaneous trans-hepatic biliary drain (PTBD).

Conclusions: ABOi LDLT with this simplified protocol can lead to good graft outcomes without increased risk of antibody-mediated rejection or serious infections.

References