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Initial high anti-ABO isoagglutinin titer is a major red flag of bacterial infection in ABO-incompatible living donor liver transplantation.

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Introduction: Many previous studies showed comparable clinical outcomes of ABO-incompatible (ABOi) LDLT compared to ABO-compatible (ABOc) LDLT, but there were few studies related to initial high anti-ABO isoagglutinin titer.

Methods: From January 2012 to March 2022, a total of 1108 liver transplantations were performed at this hospital. In ABOi LDLT, we compared initial high- and low- anti-ABO isoagglutinin(IA) titer groups based on a cut-off value of 1:256. The simplified desensitization protocol for ABOi LDLT consisted of plasma exchange and rituximab(375mg/m² BSA) aiming at maintaining levels of anti-ABO IA titers below 1:32.

Results: The initial low IA titer ABOi LDLT group (IgM and IgG <1:256) consisted of 142 patients and the initial high IA titer ABOi LDLT group (IgM or IgG 1:256) consisted of 59 patients. Additionally, the ABOc LDLT group consisted of 577 patients. Bacterial infection rates were 19.1% in ABOc LDLT group, 25.4% in the initial low IA titer ABOi LDLT group and 37.3% in the initial high IA titer ABOi LDLT group, and the initial high IA titer ABOi LDLT group had a significantly higher rate of bacterial infection than the other two groups (P = 0.003). The initial high IA titer ABOi LDLT group had a significant higher rate of bacterial sepsis and bacterial pneumonia than the other two groups (p=0.031 and 0.021, respectively). In terms of infection-related mortality, the initial high IA titer ABOi LDLT group had a higher rate of 18.6 percent than 8.5% in the initial low IA titer ABOi LDLT group and 4.7% in ABOc LDLT group (p= 0.001).

Conclusion: ABO-incompatible LDLT is more prone to infectious complications than ABO-compatible LDLT. Among ABO-incompatible LDLTs, recipients with an initial high IA titer are more susceptible to bacterial infection, sepsis, and bacterial pneumonia, along with reducing overall survival rate.