ABO-incompatibility and donor-specific antibodies existence effect on antibody-mediated rejection in kidney transplantation

Kwang Woo Choi, Sangil Min, Eun-Ah Jo, Ahram Han, Sanghyun Ahn, Seung-Kee Min, Jongwon Ha

Department of Surgery-Transplantation, Seoul National University Hospital, Seoul, Korea

Background: The aim of this study was to identify the incidence of antibody-mediated rejection (ABMR), which was confirmed in postoperative 10-day biopsy depending on the presence or absence of donor-specific antibody (DSA) prior to surgery, in the case of ABO incompatible recipient in kidney transplantation.

Methods: From January 2010 to November 2019, a retrospective study was conducted on patients with ABO incompatible and/or DSA positive among patients who received kidney transplantation at Seoul National University Hospital.

Results: Of the 175 patients identified as ABOi, 17 were DSA(+) patients and 158 were DSA(-) patients. The age of recipient and donor was not much different, and the proportion of women in recipient was higher than that of ABOi DSA(-) in the ABOi DSA(+) group. (76.5% vs 35.4%, $P=0.001$) Also the proportion of women in the donor was higher than that of ABOi DSA(+) in the ABOi DSA(-) group. (60.8% vs 23.5%, $P=0.003$) Definitely, the preoperative PRA-1 and PRA-2 positive rates were higher than ABOi DSA(-) in the ABOi DSA(+) group (PRA-1: 58.8% vs. 15.8%, $P=0.000$ and PRA-2: 76.5% vs. 17.1%, $P=0.000$). And preoperative PRA-MFI max values were high in the ABOi DSA(+) group, with $6,407 \pm 1,377$, $1,306 \pm 277$ and $P=0.002$, respectively. On the 10th day after surgery, the biopsy results showed that ABMR or ABMR+TCMR were 29.4% in ABOi DSA(+) group and 13.3% in ABOi DSA(-) group. The graft survival of these two groups showed no statistically significant results, and the graft survival of the preoperative antibody titer showed no difference between the two groups.

Conclusions: Our data show that ABOi DSA(+) patients and ABOi DSA(-) donors had a large number of women, and the higher the PRA max. value, the higher the positive PRA-1,2, the higher the incidence of ABMR in postoperative biopsies, while there was no significant difference in the preoperative antibody titer.

Corresponding author: Sangil Min

E-mail: surgeonmsi@gmail.com

© The Korean Society for Transplantation

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.