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ABO-INCOMPATIBLE KIDNEY TRANSPLANTATION: THREE TIMES STARTED PROGRAM
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Introduction: In March 2011 in Academician V.I. Shumakov Federal Research Center of Transplantology the ABO-incompatible kidney transplantation (iABO-KTx) program was initiated by Y.M. and A.S. First five procedures were performed with «Stockholm protocol» [1]. Since 2013 modified protocol was used (see M&M), Y.M. in 2016 and A.S. in 2017 started work in other transplant centers, where iABO-KTx have not been performed before. After 1 and 2 years iABO-KTx program was started in MONIKI and SRC-FMBC, respectively. By December 2019, the cumulative experience is 52 procedures.

Material and Methods: The outcomes of 52 consecutive iABO-KTx, performed between 2011 and 2019, are analyzed. Flexible desensitization protocol included single rituximab (Rtx) and intravenous immunoglobulin (0.5 g/kg) infusions, sessions of plasmapheresis (PP) and/or selective immunoadsorption (IA), and combination of tacrolimus, mycophenolates and steroids. Desensitization duration, rtx dose and antibody removal method were determined based on the initial anti-A/B titer (Figure 1).

| Initial titer | Expected desensitization time, days | Rtx, mg/m² | Antibody removal | Expected No. of PP/IAA sessions |
|---------------|-------------------------------------|------------|-----------------|-------------------------------|
| ≤1:8          | ≤7                                  | 100        | no              | 0                             |
| 1:16–1:64     | 7–14                                | 200        | PP              | 1–4                           |
| ≥1:128        | ≥14                                 | 375        | IA/PP           | ≥5 (up to 10)                 |

The target level of anti-A/B antibodies is 1:8. All patients received triple immunosuppressive therapy after transplantation with basiliximab induction.

Results: The median of initial anti-A/B antibodies titer was 1:16 (1:2 – 1:1024). The median rtx dose was 286 mg/m² (94 - 396). To achieve target antibody level, up to 10 PP and/or IA sessions (median - 2) were required. There were no deaths during the follow-up. Five grafts were lost and one of them due to hyperacute rejection. The incidence of biopsy-proven rejection was 5%. One-, five- and eight-year graft survival was 95%, 90% and 83%, respectively.

Discussion: iABO-KTx is a safe, successful and reasonable option to reduce the organ shortage. Flexible desensitization strategy seems to be the optimal approach for pretransplant desensitization. When starting a new iABO-KTx program, the main attention and sufficient time should be devoted to the training of all participants. It’s especially important to validate the antibody titration method in an expert laboratory.

Reference: 1. Tydén G, Kumlin G, Genberg H, et al. The Stockholm experience with ABO-incompatible kidney transplantations without splenectomy. Xenotransplantation. 2006 Mar;13(2):105-7.

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INDIVIDUALIZED PRECONDITIONING FOR ABO INCOMPATIBLE LIVING DONOR KIDNEY TRANSPLANTATION: AN INITIAL REPORT OF 48 CASES FROM CHINA
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Background: ABO incompatible (ABOi) living donor kidney transplantation (KTx) is well established in developed countries, but not yet in China.

Material and Methods: We developed individualized preconditioning protocols for ABOi KTx based on initial ABO antibody titers. After propensity score matching of ABOi with ABO compatible (ABOc) KTx, post-transplant outcomes were compared.

Results: Between September 2014 and June 2018, 48 ABOi living donor KTx candidates received individualized preconditioning, and all underwent subsequent KTx (median initial ABO titers: 16 for IgM and 16 for IgG). Thirty-one recipients (64.6%) were preconditioned with rituximab (median dose: 200 mg, range: 100–500 mg). Among 37 patients (77.1%) who received pre-transplant antibody removal, the median number of sessions of antibody removal required to achieve ABOi KTx was 2 (1-5) which was conducted between days -10 and -1. Eleven ABOi recipients (22.9%) were preconditioned with oral immunosuppressants alone. Hyperacute rejection led to the loss of two grafts in the ABOi group. After a median follow-up of 27.6 months (ABOi group) and 29.8 months (ABOc group), there were no significant differences in graft/recipient survival, rejection, and infection. There were marginally higher rates of severe thrombocytopenia (<50x10⁹/L) (P=0.073) and delayed wound healing (P=0.096) in ABOi recipients.

Conclusion: Our individualized preconditioning protocol evolved as our experience grew, and the short-term clinical outcomes of ABOi KTx did not differ from those of matched ABOc patients. ABOi KTx may be a major step forward in expanding the kidney living donor pool in China.

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