**Ex vivo enzymatic treatment converts blood type A donor lungs into universal blood type lungs**

A small subset of transplants, mostly kidneys, is performed in adults using organs from **ABO-incompatible** (**ABOi**) donors. The procedure is performed primarily with subgroup ABO-non-A1 donors (low A antigen expression) into ABO-O or ABO-B recipients (with low anti-A antibody titers) along with recipient desensitization protocols to minimize rejection (C. Morath, M. Zeier, B. Döhler, G. Opelz, C. Süsal, ABO-incompatible kidney transplantation. Front. Immunol. 8, 234 (2017).).

It has been observed that, although these patients may begin to produce ABO antibodies again after ABOi transplantation, graft injury often does not occur. This phenomenon, called “**accommodation**,” is effected by mechanisms that remain incompletely understood (3, 4). Although 5-year survival outcomes have been reported to be equivalent between ABOi versus ABO-compatible (ABOc) kidney transplants, higher early mortality and complications have been observed in patients who received the ABOi grafts. This is most likely due to the recipient-centric desensitization protocols.

Because organs from ABO-O donors are compatible with recipients of all blood groups, ABO-O patients face a higher risk of dying while waiting than do those of the other blood groups. For kidney transplantation, the median U.S. waiting time for a deceased donor transplant is reported to be 4.9 years for ABO-B candidates, 4.4 years for ABO-O, 2.7 years for ABO-A, and 1.6 years for ABO-AB candidates (W. W. Williams, W. S. Cherikh, C. J. Young, P. Y. Fan, Y. Cheng, D. A. Distant, C. F. Bryan, First report on the OPTN national variance: Allocation of A2 /A2 B deceased donor kidneys to blood group B increases minority transplantation. Am. J. Transplant. 15, 3134–3142 (2015).). Clearly, the development of strategies to reduce transplant waiting lists by eliminating the need for ABO compatibility would be very attractive and would have a major impact in access to and fairness of organ allocation.

In kidney ABOi transplantation, it is well described that despite recipient desensitization, eventually, anti-A antibodies reemerge. Another limitation of the study is the absence of posttransplant clinical data.

The treatment described here could potentially result in expansion of safe ABOi organ transplantation and further expand the pool of universal donor organs from the current 55% (blood group O donors) to over 80% with inclusion of modified A organs (based on Organ Procurement and Transplantation Network data as of 30 November 2021). As a consequence, this strategy may greatly improve access and fairness of organ allocation.

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