

## Relative Roles for List Paired Exchange, Live Donor Paired Exchange and Desensitization

To the Editor:

The New England Organ Bank has successfully implemented a kidney paired donation program, which offers both live donor and list exchange options to patients with incompatible donors. Through each modality, a live donor who would otherwise be ineligible is given an opportunity to facilitate a kidney transplant for a loved one. One must commend any program that increases access to donated organs.

As Dr. Morrissey and colleagues discovered, small cohorts of incompatible pairs are likely to benefit more from list exchange because of the difficulty of finding compatible live donor matches. We have confirmed this finding through mathematical simulations, even if the types of exchanges that Dr. Ross and colleagues find objectionable (O recipients with non-O donors) are eliminated (1). However, through a list exchange a patient with an incompatible live donor receives a deceased donor kidney, which has been shown to have a shorter half life than a live donor organ (2). We have further shown that cohorts of increasing size will benefit more from live donor than list exchanges, with the added benefit that each patient will ultimately receive a live donor kidney. However, even in a large-cohort live donor match, approximately half of the patients remain unmatched (3), primarily O recipients with non-O donors (1,4). There is subsequently little additional benefit to placing difficult-to-match patients into a list exchange program (1).

We feel that many of these unmatched patients with ABO incompatible donors would benefit from desensitization. Whereas it was previously felt that splenectomy was required for ABO incompatible transplants, even high-titer barriers have now been crossed without splenectomy (5) or long-term B-cell ablative therapy (6). Recent experience suggests that long-term graft survival after ABO incompatible live donor transplantation exceeds that of compatible deceased donor organs, with 9-year patient and graft survival of 84% and 59% in a study of 441 ABO incompatible

live donor recipients (7) when compared with 10-year patient and graft survival of 58% and 36% in deceased donor recipients as reported by UNOS (8). Rather than receiving a compatible deceased donor kidney through list exchange, patients with ABO incompatible donors who cannot match through live donor exchange may be better served by desensitization.

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### References

1. Gentry SE, Segev DL, Montgomery RA. A comparison of populations served by kidney paired donation and list paired donation. *Am J Transplant* 2005; 5: 1914–1921.
2. Hariharan S, Johnson CP, Bresnahan BA, Taranto SE, McIntosh MJ, Stablein D. Improved graft survival after renal transplantation in the United States, 1988 to 1996. *N Engl J Med* 2000; 342: 605–612.
3. Segev DL, Gentry SE, Warren DS, Reeb B, Montgomery RA. Kidney paired donation and optimizing the use of live donor organs. *JAMA* 2005; 293: 1883–1890.
4. de Klerk M, Keizer KM, Claas FH, Witvliet M, Haase-Kromwijk BJ, Weimar W. The Dutch national living donor kidney exchange program. *Am J Transplant* 2005; 5: 2302–2305.
5. Sonnenday CJ, Warren DS, Cooper M et al. Plasmapheresis, CMV hyperimmune globulin, and anti-CD20 allow ABO-incompatible renal transplantation without splenectomy. *Am J Transplant* 2004; 4: 1315–1322.
6. Segev DL, Simpkins CE, Warren DS et al. ABO incompatible high-titer renal transplantation without splenectomy or anti-CD20 treatment. *Am J Transplant* 2005; 5: 2570–2575.
7. Takahashi K, Saito K, Takahara S et al. Excellent long-term outcome of ABO-incompatible living donor kidney transplantation in Japan. *Am J Transplant* 2004; 4: 1089–1096.
8. UNOS. Organ Procurement and Transplantation Network data as of May 24, obtained from and available at the United Network for Organ Sharing website. 2005.