

INVITED COMMENTARY

Impact of live-donor exchange on transplant waiting time*

Georg A. Böhmig

Division of Nephrology and Dialysis, Department of Medicine III, Medical University of Vienna, Vienna, Austria

Correspondence

G. A. Böhmig, Division of Nephrology and Dialysis, Department of Medicine III, Medical University of Vienna, Währinger Gürtel 18-20, A-1090 Vienna, Austria.
Tel.: +43 1 40400 4363;
fax: +43 1 40400 39302;
e-mail: georg.boehmig@meduniwien.ac.at

Conflicts of Interest

The author has no conflict of interest to disclose.

*Invited commentary on "Comparison of time on the deceased donor kidney waitlist versus time on the kidney paired donation registry in the Australian program", by Ferrari *et al.* [*Transpl Int* 2012; 25: 1026].

Received: 20 July 2012

Accepted: 28 July 2012

doi:10.1111/j.1432-2277.2012.01554.x

Kidney paired donation (KPD) is a powerful strategy for enabling live-donor transplantation of sensitized patients who have a willing but immunologically incompatible donor. Allocation of compatible kidneys via donor exchanges has turned out to be an effective alternative to HLA antibody-incompatible transplantation. Since the first suggestion of kidney exchanges in the 1980s, several mono- and multi-center KPD programs have been established [1]. In recent years, some units have improved the success rate of KPD by including unspecified donations or compatible pairs, increasing the length of donor–recipient chains, combining donor exchange with recipient desensitization, or shipping of live-donor kidneys [1].

Extended waiting time on dialysis may confer substantial risk for inferior patient and transplant survival. In this regard, patients with high levels of sensitization are particularly disadvantaged because of a markedly reduced chance of receiving a compatible living or deceased donor (DD) transplant. For some of these patients, KPD may

provide a unique opportunity to receive a transplant within an acceptable time frame.

In this issue of *Transplant International*, Ferrari and coworkers [2] provide a detailed analysis of the Australian KPD program to assess its impact on transplant waiting times. The Australian program is an impressive example of a newly established national donor exchange program [3]. Its key element is the use of a computer-based matching algorithm designed to precalculate compatible two- and three-way chains of donor–recipient pairs. Allocation of matched donors is based on a serological prescreening of potential recipients using Luminex-based single-antigen bead assays to reliably predict negative crossmatch test results [3]. In this respect, the Australian KPD program markedly differs from the national DD transplant program, where allocation is primarily based on HLA antigen-matching rules.

The authors demonstrate that upon five quarterly match procedures during a 1-year period, 26 of 61 registered recipients could find a compatible match, and pro-

ceeded to live-donor transplantation (two orphan donor recipients). Reported transplant outcomes were excellent (96% rejection-free survival). Many of the KPD recipients have spent years on the DD list, unable to find an HLA antibody compatible organ. For these patients, an impressively short interval between KPD registration and transplantation (on average 153 days) was documented.

Interpreting the data, it should be noted that the study was not designed to include a matched control group of sensitized patients on the DD list, and therefore does not allow for a clear-cut assessment of the relative benefit regarding waiting time. Furthermore, studied patients were transplanted during the initial phase of a newly implemented kidney exchange program (initiation in October 2010). In this regard, it can be expected that accumulation of difficult-to-match KPD candidates in the registry could lead to a progressive decline in the efficiency of the program. Finally, an important point is that, in contrast to serology-based matching in the KPD program, DD kidneys were primarily allocated on the basis of HLA antigen-matching rules. The authors mention that this matching approach, which gives priority to patients with very broad levels of panel reactivity, may promote allocation of DD kidneys to highly sensitized patients. However, one may argue that an acceptable mismatch approach also for DD donor transplant candidates, as in the acceptable mismatch program established by Eurotransplant [4], could

have substantially increased the chance of receiving a matched organ.

Nevertheless, the present study underscores the potential of KPD to markedly reduce wait times in broadly sensitized patients who otherwise have a low chance of receiving a compatible kidney. These and similar results may encourage the implementation of KPD programs to expand living donor pools for the challenging population of sensitized transplant candidates.

Funding

No funding.

References

1. Montgomery RA. Living donor exchange programs: theory and practice. *Br Med Bull* 2011; **98**: 21.
2. Ferrari P, Fidler S, Woodroffe C, Tassone G, D'Orsogna L. Comparison of time on the deceased donor kidney waitlist versus time on the kidney paired donation registry in the Australian program. *Transplant Int* 2012; **25**: 1026.
3. Ferrari P, Fidler S, Wright J, *et al.* Virtual crossmatch approach to maximize matching in paired kidney donation. *Am J Transplant* 2010; **11**: 272.
4. Claas FH, Rahmel A, Doxiadis II. Enhanced kidney allocation to highly sensitized patients by the acceptable mismatch program. *Transplantation* 2009; **88**: 447.