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Equity in cadaver kidney allocation does not imply neglecting HLA matching

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Sir: kidney allocation policies are still a matter of discussion since they have a high social and biological impact. We have read with interest what has recently been published in Transplant International dealing with this subject [1, 3, 4, 5] and would like to contribute to the debate with the data of the North Italy Transplant Program (NITP).

The analysis of 2917 transplantations performed in the NITP from 1/1/1990 to 30/9/1997 showed that 4-year cadaveric kidney graft survival was not significantly influenced by the level of HLA-DRB1 matching alone; on the contrary, the combined effect of HLA-A, B, DRB1 was evident. In particular, both in the univariate and in the multivariate analysis, we could identify 3 levels of HLA-A, B, DRB1 matching: 0–1, 2–4, 5–6 mismatches (MM) where graft survival rate and function were significantly different (90.9%, 85%, 72.6% respectively, $P = 0.01$). Moreover we found that in sensitised patients and re-transplants graft outcomes were satisfactory (i.e. 4 year graft survival = 89.7%) only when a kidney with no more than 2 HLA MM was given [2]. On the basis of these results and on other considerations an ad hoc working group developed the new NITP adult kidney allocation algorithm named NITK3.

NITK3 works in 2 steps and 4 levels. In step 1, the first kidney is offered to patients belonging to the "local pool" that includes all patients resident in a specific NITP retrieval zone where the donor has been procured. In step 2, the other kidney is allocated to the whole NITP waiting list that at present includes 2549 patients. Inside each step, 4 levels have been identified: the 1st level considers sensitised patients or re-transplants with 0–1 HLA-A, B, DRB1 MM, the 2nd, the same categories of recipients with 2 MM. The 3rd and the 4th levels take into account non-sensitised patients with 0–1 and 2–4 MM respectively. Inside each level, patients are ranked following 2 other criteria: waiting time on the list (priority to patients waiting for longer than 3 years, which was the median waiting time on the list), and donor to recipient age matching. When only patients with more than 4 MM are found, the centre is invited to renounce transplantation and a payback is given. Details of the NITK3 can be found elsewhere [2].

We have compared some features and outcomes in the first series of 928 transplants performed 2 years after the implementation of NITK3 with those of 916 consecutive transplants performed before NITK3, when kidneys were allocated according to the number of shared HLA antigens and balance. Our findings show that a significantly higher proportion of patients with a waiting time longer than 3 years (from 22.9% to 34.1%, $P = 0.001$), of sensitised recipients (from 9.7% to 21.6%, $P = 0.001$), and of re-transplants (from 6.3% to 8.3%, P = n.s.) have undergone transplantation with respect to the past. At the same time, there was an increase of patients who underwent transplantation with 0–1 HLA-A, B, DRB1 mismatches with the donor (from 15% to 22.4%, $P = 0.002$), but with an increase in the number of patients with 2 DRB1 MM (from 4.8% to 12.7%, $P = 0.001$). Kidneys were also more often used locally (48.4% vs. 34%, $P = 0.001$). These results were obtained without significantly affecting 1-year graft survival (90.8% vs. 91.8%), and function (71.7% vs. 69.6% of patients with Grade A renal function according to Collaborative Transplant Study grading scheme).

Our early results indicate, in agreement with the Eurotransplant data [1, 5], that HLA-A, B, DRB1 matching as a whole ensures good results and is compatible with social/ethical principles such as waiting time and local use. The impact of this policy on mid- and long-term graft outcome remains to be evaluated.

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