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Renal retransplantation in Switzerland: poor HLA matching of first and subsequent allografts does not appear to affect overal graft survival

T. Etienne, C. Goumaz, P. Ruedin, and M. Jeannet

National Reference Laboratory for Histocompatibility, Renal Transplantation Study Group, Swiss Transplant Foundation

Abstract. In Switzerland graft survival after primary renal transplantation can be considered as satisfactory, although our current policy does not favour HLA compatibility except for acute rejectors or sensitized patients. This low level of HLA matching could result in increased sensitization and affect subsequent graft survival. A total of 318 non-primary renal transplants were performed in 293 recipients during the period 1981–1990. Of these, 271 were second transplants, 40 were third transplants and seven were fourth or fifth transplants. Survival rates at 1, 2 and 5 years were 75%, 68% and 60% for second grafts, and 72%, 60% and 54% for third grafts, respectively. Results after multiple grafts were poor, but our experience was limited. The number of sensitized patients (peak PRA >50%) awaiting retransplantation slightly increased (51 to 69), but decreased as a proportion (72% to 66%). Our policy of relying only marginally on HLA compatibility does not appear to have affected our results adversely.

Key words: Renal retransplantation – Sensitization – HLA compatibility – Organ sharing

In Switzerland graft survival after renal transplantation can be considered as satisfactory (Fig. 1), although our current policy does not favour optimal HLA compatibility except for acute rejectors (<6 months) and sensitized patients (PRA >50%) to whom well-matched kidneys are allocated in priority. Conceivably, this low level of HLA matching (22% none or one, 41% two, and 37% three or four HLA B, DR mismatches, for first transplants) may result in increased sensitization and affect subsequent graft survival. This prompted us to review our data.

Offprint requests to: T. Etienne M.D., Hopital Cantonal Universitaire, 1211 Geneva 4, Switzerland

Materials and methods

A total of 318 non-primary renal transplants were performed in 293 recipients during the period 1981–1990. Of these, 271 were second transplants, 40 were third transplants and seven were fourth and fifth transplants. Among these retransplanted patients, the proportion of sensitized (peak PRA 50–80%) and highly sensitized (peak PRA >80%) patients was 19% and 29%, respectively. In cyclosporine-treated patients the proportion of HLA B, DR matching for retransplants was as follows: no mismatches 4.5%; one, 33%; two, 38%; three, 20.5%; and four 4%.

Immunosuppressive protocols varied slightly between different centres, and included cyclosporine since approximately 1983, so that 80% of patients overall were treated with this drug.

Results

Overall second graft survival rates were 75%, 68% and 60% at 1, 2 and 5 years (Fig. 1). The introduction of cyclosporine had a positive impact on second graft survival rates: the 1-, 2- and 5-year survival rates were 80%, 76% and 64% with cyclosporine and 57%, 48% and 43% without cyclosporine. Overall third graft survival rates were 72%, 60% and 54% at 1, 2 and 5 years. In the group of patients who had multiple grafts (four fourth grafts and three fifth grafts), only one patient in each subgroup still had a functioning graft at 1 and 2 years. The other multiple grafts failed within 6 months.

The relatively small number of patients reported in this series did not allow any statistical analysis of the effect of HLA matching. Nevertheless, a trend toward an HLA correlation was gradually emerging, at least for the no-mismatch group: when HLA B, DR antigens were analysed, second grafts with no mismatches had a survival rate of 80% at 5 years in contrast to a 50% to 70% rate with one to four mismatches (in cyclosporine-treated patients).

Overall, the number of sensitized patients (peak PRA >50%) awaiting transplantation remained stable and decreased as a proportion (42% to 32%) [5]. Considering only patients awaiting retransplantation, we noted a

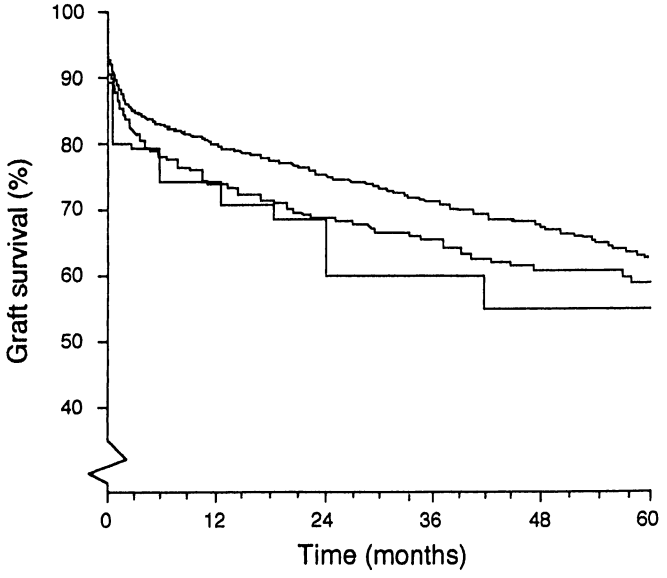

Fig. 1. Actuarial graft survival rates. *Top,* first graft ($n = 1526$); *centre,* second graft ($n = 271$); *bottom,* third graft ($n = 40$)

moderate increase in the number of sensitized candidates: 51 in 1981 and 69 in 1990. However, the proportion of sensitized patients waiting for retransplantation slightly decreased during the period studied (72% to 66%). In the subgroup of highly sensitized patients (peak PRA 80%) this trend was even more obvious (57% to 44%).

Discussion

Despite poor HLA matching of first and subsequent allografts, our regraft survival rates compare favourably with those published by other centres during the same decade [3, 4]. In cyclosporine-treated patients, our overall second graft survival rate was similar to that reported in a European study for one or two HLA A, B, DR mismatches (80% and 76% vs. 80% and 73%, 1- and 2-year graft survival rates). Our overall third graft survival rate is also similar or better than that reported by the same groups [3, 7]. Our experience with fourth and fifth grafts is limited, but not encouraging; however, no definitive conclusion can be drawn. As expected cyclosporine had a positive impact on regraft survival rates at least for second transplants. Our overall patient survival rate is in accordance with that reported elsewhere [1].

A significant influence of HLA matching on graft outcome could not be unequivocally demonstrated in the retransplanted population, although a trend towards an HLA correlation was progressively emerging at least for full matches.

Considering the low level of HLA compatibility achieved for primary grafts, an increased rate of sensitization following rejection of these kidneys could conceivably occur. The impact of HLA matching on sensitization after a failed transplant is still a matter of debate in the literature [2, 6]. Nevertheless, we noted only a modest increase in the number of sensitized and highly sensitized patients awaiting retransplantation. The proportion of sensitized patients even decreased, although it remained relatively high. This relatively high percentage of sensitized candidates is of concern and should be closely monitored. It may partially reflect pretransplant sensitization by blood transfusions in pregnancy (20–30% of patients listed for primary transplantation were sensitized (peak PRA > 50%)).

Our current policy does not favour kidney sharing and HLA compatibility. Nevertheless, our graft survival rates after retransplantation can be considered as good. However, it is our opinion that these data do not provide any argument against an HLA matching effect. We would rather conclude that careful perioperative management of graft recipients and close follow-up of patients may have contributed to these results.

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