Pretransplant Blood Transfusions and Selection for Renal Transplantation

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Dear Sir,

Since several studies have shown a positive correlation between pretransplant blood transfusions and the kidney graft survival rate, many transplant centers have adopted a policy of giving deliberate transfusions in order to increase graft survival. During a 2.5-year period in 1980–1982, our team at Huddinge Hospital implemented a similar policy by giving five leukocyte-poor blood transfusions before transplantation. One third of the transfused recipients became immunized with panel reactive antibodies (PRA) against B cells and 15% formed PRA against T cells [1]. Significantly more nonsensitized patients than sensitized ones received kidney grafts within a reasonable time after the transfusion.

By now all the 58 patients with deliberate blood transfusions have received cadaveric kidney grafts 0–48 months after the transfusion. During this period 5 patients have been removed from the waiting list for transplantation because of deteriorating health and 4 of them have died. The waiting time for kidney transplantation was 5.7 ± 1.1 months (mean $\pm$ SE) for the 34 non-sensitized patients and 17 ± 3.0 months for the 24 sensitized patients ($p < 0.01$).

During this waiting time the PRA pattern of the sera from these patients has changed. One of the nonsensitized patients became sensitized and some patients who had previously formed B cell antibodies also developed T cell antibodies. As regards the peak levels of antibodies (the highest antibody levels they have had), 41 of the patients had PRA against B cells and 17% against both B and T cells. Fifty-nine percent of the patients never showed any lymphocytotoxic antibodies. The increase in titers may have been due to the additional blood transfusions which the patients needed or to concomitant infections which caused polyclonal antibody production. However, immediately before transplantation in many cases the antibody titer had disappeared and/or diminished; this was noticed in 14 of the 24 patients. Thus, the pretransplant sera showed B cell PRA in 17% of the patients and T cell PRA in 7%.

The 1-year graft survival rate was 50% for the sensitized patients compared to 76% for the nonsensitized patients ($p < 0.05$) – and this despite the fact that two thirds of the sensitized patients, but only one third of the nonsensitized patients, had been treated with cyclosporin and prednisolone. The remaining patients had been treated with prednisolone and azathioprine in accordance with our previous protocol.

We found that the sensitized patients had been given more HLA-A, -B and -DR mismatched kidneys than the nonsensitized patients. This may have been due to our policy of offering

sensitized patients 'the first cross-match negative kidneys' regardless of matching. Sera older than 1 year were not included in the cross-match. Only 1 sensitized patient received a kidney graft without HLA-A, -B incompatibilities while 6 nonsensitized patients received such grafts. Seven sensitized patients compared to 15 nonsensitized patients received HLA-DR matched kidneys. Thus, in our experience, the blood

Pretransplant Blood Transfusions and Selection for Renal Transplantation

309

transfusions were not responsible for any selection of better HLA-matched kidney grafts to sensitized patients. In conclusion, pretransplant blood transfusions resulted in the sensitization of about 40% of the patients. This delayed renal transplantation and the outcome in these patients was inferior to that in the nonsensitized patients. In recent years, nontransfused patients have been reported to have a 1-year graft rate of about 60% [2]. We believe that sensitization can be avoided by not giving blood transfusions. If necessary, uremic patients who are waiting for a renal graft should be given leukocyte-free blood products.

References

Fehrman, I.; Ringdén, O.: Increased incidence of sensitization among patients with polycystic kidney disease following pretransplant blood transfusions. *Nephron* 40:41–47 (1985).

Cecka, M.; Cicciarelli, J.: The transfusion effect; in Terasaki, Clinical kidney transplants, pp. 73–92 (CLA Tissue Typing Laboratory, 1985).