2015

ELSEVIER

Outcome of Kidney Transplantation in African-Americans Using Tacrolimus

V.P. Scantlebury, R. Shapiro, W. Irish, M.L. Jordan, C. Vivas, H.A. Gritsch, J.J. Fung, J. McCauley, R.L. Simmons, and T.E. Starzl

THE RESULTS of kidney transplantation in African-Americans have improved with better immunosuppressive regimens, but the overall graft survival is reported by many to be inferior to that of non-Black recipients.[1-3] The underlying impact of such factors as HLA matching, immunosuppressive regimes, socioeconomic status, or center effect has remained in question as many examine the underlying cause for the poorer graft survival.[2,4]

Our early experience with the use of tacrolimus has shown no difference in kidney allograft survival when compared to the non-Black recipients.[5]

We examine the outcome of the use of tacrolimus, a better immunosuppressive agent, to evaluate the effect of graft survival in African-American patients undergoing renal transplantation alone at the University of Pittsburgh. Minimum follow-up is 12 months.

PATIENTS AND METHODS

From October 1989 to December 1995, 1204 patients underwent kidney transplants at the University of Pittsburgh. One hundred fifty four were performed in 148-African Americans (13%). Excluded from the analysis were 16 patients who received a kidney in combination with bone marrow, liver, pancreas, or islet-cell transplantation. Of the remaining 138 transplants, 86 (62%) were treated with tacrolimus and steroids alone. Triple-therapy using azathioprine was the regimen in 31 (22%), cyclophosphamide in 16 (12%), and mycophenolate mofetil in 5 (4%).

Adults made up 96% of patients with a mean age of 43 ± 13 years. One hundred four (76%) patients received their first transplant, while 32 patients underwent retransplantation (25 second grafts, 6 third grafts, and 1 fourth graft.) The most common etiologies of renal failure were hypertension and diabetes. Panel reactive antibody level was 40 or less in 87% of the transplants. Cadaveric donors accounted for 92% of the transplants.

RESULTS

The 1- and 3-year actuarial patient survival was 96% and 92%, respectively (Fig 1). The 1- and 3-year actuarial graft survival was 86% and 70%, respectively. Twenty of 52 failed grafts were lost in the first year after transplantation, 11 as the result of nonfunction and/or rejection.

Rejection was seen in 68% of the transplants. Twenty-five (18%) required OKT3 for steroid-resistant rejection. Fifteen of these went on to graft failure; six within the first year after transplantation. Loss of graft in all 15 cases was associated with infection and/or rejection. There were 18 deaths: eight while on dialysis and 10 with a functioning graft. New onset diabetes was seen in 28 (25.7%) patients at risk, of whom 13 were able to discontinue insulin after lowering immunosuppression. Only 2% of the transplants were associated with a six HLA antigen-matched kidney. Eighty-four percent received a one to three antigen-matched graft.

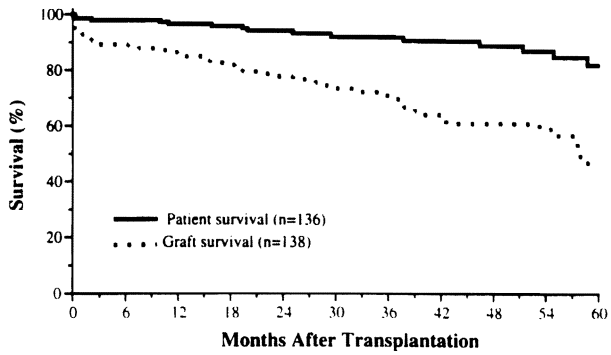

Fig 1. African-American kidney transplantation under tacrolimus: patient and graft survival.

The mean creatinine at 1 and 3 years was 1.9 + 1.0 mg/dL and 3.3 + 3.3 mg/dL, respectively. The mean tacrolimus dose was 17 + 10 mg/dL per day at 1 year and 13 + 7.0 mg/dL per day at 3 years.

DISCUSSION

The overall graft survival for kidney transplantation has improved progressively, with better immunosuppressive regimens both for Black and non-Black recipients. Despite earlier reports of poorer kidney allograft survival in Afri-

From the Thomas E. Starzl Transplantation Institute, Departments of Surgery and Urology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA.

This work was supported by the National Institutes of Health, Bethesda, Maryland, Grant DK29961.

Address reprint requests to Velma P. Scantlebury, MD, Thomas E. Starzl Transplantation Institute, 3705 Fifth Ave. 4A-470, Pittsburgh, PA 15213.

0041-1345/97/$17.00
PII S0041-1345(97)01090-7

can-Americans,[6,7] many others have reported no racial differences in the outcome of renal transplantation.[7,8] However, such reports have tended to have relatively short follow-up periods. In our analysis of 8111 African-Americans among the 31,280 primary cadaveric kidney recipients in the 1991–1995 UNOS Scientific Registry Study,[9] the 1-year graft survival was essentially the same as the 23,280 "all other." Between 1 and 3 years, however, the African-Americans lost about 10% more grafts than the "all others" at every level of HLA match.

Since beginning the use of tacrolimus at the University of Pittsburgh in 1989, kidney transplant recipients have received tacrolimus as part of a randomized double or triple drug regimen. Induction antilymphocytic globulin has not been used routinely. Our results of patient and graft survival in this subgroup group of African-Americans are equivalent to those found in an earlier smaller series reported by Shapiro et al[10] and are similar to those of others using quadruple therapy with OKT3 induction.[11,12] The fiscal and quality of life advantages of using tacrolimus without OKT3 are obvious.

While many factors are responsible for the poorer outcome of African-Americans undergoing kidney transplantation, improved immunosuppression is more likely to play a significant role in the long-term than other proposed mechanisms. The challenge of improving the long-term graft survival in the African-American population will depend partly on the ability to control rejection at both the early and late stages after transplantation.

REFERENCES

1. Kasiske B, Neylan J, Riggio R, et al: New Engl J Med 324:302, 1991

2. Butkus D, Meydrech E, Raju S: New Engl J Med 327:840, 1992

3. Terasaki PI (ed): Clinical Transplants 1990. Los Angeles, Calif: UCLA Tissue Typing Laboratory; 1990, p 447

4. Gaston R: Blood Purification 14:327, 1996

5. McCauley J, Shapiro R, Woods H, et al: Transplant Proc 25:2468, 1993

6. Cecka JM, Terasaki PI (eds): Clinical Transplants 1994. Los Angeles, Calif: UCLA Tissue Typing Laboratory; 1994, p 1

7. Koyama H, Cecka J, Terasaki P: Transplantation 57:1064, 1994

8. Light J, Kelly J, Aquino A, et al: Transplant Proc 25:2436, 1993

9. Scantlebury V, Gjertson D, Elizsaiw M, et al: (in press)

10. Cecka JM, Terasaki PI (eds): Clinical Transplants 1995. Los Angeles, Calif: UCLA Tissue Typing Laboratory; 1995, p 199

11. Benedetti E, Freels S, Coady N, et al: Am J Surg 172:56, 1996

12. Tesi R, Deboisblanc M, Saul C, et al: Archives Surg 132:35, 1997