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Renal Transplantation Under FK 506 in African-Americans: Early Experience

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FK 506 is a potent immunosuppressant agent that has demonstrated promising results in liver, heart, and kidney transplantation.[1] African-American patients have, in some studies, been found to have lower renal allograft survival rates. Previous experience with cyclosporine (CyA) at our center has not suggested that African-Americans are at a disadvantage after renal transplantation.[2] Center effect has been invoked by many to explain why some centers find differences between racial groups.[3] Differences in allograft outcome may be related to socioeconomic factors or immunologic differences that might leave African-Americans at a disadvantage. Some authors have suggested that using more potent immunosuppressant protocols might minimize potential immunologic limitations. Because FK 506 is more potent than CyA, if immunologic factors are predominant, allograft survival might improve. We reviewed the results of our early experiences with FK 506 to characterize the outcomes of African-American renal transplant patients and compared these results to CyA-treated patients.

PATIENTS AND METHODS

From October 1987 until October 1992 957 patients received renal transplants at the University of Pittsburgh. During this period 131 African-American patients were transplanted; 48 with FK 506 + prednisone, 13 with CyA + prednisone, 54 with CyA triple therapy, and 16 with FK 506-based triple therapy. The frequency of immunosuppression protocols was similarly distributed for white patients. The immunosuppression protocols and results of previous trials have been published elsewhere.[4,5] The FK 506 doses used in these protocols are now believed to be excessive and led to nephrotoxicity and other side effects that have been minimized by lowering doses.[6] Difference between mean values was evaluated using Student's *t* test or analysis of variance when appropriate. Cox regression modeling was used to evaluate the contribution of multiple factors on allograft survival.

RESULTS

Allograft survival was similar for FK 506 and CyA-treated African-American patients (Fig 1). There was no difference in waiting time, recent or highest panel reactive body (PRA), number of previous transplants, age or sex between these groups. There was likewise no difference in allograft survival when African-American patients were compared to whites. In this analysis all white patients and all African-American patients were pooled into their respective groups. There was also no significant difference in patient survival between races or between treatment protocols when all patients were pooled. In both analyses

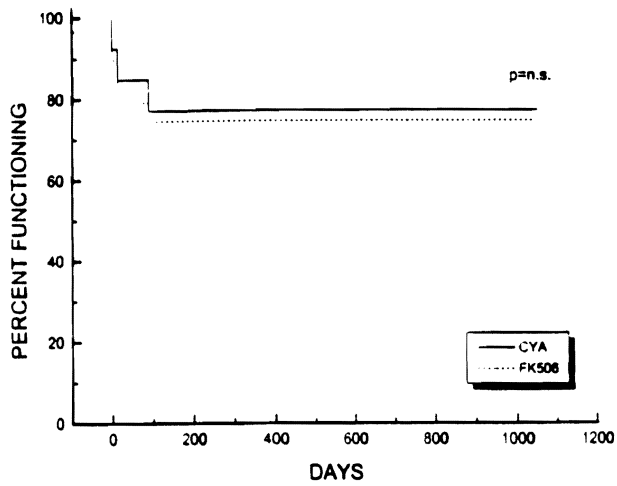

Fig 1. Allograft survival in African-American patients by immunosuppression protocol.

there was no difference in age, sex, waiting time, highest or PRA prior to transplantation (recent PRA), or allograft number.

Cox regression modeling was used to determine the variables that predicted allograft survival. The following variables were considered: age, sex, race, native kidney diagnosis, highest PRA, recent PRA, cadaveric vs living related, allograft number, and immunosuppression protocol. The only variable that improved the model, of those listed, was recent PRA. Importantly, race was not a significant factor in predicting allograft survival.

DISCUSSION

Race has been implicated as a major predictor of allograft survival in renal transplantation. Studies conducted during the last decade have not universally found this to be true. The concept of center effect has grown from this variability. Center effect does not, however, explain the reasons for these differences. Most investigators have found socio-

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economic factors to be important and may predominate. Immunologic factors have also been implicated. Some investigators have suggested that enhanced immunosuppression may be required in African-Americans given the genetic differences between these recipients and their white donors. FK 506, a more potent immunosuppressant, would seem to be an ideal choice if the latter hypothesis were true. We have found, however, no difference in allograft survival between FK 506-treated patients and their CyA counterparts. Likewise, there was no difference in allograft survival between African-Americans and whites in this study. These data suggest that, at least in this center, any differences in immunologic or socioeconomic factors were not sufficient to reduce the long-term outcome of renal transplantation in African-Americans.

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