KIDNEY TRANSPLANTATION

FK 506 in Clinical Kidney Transplantation

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EARLY reports on the use of FK 506 after kidney transplantation emphasized the ability to stop prednisone in a significant percentage of successfully transplanted patients.[1,2] In addition, there was a relative freedom from antihypertensive agents and a tendency toward low serum cholesterol levels. This report will summarize our experience to date with FK 506 in renal transplantation and will compare the results with a nearly concurrent group of patients treated with cyclosporine (CyA)-based immunosuppression.

MATERIALS AND METHODS

Between March 27, 1989, the date of the first kidney transplant under FK 506 immunosuppression, and May 1, 1991, 464 kidney transplantations were performed at the University of Pittsburgh. Of these 28 were in patients who had received concomitant or previous liver transplants, and these were the only exclusions from the analysis. Of the 436 transplants in 425 patients, 196 received CyA-based immunosuppression; over 80% of this group received azathioprine as well (Table 1). Some 240 cases were treated with FK 506 and steroids. The mean recipient age was 39.5 ± 14.9 years; 44 (10.1%) of the cases were performed in patients over 60 years of age, and 31 (7.1%) of the transplants were to children. Sixty (13.7%) of the cases involved black recipients. There was a significantly higher incidence of retransplantation in the FK 506 group—over 30% of the FK 506 cases were to patients undergoing their second to fifth transplant, whereas just under 20% of the CyA cases were retransplants ($P < .005$). Over 25% of the transplants were to sensitized recipients. A higher percentage of living-donor cases were done under CyA—14.3% vs 5% of the FK 506 cases ($P < .02$).

The mean donor age was 34.0 ± 16.6 years; 73 (18.4%) of the cadaver transplants were with pediatric en bloc kidneys. The mean cold ischemia time was 36.3 ± 10.6 hours. HLA matches and mismatches revealed a small number of good matches, with less than 2% of cases being 6-antigen matches and nearly two-thirds of cases having a 2-antigen match or less.

There was thus no attempt to be particularly discriminating in either donor or recipient selection. The FK 506 cases were actually a higher-risk group than was the CyA group—more retransplants, fewer living donor cases, slightly more sensitized patients, and en bloc kidneys. This had the effect of subjecting FK 506 to a rather stringent evaluation.

FK 506 dosage has evolved toward decreasing amounts. From March 1989 until June 1990, 0.075 mg/kg was infused intravenously over 4 hours twice a day. From June 1990 until August 1990, 0.15 mg/kg per day was given as a continuous infusion over 24 hours. Since August 1990, a continuous intravenous infusion of

Table 1. Recipient and Donor Characteristics

	CyA	FK 506	Total
No. Patients	191	234	425
No. Transplants	196	240	436
Mean age	38.2 ± 15.0 y	40.5 ± 14.7 y	39.5 ± 14.9 y
Pediatric cases	17 (8.7%)	14 (5.8%)	31 (7.1%)
Recipient age >60 y	15 (7.7%)	29 (12.1%)	44 (10.1%)
Black recipients	34 (17.3%)	26 (10.8%)	60 (13.7%)
*Retransplantation	38 (19.4%)	76 (31.7%)	114 (26.1%)
PRA >10%	45 (22.0%)	68 (28.0%)	113 (26.0%)
PRA >40%	26 (13.0%)	41 (17.0%)	67 (15.4%)
Cadaver	168 (85.7%)	228 (95.0%)	396 (90.8%)
†Living donor	28 (14.3%)	12 (5.0%)	40 (9.2%)
Donor age	32.9 ± 16.4 y	34.8 ± 16.7 y	34.0 ± 16.6 y
Cold ischemia time	37.0 ± 11.2 h	35.9 ± 10.1 h	36.3 ± 10.6 h
Pediatric en bloc	28 (16.7%)	45 (19.7%)	73 (18.4%)

*$P < .005$.
†$P < .02$.

Table 2. Actuarial One-Year Survival

	CyA	FK 506	Total
Patient survival			
All	94%	90%	92%
Graft survival			
All	77%	74%	76%
Cadaveric	75%	73%	74%
Living donor	89%	100%	96%
Creatinine	1.9 ± 1.7 mg/dL	2.1 ± 1.2 mg/dL	
BUN	31.0 ± 17 mg/dL	36.0 ± 22 mg/dL	
Uric Acid	7.2 ± 2.6 mg/dL	8.1 ± 2.4 mg/dL	
*Cholesterol	236 ± 59 mg/dL	187 ± 51 mg/dL	

*$P < .0001$; all others P = NS.

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