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## Posttransplant Hypertension in Blacks Versus Nonblacks

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**H**YPERTENSION (HTN) is known to be a major cause of end-stage renal disease in the black population.<sup>1,2</sup> However, the onset of HTN after renal transplantation is also a common problem and has been shown to be associated with such factors as renal dysfunction, native renal disease, and drug toxicity.<sup>3</sup> We analyzed our renal transplant patient population looking at the required maximum number of antihypertensive medications (AHMs) in the postoperative period to see if there were any differences between black (BK) and nonblack (NBK) renal transplant recipients.

### MATERIALS AND METHODS

A retrospective review of all renal transplants followed at our institution between January 1987 and January 1992 was carried out, and all patients requiring AHMs with follow-up and graft function for at least 1 year were analyzed. Of 361 patients on AHMs, 230 were eligible for analysis. Median follow-up was 28 months (range 12 to 72 months). Maintenance immunosuppressive regimens consisted of cyclosporine (CyA), prednisone ± azathioprine, and FK 506, prednisone ± azathioprine. Patients were categorized by race into BK and NBK. The mean maximum number of AHM required by the two groups of patients were examined and analyzed to see if race, sex, age, type of immunosuppression, or graft number played any role in the requirement of AHMs.

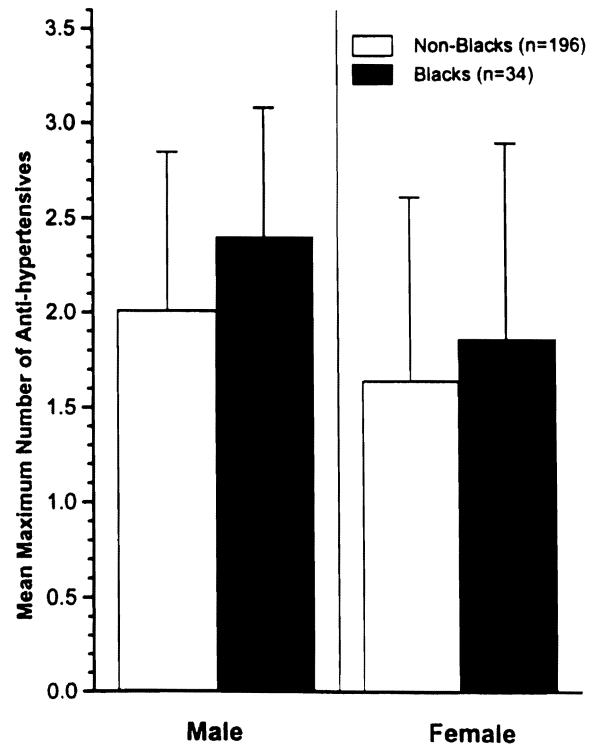
### RESULTS

Of the 230 patients evaluated, 34 were BK (15%) and 196 were NBK (85%). The mean maximum number of required

**Table 1. Posttransplant Hypertension in Blacks vs Nonblacks: Mean Maximum Number of Antihypertensives**

	Mean (± SD)	P
<b>Sex</b>		
Male	2.06 (.83)	.003*
Female	1.67 (.98)	
<b>Race</b>		
Black	2.18 (.90)	.075
Nonblacks	1.88 (.97)	
<b>Age</b>		
Pediatrics (<18 years)	2.06 (.87)	.532
Adults (<50 years)	1.94 (.89)	
(>50 years)	1.83 (.97)	
<b>Graft</b>		
Primary	1.91 (.87)	.716
Nonprimary	1.97 (1.00)	
<b>Baseline immunosuppression</b>		
Cyclosporine	2.05 (.78)	.313
FK 506	1.89 (.98)	

\*Statistically significant.



**Fig 1. Posttransplant hypertension in blacks vs nonblacks.**

AHM were similar for both groups:  $2.2 \pm 0.9$  for BK and  $1.9 \pm 1.0$  for NBK (Table 1). Males accounted for 64% of patients (147), while females made up 36% of patients (83). The major difference was seen when the numbers of AHMs required were compared between males and females: Male patients had a mean maximum number of  $2.1 \pm 0.8$  compared with  $1.7 \pm 1.0$  for females ( $P = .003$ ). This sex difference was also shown to be true within the BK and NBK groups, with a numerical difference but no statistical significance (Fig 1). Patients on cyclosporine-based immunosuppression had slightly higher mean maximum num-

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bers of AHMs ( $2.1 \pm 0.8$ ) when compared with patients on FK 506-based immunosuppression ( $1.9 \pm 1.0$ ), but these differences were not statistically significant. Recipient age was examined and patients were categorized as pediatric (less than 18 years), greater than 50 years, or less than 50 years of age. Patients were also categorized as undergoing either primary or retransplantation. When each of these variables were analyzed to see if race was a factor in the use of the mean maximum number of AHMs after renal transplantation, no significant correlation could be demonstrated (Table 1).

#### DISCUSSION

Black recipients were shown to require slightly but not significantly higher numbers of AHMs postoperatively. The only significant difference in this study was between males and females. When the two groups (BK and NBK) were examined by sex, age, type of immunosuppressive

agent, or graft number, none of these factors contributed to the mean maximum number of AHMs required postoperatively. FK 506 has been reported to have a lower incidence of HTN when compared with CyA,<sup>4</sup> but in this analysis no significant difference in the two drugs could be shown. Retransplantation also played no role in the requirements for AHMs after renal transplantation. Our findings, therefore, do not indicate that hypertension after renal transplantation is worse in black than in nonblack recipients.

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