

Race and End-stage Renal Disease in the US Medicare Population: the disparity persists

Charles R.V. Tomson², Robert N. Foley¹, Qi Li¹, David T Gilbertson¹, Paul W. Eggers³, Allan J. Collins¹. ¹United States Renal Data System, Minneapolis Medical Research Foundation, University of Minnesota Twin Cities; ²Southmead Hospital, Bristol, UK; ³National Institute of Diabetes and Digestive and Kidney Diseases.

Introduction

- A marked preponderance of end-stage renal disease among African-Americans was described over two decades ago; considerable progress has been made since that time in renoprotective strategies.
- The objective of this study was to determine whether racial disparities in end-stage renal disease have changed over time.

Methods

- Using annual random samples of 5% of the Medicare population, we compared rates of renal replacement therapy (RRT) in four biennial cohorts (1993-1994, 1995-1996, 1997-1998 and 1999-2000).
- For each cohort, a two-year entry period was used to define comorbid conditions, and the following two years were used to calculate RRT rates, using the United States Renal Data System registry.
- Poisson regression was used for comparison of event rates.

Results

- 7.5% of the 4,184,197 patients studied were African Americans (Table 1).
- Diabetes and hypertension were much more prevalent among African Americans at the beginning of the observation period (Table 1).
- RRT rates were higher ($P < 0.0001$ for each comparison) in African-American than in white Americans in each biennial cohort, with and without adjustment for differences in baseline comorbidity (Table 2, Figure 1).
- The disparity in RRT rates between African Americans and white Americans remained unchanged over time (Table 2, Figure 1).
- Differential competing death risks did not explain the failure of the race-associated disparity in RRT rates to change over time (Table 2, Figure 1).

Table 1
Cohort characteristics

Cohort	93-94	95-96	97-98	99-00	AOR	African American
Cohort						1
93-94						0.96
95-96						0.91
97-98						0.89
99-00						-
African American 7.6%	7.6%	7.4%	7.4%			-
Age						
67-74	56.4%	49.1%	47.0%	45.6%	1	
75-84	38.1%	38.7%	40.1%	41.1%	0.87	
85+	11.6%	12.1%	12.9%	13.3%	0.93	
Female	61.2%	61.6%	61.2%	61.0%	1.04	
ASHD	23.1%	24.4%	25.4%	25.8%	0.65	
CHF	11.9%	12.9%	14.0%	14.1%	1.39	
Dysrhythmia	16.1%	17.0%	19.2%	19.6%	0.65	
CVA	10.3%	11.6%	12.4%	12.6%	1.04	
PVD	12.0%	13.3%	13.9%	14.0%	1.03	
Other CV	13.3%	14.9%	16.5%	17.1%	0.93	
COPD	13.2%	14.1%	13.0%	13.4%	0.76	
GI disease	5.9%	5.9%	6.3%	6.1%	1.09	
Liver disease	0.8%	0.7%	0.7%	0.8%	0.81	
Malignancy	10.6%	11.0%	11.9%	12.2%	0.83	
Diabetes	14.5%	15.5%	17.0%	18.4%	1.70	
Anemia	12.2%	13.5%	16.2%	17.0%	1.35	
OD	2.8%	2.9%	3.3%	4.1%	1.45	
Hypertension	44.4%	48.2%	52.0%	56.2%	1.83	

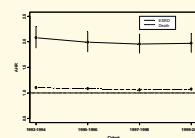
$P < 0.0001$ for all statistical comparisons
AOR, adjusted odds ratio, from logistic regression model containing the variables shown in the first column

Table 2
Rates of renal replacement therapy and death (per 1000 patient years)

Year	RENAL REPLACEMENT THERAPY		
	Unadjusted	P	Adjusted ^a
93-94	1.6	<0.0001	0.0016
95-96	1.8		0.6
97-98	2.0		0.6
99-00	2.1		0.6
Race		<0.0001	<0.0001
White	1.0		0.4
African American	3.4	0.7649	0.8213
Year*Race			
Year	DEATH		
	Unadjusted	P	Adjusted ^a
93-94	66.1	<0.0001	<0.0001
95-96	67.1		50.1
97-98	69.8		48.3
99-00	69.2		47.1
Race		<0.0001	<0.0001
White	64.2		47.6
African American	72.1		51.3
Year*Race		0.6120	0.0337

^a. Poisson regression was used to compare event rates
^b. Adjusted for the variables shown in the first column of Table 1

Figure 1
Adjusted event ratios of African Americans (vs. white)



Conclusions

- The discrepancy in RRT rates between white and African Americans has remained unchanged between 1993 and 2000.