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Renal Failure among Male Hispanics in the United States

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ABSTRACT

This study examined epidemiologic patterns and time trends among male patients with Hispanic surnames in the Medicare End-Stage Renal Disease Program and compared US Hispanics with non-Hispanic Blacks and Whites. Male Hispanics had substantially higher proportions of end-stage renal disease attributed to diabetes than did Blacks and Whites. There were notable regional differences among Hispanics. Between 1980 and 1990, the incidence of treated renal failure among Hispanics increased more than that among Blacks or Whites. The increasing number of Hispanics in the United States with end-stage renal disease emphasizes the importance of explicit health evaluations and prevention strategies for Hispanic populations. (*Am J Public Health.* 1995;85:1001–1004)

Introduction

In 1972, Congress created an entitlement to Medicare, the End-Stage Renal Disease Program, for persons diagnosed with kidney failure who were eligible for benefits under Social Security. From the mid-1970s to 1990, the population of those with end-stage renal disease grew from about 10 000 to more than 150 000. Both average age and the proportion of this population with renal failure attributed to diabetes also increased during this period.[1–3]

In regional studies, Hispanic groups have shown varied distributions of chronic diseases predisposing to renal failure that differ from those of non-Hispanics. Mexican Americans have a higher prevalence of non-insulin-dependent diabetes than either Blacks or Whites,[4–9] Puerto Ricans have a prevalence similar to that of Mexican Americans,[4,9,10] and Cuban Americans are similar to non-Hispanic Whites.[4] Rates of hypertension among Hispanic groups are lower than those among Blacks[5,11,12] and similar to or lower than those among Whites.[5,7,11–15]

Regional studies show a higher incidence of diabetes-related end-stage renal disease among Mexican Americans than among non-Hispanic Whites. The ratio of end-stage renal disease attributed to diabetes among Mexican Americans in comparison with Whites was much higher in Texas between 1978 and 1984[16]; in south-central Los Angeles,[17] the incidence rates among Hispanics were lower in 1980 but had increased to twice those in non-Hispanic Whites by 1985.

No studies have examined national patterns of Hispanic end-stage renal disease in the United States, even though Hispanics are the second most numerous and fastest growing minority in the country. The absence of indicators of Hispanic ethnicity among data from the Medicare End-Stage Renal Disease Program mandates the need for alternative methodologies to evaluate patterns of the disease among Hispanics in the United States. This study used a methodology based on identification of Hispanic end-stage renal disease patients through their Hispanic surnames. This methodology has been applied outside the end-stage renal disease setting,[18–27] and, despite its limitations, it provides a means of generating demographic and health data for Hispanics that are otherwise unobtainable.

This paper reports on the demographic characteristics of US male Hispanic end-stage renal disease patients,

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TABLE 1—Distribution of Age and Primary Diagnosis among New End-Stage Renal Disease Patients, by Race/Ethnic Group, 1988 through 1990

	Hispanic Blacks (n = 163), %	Hispanic Whites (n = 3618), %	Non-Hispanic Blacks (n = 17 516), %	Non-Hispanic Whites (n = 41 901), %
Age, y				
0–14	1.2	1.4	0.9	1.3
15–24	6.7	3.5	3.8	2.7
25–34	9.8	7.8	10.9	7.4
35–44	15.3	12.4	18.2	10.5
45–54	19.6	18.9	18.8	11.9
55–64	28.2	24.1	21.7	19.2
65–74	14.1	20.6	17.3	28.6
75 and older	4.9	11.2	8.6	18.4
Primary diagnosis[a]				
Glomerulonephritis	19.0	16.1	16.5	19.9
Hypertension	24.5	19.7	40.3	26.9
Diabetes	38.7	45.0	24.5	27.9
Other	8.6	8.8	7.4	14.9
Unknown/missing	9.2	10.4	11.3	10.4

Note. As a result of rounding, percentages do not always sum to 100.
[a]Physician-reported primary diagnosis of condition leading to renal failure.

focusing on comparisons with other groups, regional variations, and changes over time.

Methods

Subjects were all Medicare patients with renal failure. We identified subjects using Medicare End-Stage Renal Disease Program data files; the 7% of treated US end-stage renal disease patients not covered by Medicare were excluded.[1,2] Only males who started treatment for end-stage renal disease between 1980 and 1990 with race reported as Black (n = 46 965) or White (n = 128 300) were included; those with the racial designation of Asian, Native American, or "other" were excluded. The study was limited to males to avoid the problems introduced by female adoption of spousal surname.

The Medicare data include surname truncated to six characters; dates of birth, renal failure, and death; race; sex; physician-attributed primary cause of renal failure; and state of residence at time of reported renal failure.

Hispanic Surname Lists

In 1980, the US Bureau of the Census devised a list of 12 497 of the most common Spanish surnames in the United States, ordered by frequency of use.[25] Because Medicare data on end-stage renal disease patients include only the first six letters of the surname, a modified list of surnames up to six characters and

surname roots (the first six characters in names greater than six characters in length) was developed from the census bureau list.

For some of the truncated names, this procedure introduces overlap with names of non-Hispanic origin. For example, the name Martinez is clearly Spanish; however, Martin, the truncated form, is not Hispanic. Since a goal of the study was to develop a surname/root list that identified as many Hispanics as possible while minimizing the inclusion of non-Hispanics, names that had been truncated were evaluated for the probability of identifying Hispanic ethnicity. The following procedure was used. The 600 most common Spanish surnames, as evaluated by the Bureau of the Census, were selected for individual evaluation. These 600 names identify more than 80% of Hispanics in the United States, according to census bureau estimates.[25] The names were truncated and the resulting roots evaluated for overlap with names from other ethnicities by identifying all listings in the Manhattan and Brooklyn telephone books containing the root. Roots for which less than 80% of the corresponding names were not on the full Spanish name list were deleted.

In addition, to address the most common overlap, which was with Italian nationality, individuals in the Cultural Office of the Italian Consulate in Washington, DC, further evaluated the list for potential overlap with Italian names (e.g.,

Rosa, Rivera, and Serran). These names and roots were excluded.

Asians with Hispanic surnames were excluded from the study through the exclusion of individuals with Asian race designators in the Medicare data. Procedures used by the census bureau in forming the Spanish name list largely eliminated Portuguese names.[25]

In this paper, the term "Hispanics" refers to those identified with the modified name list, unless otherwise noted. "Non-Hispanic" Blacks and Whites refer to those identified as Black or White in the Medicare data without a Spanish name on the Bureau of the Census Spanish surname list.

Regional Comparisons

Comparisons were made between regions of the United States in which Hispanics from different national backgrounds predominate. These regions included (1) Arizona, California, Colorado, New Mexico, and Texas, which include the majority of Mexican Hispanics; (2) Florida, with the majority of Cuban Hispanics; and (3) New York and New Jersey, with the majority of Puerto Rican Hispanics. In addition, Puerto Rico, a territory, was analyzed as a separate region. Blacks were excluded from regional analyses because of insufficient numbers of Hispanic Blacks in each region.

The data presented include frequencies and cross tabulations, as well as average annual increases in age-adjusted incidence rates. Direct adjustment (with 1985 as the standard year) was used in the latter calculations. Census data for 1980 and 1990, with extrapolations for the intervening years, were used as denominator data in calculating annual end-stage renal disease incidence rates.

Results

Eighty-six percent of the Hispanic population identified by the modified surname list came from the southwestern states (Arizona, California, Colorado, New Mexico, and Texas), Florida, New York, New Jersey, and Puerto Rico, all of which were included in the regional analyses. By comparison, only about 34% of the non-Hispanic Blacks and Whites came from these states and Puerto Rico. Illinois was the state with the next largest Hispanic population; however, the number of Hispanics in Illinois was insufficient to allow a separate analysis. No other

state contributed more than 2% of the total Hispanic population.

The median age at renal failure for Hispanic Whites was between that of non-Hispanic Blacks and Whites. Non-Hispanic Blacks were typically younger than Hispanic Whites, while non-Hispanic Whites were older (Table 1). The age distribution of Hispanic Blacks was most similar to that of non-Hispanic Blacks, but the size of the group was quite small.

Renal failure was attributed to different causes among Hispanics and non-Hispanics of the same race (Table 1). Among Hispanic Whites, 45.0% of new cases were attributed to diabetes; among non-Hispanic Whites, attribution was more evenly distributed among glomerulonephritis (19.9%), hypertension (26.9%), and diabetes (28.0%). Whereas Black Hispanics had a much higher frequency of end-stage renal disease attributed to diabetes (40%) than did non-Hispanic Blacks (25%), their frequency attributed to hypertension was only 26%, in comparison with 40% among non-Hispanic Blacks.

There was significant regional variation in age and primary disease distributions among Hispanic Whites (Table 2). In contrast, percentages of all age and primary disease groups among non-Hispanic Whites in New York/New Jersey and the southwestern states were all within 2% of the corresponding national data. In Florida, there was greater variation from the national patterns but less among non-Hispanics (data not shown) than among Hispanics.

Between 1980 and 1990, the average annual incidence counts (Figure 1) and age-adjusted incidence rates increased more for Hispanics (9.6%) than for either non-Hispanic Whites (7.3%) or non-Hispanic Blacks (8.2%). The rate of increase for Hispanics was similar across the three mainland US regions studied (data not shown). In addition, the proportions of end-stage renal disease attributed to diabetes increased from 38.2% to 54.7% among Hispanics, from 22.4% to 36.6% among non-Hispanic Blacks, and from 23.4% to 35.4% among non-Hispanic Whites.

Discussion

This study used a modification of the methodology developed by the Bureau of the Census to study US Hispanics in the Medicare End-Stage Renal Disease Program. It found that Hispanic Whites develop end-stage renal disease earlier

TABLE 2—Regional Distribution of Age and Primary Diagnosis among New White Hispanic Male End-Stage Renal Disease Patients, 1988 through 1990

	Florida (n = 208), %	New York/ New Jersey (n = 335), %	Puerto Rico (n = 509), %	Southwest (n = 2091), %
Age, y				
0–34	10.3	19.4	10.2	11.3
35–44	13.5	16.4	12.6	11.6
45–54	13.0	18.8	20.2	19.6
55–64	14.9	17.9	26.7	24.6
65–74	24.0	16.1	17.3	22.6
75 and older	24.0	11.3	13.0	10.3
Primary diagnosis[a]				
Diabetes	23.6	32.8	41.7	49.7
Hypertension	35.6	24.8	17.3	18.7
Glomerulonephritis	16.4	23.0	22.0	13.4

Note. Differences between regions were significant at $P < .001$. As a result of rounding, age group percentages may not always sum to 100. Diagnosis groups were not inclusive.
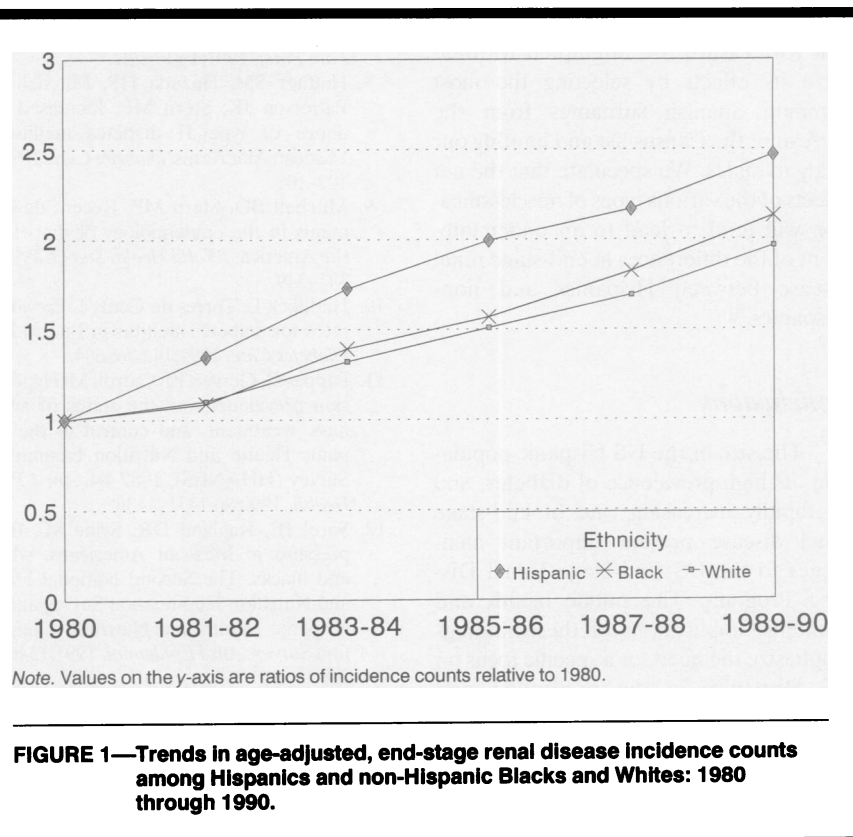[a]Physician-reported primary diagnosis of condition leading to renal failure.

Note. Values on the y-axis are ratios of incidence counts relative to 1980.

FIGURE 1—Trends in age-adjusted, end-stage renal disease incidence counts among Hispanics and non-Hispanic Blacks and Whites: 1980 through 1990.

than do their non-Hispanic White counterparts and that the rate of growth of the disease among Hispanics has exceeded that of non-Hispanics over the past decade. The proportion of renal failure attributed to diabetes among both Hispanic Blacks and Hispanic Whites was considerably higher than among non-Hispanics and has been only slightly lower than among Native Americans in the

Medicare End-Stage Renal Disease Program.[2]

There was greater regional diversity in age and attributable disease among Hispanics than among non-Hispanics, which in part reflects different distributions in diseases predisposing to end-stage renal disease among Hispanic groups. Differential misclassification of Hispanic ethnicity involved with use of the surname

methodology may have also contributed to these findings.

Potential causes of the increasing rate of end-stage renal disease among Hispanics include increased rates of renal failure, increased acceptance into treatment of diabetes-related renal failure, and increasing eligibility for Medicare benefits. Our study does not permit examination of the possible factors that have led to a faster rate of rise of treated end-stage renal disease among Hispanics than was observed among non-Hispanic Blacks and non-Hispanic Whites.

Several limitations to this study deserve mention. First, physician-attributed cause of renal failure may be biased by the ethnicity or race of the patient.[28] Second, not all Hispanics were identified by the surname methodology, and some of those identified as Hispanic were, in fact, not of Hispanic ethnicity. Conceivably, misclassification may have varied by region. While the magnitude of misclassification is difficult to measure, we attempted to minimize its effects by selecting the most common Spanish surnames from the Bureau of the Census list and limiting our study to males. We speculate that the net effects of the various types of misclassification will tend to lead to an understatement of the differences in end-stage renal disease between Hispanics and non-Hispanics.[29]

Conclusions

The size of the US Hispanic population, its high prevalence of diabetes, and its rapidly increasing rate of end-stage renal disease present important challenges to the US End-Stage Renal Disease Program. The public health and economic implications of these findings emphasize the need for a specific focus on US Hispanics in the prevention and treatment of renal failure. □

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