

RACIAL AND ETHNIC DIFFERENCES IN DIABETES CHARACTERISTICS: THE VA PATHWAYS STUDY

Diabetes is estimated to affect over 1,000,000 veterans who receive primary care within the Veterans Health Administration (VHA). Racial and ethnic differences exist in the prevalence and incidence of diabetes and diabetes-associated complications such as kidney disease, cardiovascular disease, and premature death. Reasons for racial/ethnic differences in diabetes complications have been attributed, in part, to differences in access to care and possible differences in biologic response to treatment. Among patients with similar access to health care, however, differences in prevalence and incidence of diabetes complications have been shown. Less is known about the relationship between diabetes complications and individual-level factors such as a patient's self-care diabetes practices, feelings of mistrust or discrimination, or compliance with complex medical regimens. Given known racial and ethnic differences in diabetes complications, we hypothesize that individual-level factors may influence incidence rates of diabetes complications in patients who receive primary care within VHA.

In our study, we examined results of a survey from the Veterans Affairs Puget Sound Pathways study. Respondent survey data was linked to clinical data to ascertain racial and ethnic differences in prevalent and incident diabetic nephropathy, cardiovascular disease, and mortality. Of the 7868 surveys sent, 1800 responded to the initial survey and results are reported for 1317 patients. Of the surveys received, 80.4% were White, 10.7% were African American, 2.3% were Asian, 1.8% were Native American, and 4.7% were Hispanic. Minority veterans were more likely to report feelings of discrimination, poorer overall health, and longer diabetes duration than whites. More research is needed to determine associations between discrimination and diabetes outcomes.

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INTRODUCTION

Diabetes affects approximately 20 million people in the United States, of whom approximately one third are unaware that they have the disease.¹ Of those with known disease, approximately 1,000,000 are veterans who receive primary care within Veterans Health Administration (VHA).² Diabetes complications typically occur 5–10 years after the onset of diabetes and account for over 35% of the estimated \$91.8 billion in direct medical expenditures for the disease.³ Likewise, treatment of diabetes and its complications in the Veterans Affairs (VA) accounts for a quarter of the VA pharmacy budget. Racial and ethnic minorities are 2–4 times more likely to be diagnosed with diabetes, 2–4 times more likely to develop diabetes complications,¹ and less likely to have insurance coverage for diabetes treatment than whites.⁴ Although access to care is thought to contribute greatly to these differences,^{5,6} available data suggest that differences in complications still occur even in settings where equivalent or comparable access to medical care is thought to exist, such as VHA.

Given that known racial and ethnic differences exist in diabetes complications, we hypothesize that among diabetic patients who receive primary care within VHA, the individual-level factors such as poor diabetes self-care practices, feelings of discrimination or lack of trust in the health care system may influence incidence rates of diabetes complications. To that end, we initiated and employed the Veterans Affairs Pathways to Health Study (VA Pathways Study) to determine the

impact of patient-level and system-level factors on racial and ethnic differences in the development of early diabetes complications and mortality among veterans participating in the prospective cohort study.

METHODS

To determine the influence of baseline levels of education, employment, discrimination, and income on prevalent and incident diabetes complications, we initiated a prospective cohort study on diabetic veterans who receive their primary care at the Veterans Affairs (VA) Puget Sound Health Care System (PSHCS). The VA PSHCS is the largest facility in Veterans Integrated Service Network 20 (VISN 20) and provides primary as well as tertiary care to VISN 20 (Alaska, Washington, Idaho, and Oregon) associated veterans. The VA health care system served by VISN 20 has more than 300,000 enrollees, of whom approximately 201,000 veterans receive health care at its medical centers and clinics. VA Puget Sound Health Care Center includes the Seattle, Wash and Tacoma, Wash campuses. Veterans with diabetes who received at least one primary care visit in FY2005, October 2004–September 2005, were identified using the Consumer Health and Information Performance Sets (CHIPS) database. CHIPS is a SQL-based relational database that extracts clinical information directly from the Veterans Health Information Systems Technology Architecture (VistA) clinical database, the electronic medical record for all VA medical care settings. Longitudinal laboratory, pharmacy, outpatient, and

hospitalization data are available in CHIPS for all patients dating back to 1996.

VA Pathways Study Population

A cohort of 7,868 diabetic patients who received their primary care at either the Seattle or Tacoma VA in 2005 was identified. These patients received the VA Pathways Cohort questionnaire, which ascertained self-reported characteristics such as duration of diabetes, diabetes self-care characteristics, diabetes symptoms, quality of life, depression status, socioeconomic status, and past discrimination. Survey data will be linked to CHIPS clinical data for 24 months prior to date of receipt of the survey. These data will be used to generate prevalent co-morbid conditions, baseline clinical parameters and medication use, and to determine stage of chronic kidney disease.

ANALYSIS

Our primary analysis, determining how race/ethnicity affects time until event (diabetes complication), will use Cox proportional hazard models⁷ adjusted for covariates. For progression of nephropathy, baseline will be defined as the start of the study for subjects with prevalent disease and first confirmed incidence of microalbuminuria for those who develop kidney disease during the study. Regression models that evaluate progression from baseline kidney disease stage to ESRD will be stratified by stage of baseline chronic kidney disease (CKD), as defined by the National Kidney Foundation (NKF) Kidney

Disease Quality Outcomes Initiative K/DOQI guidelines. Because baseline data were available for only the initial wave of surveys, current results will include cross sectional descriptive analyses of baseline race/ethnicity, feelings of discrimination score, and self-reported quality of life. Categorical comparisons were conducted.

RESULTS

We sent 7898 surveys to all veterans in the Seattle/Tacoma area with diabetes. Of those 42 people died after the survey was mailed. Of the remaining subjects, 1498 refused to participate in the survey and sent in the postcard. Thus far we have received 1800 surveys and have been able to clean data for 1,317. A second wave of surveys is in the process of being sent out this month. Of the 7898 subjects, 7,534 (95%) were male, the average age was 63 years, 4291 (54.5%) were White, 1155 (14.7%) were African American, and 234 (3.0%) were Asian. The number of Hispanics was unknown at the onset of the study. Of the surveys received, 80.4% were White, 10.7% were African American, 2.3% were Asian, 1.8% were Native American, and 4.7% were Hispanic. African Americans, Native Americans and Hispanics were more likely to report that they were treated unfairly compared to Whites. Native Americans and Hispanics were as likely as Whites to have incomes less than \$20,000 per year. The level of education appeared to be similar between participants as did the duration of diabetes, except Native Americans were more likely to have had

diabetes longer than 15 years. Excellent to good overall health care was more likely to be reported by all groups except for Native Americans.

CONCLUSION

We conclude that racial and ethnic differences in exposure to discrimination exist among diabetic veterans and that certain minority veterans report poorer overall health at baseline in preliminary VA Pathways Study results. Further analysis will determine if feelings of discrimination are associated with diabetes self care, diabetes clinical characteristics, and development of diabetes complications.

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