PREVALENCE OF DIABETES AND GLUCOSE INTOLERANCE
IN AN ETHNICALLY DIVERSE RURAL COMMUNITY OF HAWAII

Background: We report the prevalence of diabetes in a rural, multiethnic community in Hawaii, of predominantly Asian and Native Hawaiian ancestry, by using 1997 World Health Organization diagnostic criteria applied to a two-hour oral glucose tolerance test.

Methods: This cross-sectional survey included 1452 men and nonpregnant women who were >18 years of age. Blood was drawn in the fasting and postchallenge states. Individuals under pharmacologic treatment for diabetes were excluded. Information obtained included demographics, medical history, dietary intake, physical activity, and anthropometric measurements.

Results: Prevalence of diabetes was approximately three-fold higher among Asian and Native Hawaiian ancestry groups than among Caucasians, even after adjusting for other risk factors. Furthermore, diabetes prevalence was similar among all non-Caucasian ethnic groups despite significant differences in body mass indices.

Conclusions: These findings indicate that earlier reports of high prevalence of diagnosed diabetes among Asians and Hawaiian ethnic groups were not due to detection bias, since our study revealed similar prevalence of previously unrecognized diabetes. Furthermore, similar prevalence among these groups was observed despite significant differences in body mass indices. This apparent paradox may reflect limitations in the measurement of these risk factors; differences in the impact of these risk factors on diabetes risk in different ethnic groups; or ethnic differences in lifestyle, biochemical, or anthropometric measurements.

Key Words: Diabetes, Glucose, Hawaii

INTRODUCTION

The metabolic syndrome refers to a cluster of metabolic risk factors for coronary heart disease that includes abdominal obesity, atherogenic dyslipidemia, elevated blood pressure, and glucose intolerance. We previously observed a high prevalence of metabolic syndrome in a multiethnic population in Hawaii by using criteria recommended by the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (ATP III). However, these criteria are likely to underestimate the prevalence of glucose intolerance since they rely on fasting plasma glucose levels, which have a relatively poor sensitivity in the detection of type 2 diabetes and impaired glucose tolerance compared to the oral glucose challenge test (OGTT).

Most of Hawaii’s population is of Asian and Pacific Islander ancestry—populations that have been reported to be at higher risk for type 2 diabetes. For example, the Hawaii Behavioral Risk Factor Surveillance System (BRFSS) has reported a high prevalence of diabetes in people of Chinese, Japanese, Filipino, and Hawaiian ancestries (http://www.hawaii.gov/health/statistics/bfrss). However, BRFSS data included only cases with prior diagnoses of diabetes and, therefore, are subject to significant biases due to potential disparities in healthcare access and lack of a standardized diagnostic criterion. To date, only one community-based study has been conducted in Hawaii that applied standardized World Health Organization (WHO) diagnostic criteria to estimate the prevalence of type 2 diabetes in Native Hawaiians but did not include participants of Asian and European ethnic ancestries. Therefore, we report here the prevalence of diabetes, according to the current WHO diagnostic criteria, in a multiethnic Hawaii population.

METHODS

The methods of the Kohala Health Research Project have been described previously. The survey was cross-sectional in design and was conducted between 1997 and 2000. All men and nonpregnant women ≥18 years of age who were residing in North Kohala, Hawaii, were invited to participate. Estimates based on census data place the number of eligible residents at ~3500 adults. Participants were solicited via telephone with a cross-reference directory. Community sup-