COMMUNITY SCREENING FOR PRE-DIABETES AND DIABETES USING HbA1c LEVELS IN HIGH-RISK AFRICAN AMERICANS AND LATINOS

Mayer B. Davidson, MD; Petra Duran, BS; Martin L. Lee, PhD

Objective: To evaluate community screening using HbA1c levels in high risk African Americans and Latinos in those not known to have diabetes.

Design: HbA1c levels were measured in 1542 African Americans and Latinos aged ≥40 years with one or more of the following risk factors: family history in first degree relatives, waist circumference ≥40 inches in males or ≥35 inches in females, and hypertension, either treatment for or a measured BP of ≥140/90 mm Hg. Oral glucose tolerance tests (OGTT) were offered to those meeting the HbA1c criterion for pre-diabetes.

Setting: Churches, community health fairs, senior citizen sites.

Participants: People without known diabetes.

Main Outcome Measures: Proportion of people meeting the HbA1c criteria for pre-diabetes (5.8–6.4%) and diabetes (≥6.5%).

Results: 32% had one, 50% had two and 18% had three risk factors. By HbA1c criteria, 40% had pre-diabetes and 25% had diabetes. Increased waist circumference was the most common risk factor followed by a positive family history, and lastly, hypertension. Each individual risk factor was significantly (P<.001) and progressively more common as glycemia increased. Each additional risk factor increased the odds of pre-diabetes or diabetes by 2- to 4-fold. In individuals with pre-diabetes who underwent an OGTT, 59% were normal, 35% had pre-diabetes and only 6% had diabetes.

Conclusions: Community screening of high risk African Americans and Latinos with HbA1c levels identifies a large proportion of people with pre-diabetes and diabetes. Those identified with pre-diabetes are unlikely to meet the OGTT criteria for diabetes. (Ethn Dis. 2014;24[2]:195–199)

This article will describe our experience with screening high-risk African American and Latino individuals for pre-diabetes and diabetes with HbA1c levels in community settings, which has the potential of meeting the ADA objections.

Key Words: Screening, Risk Score, Pre-diabetes, HbA1c Levels

INTRODUCTION

Diabetes is more common in African Americans and Latinos than in the general population1 and their medical outcomes are worse.2 Tight diabetes control early in the course of diabetes has a beneficial effect many years later yet control has deteriorated in both type 13–8 and type 29 diabetes. Therefore, it is very important to identify minority individuals early in the course of their disease progression and direct them to appropriate preventive measures for those with pre-diabetes or to treatment for those with diabetes. It is well-established that African Americans and Latinos are more likely to be uninsured and have less access to medical care;10 in some cases, community screenings are one of the only opportunities to detect diabetes in these populations. The American Diabetes Association (ADA), however, does not recommend community screening for diabetes because of poor follow-up of those who test positive with fingerstick gluceses and the testing of many people at low risk.11 This article will describe our experience with screening high-risk African American and Latino individuals for pre-diabetes and diabetes with HbA1c levels in community settings, which has the potential of meeting the ADA objections.

METHODS

The purpose of the community screening reported in this article was to identify potential participants for a study of vitamin D supplementation in a minority population; a subset of those with both pre-diabetes and hypovitaminosis D were subsequently selected for our study.12 Participants were evaluated at 37 churches, 10 health fairs, 7 community events, 2 clinics and a few responded to flyers. The IRB at Charles R. Drew University approved this study. Because screening for diabetes often takes place at community health fairs, churches, senior citizen sites, etc without an informed consent being obtained, the IRB did not require it for the screening HbA1c test. However, for those with pre-diabetes defined by screening HbA1c levels 5.8%–6.4% who agreed to undergo an oral glucose tolerance test (OGTT), an informed consent for that test was required. For those who qualified and entered the study, another informed consent that described the randomized study itself was obtained.

We used the lower HbA1c value of 5.8% because the vitamin D study began before the ADA recommended the range of 5.7%–6.4% to diagnose pre-diabetes.11 Also the 5.8% value yielded the highest combination of sensitivity (86%) and specificity (92%) for diabetes in an NHANES popula-