

F. THE EPIDEMIOLOGY OF DIABETES AND ITS RISK FACTORS AMONG CHALDEAN AMERICANS

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INTRODUCTION

Heightened interest exists in the epidemiology of diabetes in diverse minority populations in the United States. Several large epidemiologic studies have shown that type 2 diabetes has reached epidemic proportions, particularly in a number of ethnic populations with apparent predispositions to diabetes.^{1,2} Substantial evidence from a number of cross-sectional and representative epidemiologic studies indicate that the risk of developing diabetes is much higher in selected ethnic groups compared to the general US population.³ Lifestyle changes associated with immigration, westernization, and urbanization are believed to contribute to the development of type 2 diabetes in susceptible populations. Features of the western lifestyle, including decreased physical activity, higher fat and processed foods dietary intake, along with the concomitant increases in body weight, have all been implicated.^{1,4}

BACKGROUND

The Chaldean (pronounced Kalde'an) population comes primarily from Iraq and are Catholic. They speak a distinct Aramaic language although many speak Arabic as well. The US 2000 Census of Ethnic Profiles estimates that >32,000 Chaldeans live in the tri-county (Oakland, Wayne, and Macomb) Detroit metropolitan area. The Chaldean-American community of Michigan is characterized by socioeconomic affluence and recent transition to a western lifestyle that is likely to contribute to the risks for diabetes and cardiovascular disease. Few published data are available on

the prevalence of diabetes in the US Chaldean population. Recent studies of Arab Americans in Michigan have demonstrated a fairly high prevalence of diabetes and glucose intolerance.⁵

The purpose of this study was to determine the incidence of diabetes and glucose intolerance among a randomly selected sample of Chaldean Americans, according to age, sex, body mass index (BMI), and family history based on the 1997 American Diabetes Association and 1998 World Health Organization diagnostic criteria.^{6,7}

METHODS

Sample and Setting

This study was conducted in an area of Detroit that was purposefully selected because it was known to have a large Chaldean-American population. Eligibility criteria included: 1) non-pregnant adults ≥ 20 years of age, 2) those with self-reported Chaldean ancestry, 3) residents of the defined geographic study area, and 4) those able to provide informed consent. If no eligible members were in the randomly selected household, a replacement household was selected. A total of 234 participants (85 men and 149 women) gave informed consents and agreed to be in the study. The mean age of the sample was 51 years. More men completed high school than women (36% vs 25%). Half of the women and men had migrated to the United States at 40 or more years of age. Thirty-eight percent of the men and 8% of the women were employed; 53% of the women described themselves as homemakers. Thirty-nine percent of the men and 10% of the women reported smoking cigarettes.

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Study Measures and Procedure

Participants reported to the Arab-American and Chaldean Council (ACC) clinic in the morning after a 12-hour fast. Each signed an approved informed consent. They were interviewed by trained bilingual study staff with a questionnaire to assess demographic, socioeconomic, and behavioral characteristics, including educational status, employment history, physical activity patterns, and nutritional intake. A standardized medical history was also obtained. Systolic and diastolic blood pressures were measured in the right arm with the participant sitting. Height, weight, hip, and waist circumference measurements were taken. All adults without a documented history of diabetes underwent an oral glucose tolerance test (OGTT) with a 75-g glucose load and 2-hour plasma glucose, insulin, and C-peptide concentrations.

Participants were considered to have diabetes if they reported a previous medical diagnosis of diabetes and/or were using insulin or an oral antidiabetic agent. Fasting plasma glucoses (FPG) of ≥ 126 mg/dL (7.0 mmol/L) and/or 2-h plasma glucose ≥ 200 mg/dL (11.1 mmol/L) were considered diagnostic of diabetes. An FPG ≥ 100 and < 126 mg/dL (6.1–7.0 mmol/L) was considered to be impaired fasting glucose (IFG). An FPG < 126 mg/dL (7.0 mmol/L) and a 2-h plasma glucose ≥ 140 mg/dL and < 200 mg/dL (7.8–11.0 mmol/L) indicated impaired glucose tolerance (IGT).

Participants were designated as having normal glucose tolerance (NGT) if their FPG was < 100 mg/dL (6.1 mmol/L) and the 2-h plasma glucose was < 140 mg/dL (7.8 mmol/L). A family history of diabetes was considered evident if participants reported their grandparents, parents, siblings, or chil-

dren as having been diagnosed with diabetes.

RESULTS

The overall prevalence of elevated blood sugars was 26%: 24% for men and 28% for women. Levels increased with age in both sexes. Almost half the participants (45%) were undiagnosed at the time of testing. The prevalence of IFG/IGT was highest among the 40- to 49-year-old age group. The age- and sex-adjusted prevalence of IFG/IGT was 18%: 19% for women and 16% for men. The prevalence of dysglycemia, defined as IFG/IGT, or diabetes, was 44%: 47% for women and 41% for men. The prevalence of dysglycemia increased with age. The highest prevalence of dysglycemia was in those > 60 years of age in both genders.

Mean BMI and WHR levels were highest in participants with evidence of diabetes, intermediate in subjects with elevated IFG/IGT ratios, and lowest in the NGT group ($P < .01$). Participants who had less than a high school education and those unemployed were at higher risk for having diabetes.

CONCLUSIONS

This study provides the first population-based estimates of the prevalence of diabetes and glucose intolerance among Chaldean-American adults. These rates are considerably higher than those reported for the White non-Hispanic (7.2%), Arab-American (12.5%), and Mexican-American (13.7%) samples.⁸

Factors contributing to lower detection rates may be related to lack of access to or use of healthcare services and

culturally related health beliefs and practices, including fear of uncovering medical problems. Recent immigrants tend to not usually engage in health promotion or preventive medicine.⁹

There is an urgent need to increase awareness of the risks and the need to control diabetes and glucose intolerance in the Chaldean-American community. Community-based and culturally appropriate programs aimed at the prevention and management of diabetes mellitus are essential.

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