Objective: We investigated metabolic syndrome and its association with high-sensitivity C-reactive protein (hs-CRP) levels in Cuban Americans.

Methods: The study included 161 nondiabetic Cuban Americans (55 men and 106 women) aged ≥30 years living in South Florida. Metabolic syndrome was defined by using Adult Treatment Panel III criteria. Elevated hs-CRP level was defined as >3 mg/L.

Results: Metabolic syndrome was present in 41% of participants, and no differences were seen by sex. The most common components of metabolic syndrome for women were abdominal obesity and elevated blood pressure, whereas for men they were elevated blood pressure and high triglyceride levels. A higher percentage of women had abdominal obesity and low high-density lipoprotein cholesterol levels, whereas a higher percentage of men had high triglyceride levels and abnormal glucose metabolism. The odds of having elevated hs-CRP levels were 4.4 times higher in participants with metabolic syndrome than in those without it. Mean log hs-CRP increased as number of components of metabolic syndrome increased. Of the components of metabolic syndrome, only abdominal obesity was significantly associated with elevated hs-CRP.

Conclusions: Metabolic syndrome was highly prevalent in our population of Cuban Americans. Cuban Americans with metabolic syndrome had elevated hs-CRP levels that might be explained by their abdominal obesity, increasing the risk for type 2 diabetes and cardiovascular diseases. (Ethn Dis. 2009; 19:115–120)

Key Words: Metabolic Syndrome, High-sensitivity C-reactive Protein, Cuban, Abdominal Obesity

INTRODUCTION

Metabolic syndrome is defined as the clustering of multiple metabolic risk factors that increase the risk of cardiovascular diseases, type 2 diabetes and all-cause mortality. However, worldwide there is no accepted criterion for the diagnosis of metabolic syndrome. The National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III) identifies various components of metabolic syndrome in adults and defines it as having three or more of the following: abdominal obesity (waist circumference >102 cm for men and >88 cm for women), triglyceride levels ≥150 mg/dL, high-density lipoprotein (HDL) cholesterol <40 mg/dL for men and <50 mg/dL for women, blood pressure ≥130/85 mm Hg, and fasting plasma glucose 100–125 mg/dL. Other organizations, such as the World Health Organization, the European Group for the Study of Insulin Resistance, the American College of Endocrinology, and the International Diabetes Federation, have also proposed criteria for the diagnosis of the metabolic syndrome, keeping in common the general features of a combination of central obesity, elevated blood pressure, dyslipidemia, and impaired glucose metabolism.

Findings from the Hispanic Health and Nutrition Examination Survey (HHANES) show that the prevalence of obesity (defined as ≥95th percentile) among Cuban Americans aged ≥18 years is 15% for women and 9% for men. Additionally, data from HHANES indicate that the prevalence of diabetes (including previously diagnosed and undiagnosed diabetes) in the 45- to 74-year age group is 16% among Cuban Americans, 1.3 times higher than the rate among non-Hispanic Whites.

Analysis of data from the National Vital Statistics System demonstrated that compared with other Hispanics, Cuban Americans had the highest percentage of diabetes-related deaths (44%), more than Puerto Ricans (39%) and Mexican Americans (37%).

Metabolic syndrome is also considered a proinflammatory state, and measurement of inflammatory markers like high-sensitivity C-reactive protein (hs-CRP) might improve the prediction of cardiovascular disease and diabetes in patients with metabolic syndrome. Previous studies have shown that CRP is associated with components of metabolic syndrome, including abdominal obesity. Cytokine production by adipocytes might mediate the elevation of CRP levels. Adipose tissue secretes a number of cytokines, among which is interleukin 6 (IL-6). IL-6 regulates hepatic production of CRP. Data are not available on the prevalence of metabolic syndrome in Cuban Americans, which is one of the fastest growing groups in the United States. Therefore, we investigated metabolic syndrome in Cuban Americans and its association with inflammation, as measured by hs-CRP levels.

METHODS

Design

This was a data analysis of nondiabetic participants in a cross-sectional study conducted in Cuban Americans with and without type 2 diabetes.

Study Sample

Participants were recruited randomly from 2 mailing lists of Cuban Americans living in Miami-Dade and Broward Counties, Florida. During a 1-year period, ≈10,000 letters (5000