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Research Article

Sedentarism and Metabolic Syndrome: Broadening the measurement of sedentarism

Abstract

The metabolic syndrome (MS) is a combination of cardiovascular risk factors, including visceral obesity, low HDL cholesterol level, increased triglycerides, hyperglycemia and high blood pressure. This sequence of risk factors contributes towards the development of atherosclerotic cardiovascular disease (ACVD) and diabetes mellitus. Sedentarism is not widely studied. This habit is a determinant factor for chronic or acute diseases. This study tests the hypothesis of the association between overall sedentarism, including professional work, travel and leisure and the MS, in adult men and women in Salvador, Bahia. A population based cross-sectional study of both genders, ages ≥ 20 years. MS is defined by the criteria of the International Diabetes Foundation, characterized as the MS when considering the presence of abdominal obesity (waist ≥ 84 cm for women and ≥ 88 cm for men) plus two of the following criteria: arterial hypertension ($\geq 130/85$ mmHg) hyperglycemia (≥ 100 mg/dl) hypertriglyceridemia (≥ 150 mg/dl). Hypoalphalipoproteinemia (hdl-cholesterol below 40 mg/dl for women and below 50 for men). Sedentarism is defined by means of the four criteria of physical inactivity described below. Athletes were excluded. Inactivity in the professional work: lack of physical activity in the professional work or the presence of light physical activity such as: working mostly seated or less than 25% of the time standing or moving around. Inactivity in household work: lack of household work or light work, such as small repairs, light cleaning or preparation of food. Physical inactivity during travel to work: traveling by car or bus, walking less than 30 minutes as well as performing most of the outside activities by car or walking. Physical inactivity during leisure: leisure does not include physical activities. The final sample totaled 1,333 individuals. In logistic regression, the adjusted prevalence ratio (PR) of overall sedentarism and the MS for women was of 1.31 (CI95% 0.86-1.91). For men the adjusted prevalence ratio was of 1.68 (CI95% 1.05-2.53), statistically significant. This paper reveals, in men, that overall sedentarism is associated to the MS. There was no statistically significant association between sedentarism exclusively in leisure and the MS. Marital status was a confounding factor and raises the issue of this variable not being widely studied as a cardiovascular risk factor.

Introduction

Since the eighties, with the publication of the first studies by Framingham [1] and Tromso [1], it was demonstrated that physical inactivity is associated to the risk of cardiovascular morbi-mortality. Subsequent studies confirmed these findings and added the knowledge that physical inactivity is also associated to general mortality [3,4], as well as to the development of arterial hypertension [5], diabetes [6] and obesity [7]. In further analysis to these initial cohorts, it was determined that the increased mortality in inactive individuals was due to excess weight, with this association having been confirmed over the years. More recent studies, such as Lee & col. [8], evidenced that the relationship between health and physical activities could be better represented by a “J” curve,

in other words, both sedentarism and strenuous physical effort are associated to higher general and cardiovascular morbi-mortality. Stevens & col. [9], and Wei & col. [10], demonstrated that the association between sedentarism and cardiovascular risk was independent of the increase in corporal fat, independently of the indicator used – weight, body mass index (BMI), waist/hip index ratio or abdominal waist. This was confirmed for men and women. In accordance with the line of investigation, the cardiorespiratory capacity of the individuals was more important than corporal fat, and more associated to health than the quantity of corporal fat. As opposed to this theory, a recent article in 2006, Diaz & col. [11] demonstrated that individuals not overweight or obese have improved cardiovascular risk profiles when compared to those with overweight or obesity with good physical capability, assessed by means of a stress test.