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ORIGINAL ARTICLE

Lipid and glucose profiles in outpatients and their correlation with anthropometric indices☆,☆☆

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KEYWORDS
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Abstract
Introduction and Objective: Obesity is associated with high rates of dyslipidemia and glucose intolerance. The objective of this study was to evaluate the correlation of anthropometric indices with the lipid and glucose profiles of outpatients.
Methods: We performed a cross-sectional study assessing anthropometric and metabolic parameters in a sample of 550 individuals.
Results: The prevalence of overweight exceeded 80%, with no difference between the sexes. However, 80.9% of women vs. 52.1% of men had waist circumference (WC) in the very high risk range (p=0.000). Glucose and lipid abnormalities were found in over 40% of the sample. In men, no correlation was found between anthropometric indices and metabolic profile. In women, HDL cholesterol (HDL-C) was negatively correlated with body mass index (BMI), WC and waist-to-height ratio (WHR). Triglycerides were positively correlated with BMI, WC and WHR and fasting plasma glucose with WC and WHR. After adjustment for age and nutritional status, the correlations only remained significant between HDL-C and anthropometric indices.
Conclusions: Among women, the anthropometric indices WC, WHR and BMI proved good predictors of HDL-C, showing the importance of using these parameters in clinical practice and for screening of cardiovascular risk.

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PALAVRAS-CHAVE
Dislipidemia;
Obesidade abdominal;
Antropometria

Perfil lipídico e glicídico de pacientes atendidos em ambulatório e sua correlação com índices antropométricos

Resumo
Introdução e objetivos: A obesidade está associada a elevada frequência de dislipidemias e intolerância à glicose. O objetivo desse estudo foi avaliar a correlação de índices antropométricos com o perfil lipídico e glicídico de pacientes ambulatoriais.
Métodos: Estudo transversal envolvendo uma amostra de 550 indivíduos, em que foram avaliados parâmetros antropométricos e metabólicos.
Resultados: A prevalência de excesso de peso superou 80%, não ocorrendo diferencial entre os sexos. No entanto, 80,9% das mulheres contra 52,1% dos homens apresentaram circunferência da cintura (CC) na faixa de risco muito elevado (p=0.000). Alterações lipídicas e glicídicas foram encontradas em mais de 40% da amostra. No sexo masculino, não foi evidenciada nenhuma correlação entre os índices antropométricos e o perfil metabólico. Para as mulheres, o HDL colesterol (HDL-c) apresentou correlação negativa com o índice de massa corporal (IMC), CC e relação cintura estatura (RCEst). O triglicerídeo (TG) apresentou correlação positiva com o IMC, CC e RCEst e a glicemia de jejum (GJ) com a CC e RCEst. Na análise ajustada para idade e estado nutricional, as correlações permaneceram significativas apenas entre HDL-c e os índices antropométricos.
Conclusões: Entre as mulheres, os índices antropométricos CC, RCEst e IMC mostraram-se bons preditores das concentrações de HDL-c, evidenciando a importância da utilização desses parâmetros na prática clínica e no rastreamento do risco cardiovascular.

Introduction

Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in adults; it is responsible for 16.7 million deaths per year worldwide according to the World Health Organization (WHO). In Brazil, around 30% of deaths in individuals aged over 20 are the result of CVD.[1]

There are many risk factors for the development of CVD, some of which, such as age, gender, family history and genetic inheritance,[2,3] cannot be modified, but others are directly linked to lifestyle and are modifiable, including smoking, physical inactivity, poor diet, obesity and dyslipidemia.[2,4]

Studies have shown that excess adipose tissue, particularly central obesity, is associated with high cardiovascular morbidity and mortality.[5,6] Abnormal visceral fat produces physiological changes that alter lipid profile, leading to dyslipidemia, which in turn increases the risk of cardiovascular events.[7] This is particularly true of alterations in low-density lipoprotein cholesterol (LDL-C), an independent causal factor in atherosclerosis,[4] and changes in vascular permeability arising from impaired glucose metabolism.[8]

Different methods are used to assess amount and distribution of body fat and its relationship to CVD. The anthropometric parameters body mass index (BMI), waist circumference (WC) and waist-to-height ratio (WHR) have the advantages in daily clinical practice of being simple to measure and reproducible.[9,10] The objective of this study was to evaluate the correlation between lipid and glucose profiles and anthropometric indices of total and central obesity, in order to determine which of the anthropometric measures commonly used in clinical practice and epidemiological studies are the best predictors of changes in lipid and glucose profiles.

Methods

This was a cross-sectional study of individuals attending outpatient consultations on nutrition at the Hospital Barão de Lucena (HBL) and Hospital das Clínicas (HC), part of the public health network of the city of Recife in north-eastern Brazil, between January and December 2009.

We analyzed 550 outpatients of both sexes aged over 19 seeking advice on nutrition. Patients were excluded if they were pregnant, had wasting diseases such as cancer or AIDS, had been taking medication for dyslipidemia, hyperglycemia or weight loss in the previous six months or had undergone plastic surgery such as abdominoplasty, as were those with conditions that could change body fat distribution.

As this was a survey aimed at determining the correlation between anthropometric indices and lipid and glucose profiles in outpatients before they received medical treatment or nutritional advice, only those who had not previously received professional advice on weight loss, dyslipidemia or hyperglycemia were selected.

Sociodemographic and anthropometric data (age, gender, educational level, weight, height and waist circumference) were recorded by the two attending physicians on a specially designed questionnaire.

For measurement of weight and height, the two outpatient clinics followed the methods recommended by Lohman et al.,[11] using platform scales (capacity 150 kg in 100-g divisions) with stadiometer (in 1-mm divisions). Weight and height were then used to calculate BMI, using the classification proposed by the WHO (1995).[12] WC was measured with a non-stretch tape measure according to the standards and cut-offs recommended by the WHO (1998).[13] WHR was determined as the ratio between WC in cm and height in cm, 0.5 being used as the cut-off.[14]