



ORIGINAL ARTICLE

Cardiovascular risk in overweight/obese and lean hypertensive patients



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KEYWORDS

Cardiovascular risk;
Obesity;
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Abstract

Introduction: Obesity and hypertension have been identified as independent risk factors for cardiovascular disease. Nevertheless, the role of obesity in the development and progression of target-organ disease in hypertensive patients is controversial. The objective of this study was to assess the impact of body weight on cardiovascular risk factors, target-organ disease and global cardiovascular risk in hypertensive patients in a primary care setting.

Methods: A cross-sectional observational study was carried in Vila Nova de Gaia, Portugal (n=150). A detailed medical and personal history was obtained and a physical examination was performed. Venous blood and 24-hour urine samples were collected, and an electrocardiogram was performed. Cardiovascular risk was assessed using the Framingham score. The statistical analysis was performed using SPSS®. A p-value <0.05 was considered statistically significant.

Results: The sample was 71.8% female, with a mean age of 74.3±10.8 years. The prevalence of obesity was 29.5%. Overweight/obese subjects presented lower mean HDL cholesterol (51.2±13.9 mg/dl vs. 65.4±35.2, p<0.005), higher triglycerides (137.8±70.4 mg/dl vs. 111.5±68.8 mg/dl, p<0.001), higher fasting glucose (111.9±32.8 mg/dl vs. 98.4±13.1 mg/dl, p<0.011) and more frequent mild valve disease (57.9% vs. 29.6%, p=0.021). Global cardiovascular risk was also significantly higher (10.9±7.7 vs. 6.5±5.7, p<0.001).

Conclusion: Overweight and obesity appear to be related to a less favorable lipid and blood glucose profile and higher cardiovascular risk in hypertensive patients. On the basis of our findings we suggest strict metabolic monitoring and improved education on weight reduction and control at primary health care clinics.

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PALAVRAS-CHAVE

Risco cardiovascular;
Obesidade;
Excesso de peso;
Hipertensão arterial

Risco cardiovascular em hipertensos com excesso de peso - Obesos versus normoponderais**Resumo**

Introdução: A obesidade e a hipertensão arterial são fatores de risco independentes para a doença cardiovascular. No entanto, o papel da obesidade no desenvolvimento da doença de órgão-alvo em pacientes hipertensos tem sido altamente controverso. O objetivo deste estudo é avaliar o efeito da sobrecarga ponderal (excesso de peso ou obesidade [OW/Ob]) sobre outros fatores de risco, doença de órgãos-alvo e risco cardiovascular global, em pacientes hipertensos. **Métodos:** Estudo observacional, transversal, realizado em Vila Nova de Gaia, Portugal (n=156). A história clínica foi colhida e avaliação física realizada, que incluiu uma amostra de sangue venoso, urina de 24-horas e eletrocardiograma. O risco cardiovascular foi avaliado pelo *score* de Framingham. A análise estatística foi realizada com SPSS®, considerando-se um valor de $p < 0,05$ como estatisticamente significativo.

Resultados: A amostra apresenta uma idade média de $74,3 \pm 10,8$ anos (71,8% mulheres). A prevalência de obesidade foi de 29,5%. O Grupo OW/Ob apresentou valores inferiores de HDL-colesterol, ($51,2 \pm 13,9$ mg/dl versus $65,4 \pm 35,2$, $p < 0,005$) e superiores de triglicédeos ($137,8 \pm 70,4$ mg/dl versus $111,5 \pm 68,8$ mg/dl, $p < 0,001$) e glucose em jejum ($111,9 \pm 32,8$ mg/dl versus $98,4 \pm 13,1$ mg/dl, $p < 0,011$). A valvulopatia ligeira foi mais frequente neste grupo (57,9% versus 29,6%, $p = 0,021$), e o risco cardiovascular global mais elevado ($10,9 \pm 7,7$ versus $6,5 \pm 5,7$, $p < 0,001$).

Conclusão: O excesso de peso e a obesidade parecem estar associados a um maior risco cardiovascular nos doentes hipertensos. Um adequado controlo metabólico e melhor educação para a saúde deverão ser integrados na abordagem multidisciplinar deste grupo de risco.

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Introduction

Obesity is a major health problem in developed countries. According to a World Health Organization report, over 200 million men and nearly 300 million women were obese in 2008.¹ Sedentary lifestyles, increasingly lipid-rich diets and reduced energy expenditure are among the main risk factors for obesity.¹

Obesity is closely linked to hypertension.²⁻⁴ It is well documented that obese patients are more likely to be hypertensive than lean individuals and that excess weight is predictive of subsequent onset of hypertension. In the Framingham Heart Study, 70% of cases of hypertension in men and 61% in women were directly attributed to excess adiposity, and it is estimated that each 5-kg increase in body weight leads to a mean increase of 4 mmHg in systolic blood pressure (BP) in both genders.⁵ An analysis comparing data from two National Health and Nutrition Examination Surveys (NHANES), 1998–1994 and 1999–2004, also showed that increased body mass index (BMI) accounted for nearly all of the increased prevalence of hypertension in men and for some of the increased prevalence in women.⁶

Both obesity and hypertension have been identified as independent risk factors for cardiovascular disease in the Framingham Heart Study.⁷⁻⁹

Nevertheless, the role of obesity in the development and progression of target-organ disease in hypertensive patients is controversial. Analysis of the Framingham Heart Study shows that the risk ratio for cardiovascular events was basically similar in lean and obese hypertensives.¹⁰ These studies

are in contrast to several large-scale prospective studies that showed obese hypertensives to be at a lower risk of cardiovascular disease than lean hypertensives.^{2,11} A review of 11 prospective studies suggested that the risk of major coronary artery disease-related events in lean hypertensive men was not higher than in overweight/obese (OW/Ob) hypertensive men.¹² It is difficult to explain the discordant results of the various studies, and several studies have been carried since then in order to assess and compare cardiovascular risk in obese and non-obese hypertensive patients.

The objective of this study was to evaluate the impact of increased body weight on cardiovascular risk factors and global cardiovascular risk in hypertensive patients in a primary care setting.

Methods**Study design**

A cross-sectional, observational, descriptive and analytical study was performed in the city of Vila Nova de Gaia, Portugal.

The study population consisted of individuals with a known diagnosis of hypertension, enrolled in a primary care unit in the city. Patients without a telephone, and those who were hospitalized or institutionalized, were excluded.

The sample size of 142 participants was calculated with the Survey System online calculator (www.surveysystem.com), for a population of 2805 diagnosed hypertensive patients in the primary care unit,

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