



ORIGINAL ARTICLE

Prevalence of microalbuminuria in hypertensive patients with or without type 2 diabetes in a Portuguese primary care setting: The RACE (micRoAlbumin sCreening survEy) study[☆]



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KEYWORDS

Microalbuminuria;
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Hypertension;
Micral test;
Prevalence

Abstract

Introduction and Objectives: To determine the prevalence of microalbuminuria (MAU) in outpatients with hypertension and/or type 2 diabetes mellitus (DM) and in normotensive, non-diabetic outpatients (control group); and, as secondary objectives, to examine the differences in the distribution of MAU in the four subgroups and the association of different clinical and epidemiological variables with MAU.

Methods: RACE (micRoAlbumin sCreening survEy) was a multicenter, descriptive observational cross-sectional study, which enrolled outpatients followed in primary care in Portugal. Patients with potential reasons for a false-positive MAU test were excluded. The main outcome measures were the prevalence of MAU as assessed by Micral[®] test strips and blood pressure. Demographic variables, presence of comorbidities, use of cardiovascular and antidiabetic drugs and biochemical variables were also analyzed.

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PALAVRAS-CHAVE

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Results: A total of 9198 patients (3769 with hypertension, 3100 with both DM and hypertension, 423 with DM and without hypertension, and 1906 controls), 54.7% women, were included in the primary analysis. Overall prevalence of MAU was 58% in patients with DM and hypertension, 51% in patients with DM, 43% in patients with hypertension, and 12% in controls (chi-square: $p < 0.001$ for all subgroups). In multivariate analysis, predictors for MAU were the presence of DM or hypertension, HbA1C, male gender, age, systolic blood pressure and total cholesterol.

Conclusions: MAU is extremely common in outpatients with DM and/or hypertension followed in primary care, especially in those with both hypertension and DM and high cardiovascular risk. MAU screening would help identify individuals at risk and increase awareness of kidney disease and target organ damage.

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Prevalência da microalbuminúria em doentes hipertensos e/ou diabéticos tipo 2 nos Cuidados de Saúde Primários em Portugal: Estudo RACE (*micRoAlbumin sCreening survEy*)

Resumo

Introdução e objetivos: Determinar a prevalência de microalbuminúria (MAU) em doentes hipertensos (HTA) e/ou diabéticos tipo 2 (DM2) e em normotensos não diabéticos (grupo controlo). Como objetivos secundários, analisar as diferenças de distribuição da MAU nas quatro subpopulações e observar a associação de variáveis clínicas e epidemiológicas diversas com a MAU.

Métodos: O RACE (*micRoAlbumin sCreening survEy*) é um estudo epidemiológico descritivo, observacional de corte transversal, multicêntrico, que incluiu doentes acompanhados nos Cuidados de Saúde Primários (CSP) em Portugal. Os doentes com causas potenciais de falsos positivos para MAU foram excluídos. As avaliações principais foram a frequência da MAU, determinada pelo teste da tira reativa Micral-Test®, a pressão arterial (PA), as variáveis demográficas, as doenças concomitantes, a medicação cardiovascular e antidiabética e as variáveis bioquímicas.

Resultados: Um total de 9 198 participantes (3 769 hipertensos, 3 100 diabéticos tipo 2 hipertensos, 423 diabéticos normotensos e 1 906 controlos), 54,7% do sexo feminino, foram incluídos na análise primária. A prevalência de MAU foi de 58% nos doentes com HTA+DM2, 51% nos doentes com DM2, 43% nos doentes com HTA e de 12% no grupo controlo (χ^2 : $p < 0,001$ para todos os subgrupos). Numa análise multivariada, os preditores de MAU foram presença de DM2 ou de HTA, a HbA1c, o sexo masculino, a idade, a PA sistólica e o colesterol total.

Conclusões: A MAU é extremamente frequente nos doentes em CSP com diabetes e/ou hipertensão, particularmente em doentes com HTA e DM2 com risco cardiovascular elevado. O rastreio da MAU poderá facilitar a identificação de indivíduos em risco e aumenta a atenção para a doença renal e as lesões nos órgãos alvo.

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Introduction

Recent studies highlight the importance of microalbuminuria (MAU) as a strong marker of cardiovascular risk, in both hypertensive and diabetic patients, as well as in the general population.¹⁻⁶ Clinical trials have reported associations between MAU and left ventricular hypertrophy, carotid intima-media thickening and various subclinical cardiovascular states in patients at high cardiovascular risk.⁷⁻¹¹ Furthermore, several epidemiological and experimental studies have highlighted the relationship between urinary albumin excretion and cardiovascular and total

mortality, particularly in at-risk patients,^{2,6,11-14} with an independent and cumulative effect in the presence of renal dysfunction.¹³⁻¹⁵ The association with increased cardiovascular mortality in high-risk individuals has been observed even for albumin levels lower than those generally regarded as MAU.^{13,16,17}

Thus, screening for albuminuria, following the indications in the latest guidelines for the management of arterial hypertension,¹¹ allows rapid and accurate identification of individuals who would benefit from a more aggressive approach to risk reduction, particularly for primary prevention; it is also a valuable additional risk measure in

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