FEATURES AND PREVALENCE OF URINARY ALBUMIN IN HYPERTENSIVE PATIENTS WITH METABOLIC SYNDROME

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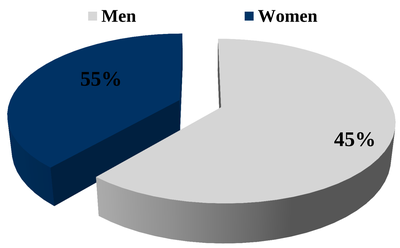
Introduction

Microalbuminuria is an early sign of nephropathy and an independent predictor of renal disease. Cardiovascular risk parallels the escalating frequency of microalbuminuria. The aim of this study was to assess the prevalence and characteristics of albuminuria in patients with metabolic syndrome (MS).

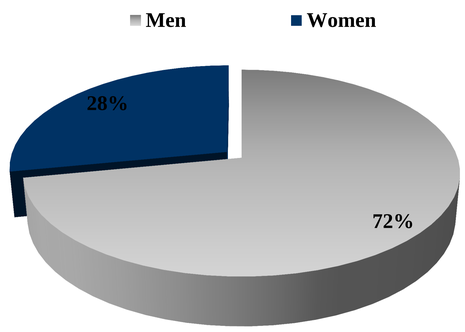
Material and methods

192 hypertensive outpatients with newly diagnosed metabolic syndrome (aged 48-73 years old; mean age 63.2 12.4 years old, 87 out of them men) and 52 hypertensive patients without MS (control group; aged 47- 76, mean age 67.3 10.8 years old, 31 out of them male) were enrolled in this study. All patients were under medical treatment for hypertension. Body mass index (BMI), blood pressure, fasting plasma glucose, serum lipids were measured and urine samples were collected for the measurement of urinary albumin excretion rate in all patients. Microalbuminuria was diagnosed when urinary albumin excretion rate was ≥ 30 mg/g and <300 mg/g. Proteinuria was diagnosed when UAER was ≥300 mg/g.

Distribution by gender in hypertensive patients with MS



Distribution by gender in control group



MS was defined in accordance with the National Cholesterol Education Program's Adult Treatment Panel III report.

ATP III Clinical Identification of the Metabolic syndrome	
Risk Factor	Defining Level
Abdominal obesity, given as waist circumference	
Men	>102 cm (>40 in)
Women	>88 cm (>35 in)
Triglycerides	≥150 mg/dL
HDL cholesterol	
Men	<40 mg/dL
Women	<50 mg/dL
Blood pressure	≥130/≥85 mm Hg
Fasting glucose	≥110 mg/dL

Results

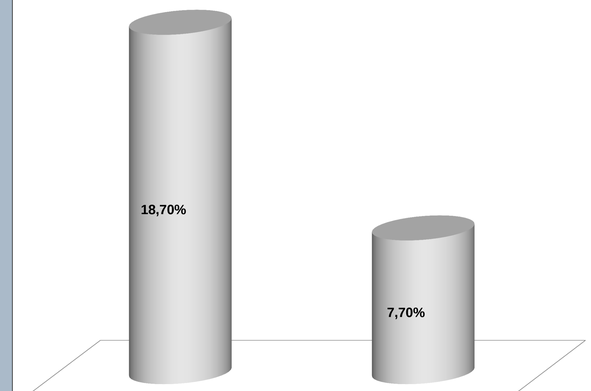
Prevalence of abnormal UAER in hypertensive patients with MS was 18.7% (microalbuminuria: 16.1%; proteinuria 2.6%) and in control group patients was 7.7 % (microalbuminuria 5.7%; 2% proteinuria; *P* <0.0001).

In multiple regression adjusted for age, sex, BMI, smoking, abnormal albuminuria was considerably associated with diastolic blood pressure (odds ratio 1.69 for +10 mmHg; 93% confidence interval [CI] 1.09-2.82; *P* = 0.04) and fasting plasma glucose (1.21; 94% CI 1.03-1.52; *P* = 0.05), but not with systolic blood pressure, BMI, or serum HDL cholesterol and triglycerides (*P* > 0.10).

Characteristics of the study population			
Characteristic	Hypertensive petients with MS	Control group patients	P value
Demography			
Age, years	63.2 12.4	67.3 10.8	0.01
Gender, male n (%)	87 (45%)	31 (59%)	0.02
Body mass index, kg/m^2	31.3 5.2	24.2 4.1	0.03
Blood pressure, mm Hg			
Systolic	145.4 14.6	143.2 15.8	0.32
Diastolic	89.4 8.5	83.5 7.9	<0.0001
Pulse rate, beats/minute	67.5 7.8	69.6 9.1	0.31
Biochemical measurements			
Plasma fasting glucose, mmol/L	6.50 4.55	4.57 1.19	0.05
Serum total cholesterol, mmol/L	5.82 0.96	4.69 0.87	0.78
Serum HDL cholesterol, mmol/L	1.31 0.53	1.78 0.37	<0.0001
Serum triglycerides, mmol/L	1.79 (1.64-1.93)	1.31 (1.23-1.38)	<0.0001
Microalbuminuria, (%)	16.1%	5.7%	<0.0001
Proteinuria (%)	2.6%	2%	<0.0001

Values are mean SD, geometric means (95% confidence interval), or the numbers of subjects (%).

Prevalence of abnormal UAER



***P* <0.0001**

Conclusion

Abnormal albuminuria is high in hypertensive patients with MS compared to those without MS, and mainly due to increased diastolic blood pressure and plasma glucose.

Acknowledgements

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