



ORIGINAL ARTICLE

Influence of gender on prognosis of acute coronary syndromes



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KEYWORDS

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Abstract

Introduction: Ischemic heart disease presents different features in men and women. We analyzed the relation between gender and prognosis in patients who had suffered a high-risk acute coronary syndrome (ACS).

Methods: This was a prospective analytical cohort study performed at Lozano Blesa University Hospital, Zaragoza, Spain, of 559 patients diagnosed with high-risk ACS with and without ST-segment elevation according to the American College of Cardiology/American Heart Association guidelines. The sample was divided into two groups by gender and differences in epidemiologic, laboratory, electrocardiographic and echocardiographic variables and treatment were recorded. A Cox's proportional hazard model was applied and 6-month mortality was analyzed as the main variable.

Results: The median age was 65.2 ± 12.7 years, and 21.8% were women. Baseline characteristics in women were more unfavorable, with higher GRACE scores, older age, higher prevalence of hypertension, diabetes and heart failure, lower ejection fraction and more renal dysfunction at admission. Women suffered more adverse cardiovascular events (27.9% vs. 15.8%, $p=0.002$). Sixty-four patients died, 18.9% of the women vs. 9.4% of the men ($p=0.004$). After multivariate analysis, female gender did not present an independent relation with mortality. Hemoglobin level, renal function, ejection fraction and Killip class >1 presented significant differences.

Conclusions: Acute syndrome coronary in women has a worse prognosis than in men. Their adverse course is due to their baseline characteristics and not to their gender.

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PALAVRAS CHAVE

Síndrome coronária aguda;
Fator de risco;
Idade;
Sexo;
Sobrevivência;
Prognóstico

Influência do gênero no prognóstico das síndromes coronárias agudas**Resumo**

Introdução: A doença cardíaca isquêmica apresenta características diferentes em homens e mulheres. Foi analisada a relação entre o sexo e o prognóstico, em pacientes vítimas de síndrome coronária aguda (SCA) de alto risco.

Métodos: Estudo analítico prospetivo, de coorte, realizado no Hospital Universitário Lozano Blesa, Zaragoza, Espanha. A população em estudo é constituída por 559 pacientes com SCA, com e sem elevação do segmento ST, de acordo com a *American College of Cardiology/American Heart Association*. Esta população foi dicotomizada pelo sexo e realizado um estudo comparativo analisando variáveis epidemiológicas, laboratoriais, eletrocardiográficas, ecocardiográficas e de procedimento de tratamento. Aplicou-se o método de Cox para cálculo do risco proporcional e analisou-se a taxa de mortalidade como variável principal nos seis meses após o evento.

Resultados: A idade média foi de $65,2 \pm 12,7$ anos. 21,8% dos doentes eram do sexo feminino. Quando comparadas com o sexo masculino, as características da população feminina eram mais desfavoráveis, apresentando um *score* GRACE mais elevado, uma idade superior e uma maior prevalência de hipertensão arterial, diabetes *mellitus* e de insuficiência cardíaca. A fração de ejeção era inferior e apresentavam grau maior de insuficiência cardíaca e de disfunção renal na admissão. As mulheres sofreram mais eventos cardiovasculares adversos (27,9% *versus* 15,8%, $p=0,002$). Sessenta e quatro pacientes morreram, sendo a mortalidade no grupo das mulheres quando comparada com o grupo dos homens significativamente superior (18,9% *versus* 9,4%, $p=0,004$). Na análise multivariada, o sexo feminino não apresenta relação independente com a mortalidade. Por outro lado o valor sérico de hemoglobina, a função renal, a fração de ejeção e Killip >1 foram variáveis identificadas como preditoras de mortalidade.

Conclusões: A síndrome coronária aguda no grupo das mulheres tem pior prognóstico em relação ao dos homens. A evolução adversa deve-se às características iniciais e não ao facto de ser do sexo feminino.

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Introduction

Cardiovascular disease (CVD) is the most common cause of death in women in developed countries and is responsible for more than the combined number of deaths due to the next seven causes and more than all types of cancers combined. In the United States, CVD mortality in women exceeds that of men. Coronary heart disease is mainly responsible with 24%,¹⁻⁴ and although death from ischemic heart disease (IHD) has declined in men, its incidence is stable in women.^{5,6}

Despite the burden of coronary disease in women, CVD is still considered a disease of men and there is a false perception that women are in some way protected. IHD in women appears to have its own characteristics, although women are relatively under-represented in studies and registries.^{1,7}

This lack of representation in randomized clinical trials has delayed recognition of specific cardiovascular risk factors by extrapolating results from studies of the male population. There are significant gaps in knowledge of CVD in women. In an analysis of gender-specific differences in the characteristics, development, management, and prognosis of acute coronary syndrome (ACS) between 1994 and 2002 in the RISCI, PRIAMHO I and II, Descartes and TRI-ANA trials conducted by the Working Group on Ischemic Heart Disease and Coronary Care Units of the Spanish Society of Cardiology, only 24.3% of 48 369 patients were women.⁸

On average, women suffer myocardial infarction (MI) 7–10 years later than men, and show a poorer prognosis and 20% higher short-term mortality than men, independently of age.⁹

The precise reasons for this gender difference in the prognosis of acute IHD are unknown. However, epidemiological studies suggest that differences in mortality cannot be explained by possible protective effects of hormones. They give more weight to elements of the metabolic syndrome, such as hyperlipidemia or diabetes, which appear to be more prevalent in women, and to differences in clinical presentation or disparities in the use of diagnostic and therapeutic resources. Furthermore, gender-linked genetic factors, which may be critical to the development of the disease, are even less well understood.¹⁰

It is important to promote education and discussion on the differences in presentation, development, and treatment of ACS in both sexes and to obtain new indications for IHD in women. Editors of medical journals have highlighted the need for studies specifically on women that will indicate whether gender influences prognosis, including complications and adverse effects, in female patients who have suffered a high-risk ACS.¹¹

Objective

We set out to determine the differences in epidemiology, presentation and evolution of high-risk ACS in men and

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