Rev Port Cardiol. 2014;33(6):353–361

Revista Portuguesa de Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

ORIGINAL ARTICLE

Primary angioplasty in women: Data from the Portuguese Registry of Interventional Cardiology☆

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Received 3 October 2013; accepted 26 October 2013
Available online 16 July 2014

KEYWORDS
Primary angioplasty;
ST-elevation myocardial infarction;
Female

Abstract
Aims: Although mortality after primary percutaneous coronary intervention (PPCI) is higher in women than in men, there is disagreement as to whether gender is an independent risk factor for mortality in ST-elevation myocardial infarction (STEMI). Our aim was to assess how gender influenced short-term prognosis in patients undergoing PPCI in the Portuguese Registry of Interventional Cardiology.
Methods: Of 60 158 patients prospectively included in a large registry of contemporary PCI, from 2002 to 2012, we included 7544 patients with STEMI treated by PPCI, of whom 1856 (25%) were female. The effect of gender on in-hospital mortality was assessed by multivariate logistic regression analysis with propensity score matching.
Results: Women were older (68±14 vs. 61±13 years, p<0.001), with a higher prevalence of diabetes (30% vs. 21%, p<0.001) and hypertension (69% vs. 55%, p<0.001). Men were more frequently revascularized within six hours of symptom onset (71% vs. 63%, p<0.001). Cardiogenic shock was more frequent in women (7.1% vs. 5.7%, p=0.032). Female gender was associated with a worse short-term prognosis, with 1.7 times higher risk of in-hospital death (4.3% in women and 2.5% in men, 95% confidence interval (CI) 1.30–2.27, p<0.001). After computed propensity score matching based on baseline clinical characteristics, in-hospital mortality was similar between women and men (odds ratio 1.00, 95% CI 0.68–1.48, p=1.00).
Conclusions: In the Registry, women with STEMI treated by PPCI had a greater risk-factor burden, less timely access to treatment and a worse prognosis. However, after risk adjustment, female gender ceases to be an independent predictor of in-hospital mortality.

☆ Please cite this article as: Calé R, de Sousa L, Pereira H, Costa M, de Sousa Almeida M, em nome dos Investigadores do Registo Nacional de Cardiologia de Intervenção. Angioplastia primária na mulher: realidade nacional. Rev Port Cardiol. 2014;33:353–361.

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PALAVRAS-CHAVE
Angioplastia primária;
Enfarte agudo do miocárdio com supradesnivelamento de ST;
Sexo feminino

Angioplastia primária na mulher: realidade nacional

Resumo
Objetivos: A mortalidade na mulher após angioplastia primária (ICP-P) é superior à do homem. Contudo, permanece contraditório o papel do sexo poder ser fator de risco independente para mortalidade no contexto de enfarte agudo do miocárdio com supradesnivelamento de ST (EAMST). Com base no Registo Nacional de Cardiologia de Intervenção (RNCI), pretendemos avaliar como é que o género feminino influencia o prognóstico a curto prazo nos doentes com EAMST submetidos a ICP-P a nível nacional.
Métodos: De 60 158 doentes incluídos prospetivamente no RNCI de 2002-2012, incluímos na análise 7544 doentes com EAMST tratados por ICP-P, dos quais 25% foram mulheres. Utilizámos modelos de regressão logística e ajustamento por *propensity score* para avaliar o impacto do sexo na mortalidade hospitalar.
Resultados: As mulheres foram mais idosas (68±14 *versus* 61±13, p<0,001), mais diabéticas (30 *versus* 21%, p<0,001) e hipertensas (69 *versus* 55%, p<0,001). Os homens foram revascularizados mais cedo (71 *versus* 63% nas primeiras 6 horas, p<0,001). Choque cardiogénico foi mais frequente nas mulheres (7,1 *versus* 5,7%, p=0,032). Estas apresentaram um pior prognóstico a curto prazo, com 1,7 x maior risco de morte intra-hospitalar (4,3 *versus* 2,5%; IC 95% 1,30-2,27; p<0,001). Utilizando um modelo de regressão ajustado através de um *propensity score*, o sexo deixa de ser preditor de mortalidade hospitalar (OR 1,00; IC 95% 0,68-1,48; p=1,00).
Conclusões: No RNCI as mulheres com EAMST tratadas com ICP-P apresentaram maior risco cardiovascular, um acesso menos atempado a ICP-P e um pior prognóstico. Contudo, após ajustamento do risco, o género feminino deixa de ser preditor independente de mortalidade hospitalar.

Introduction

Cardiovascular disease remains the leading cause of mortality in women, and 23% of deaths among women in Europe are due to coronary artery disease (CAD).[1] The proportion of women diagnosed with CAD has increased in recent years, but it is still underdiagnosed and undertreated compared to men, with less use of revascularization strategies and optimized medical therapy.[2] Furthermore, the belief persists that women have worse prognosis than men following primary percutaneous coronary intervention (PPCI).[3,4] Women's greater mortality may be explained by the fact that they have a higher cardiovascular risk and that CAD is underdiagnosed and undertreated in women, or be due to gender-related differences in anatomy and biological response to infarction.[3] Previous registries have presented conflicting evidence as to whether female gender is an independent risk factor for mortality in ST-elevation myocardial infarction (STEMI).[3–7]

Our aim was to analyze the situation in Portugal regarding treatment of STEMI in women by PPCI based on the Portuguese Registry of Interventional Cardiology, and to assess how gender influenced in-hospital prognosis of these patients.

Methods

Population

The Portuguese interventional cardiology database is a prospective, observational registry of PCI in interventional cardiology units in Portugal. Between January 4, 2002 and July 24, 2012, 60 158 patients were included from 22 centers. We retrospectively analyzed 7544 consecutive patients undergoing PPCI in the context of STEMI of less than 12 hours evolution. STEMI was defined as the presence of symptoms consistent with myocardial ischemia lasting more than 30 minutes and persistent ST elevation (>1 mm in two contiguous leads) or new-onset or previously undocumented complete left bundle branch block. Patients who underwent thrombolysis during the index hospitalization were excluded.

No exclusion criteria were applied in terms of the complexity of STEMI presentation or type of lesion.

All patients gave their informed consent for inclusion in the Registry.

Men and women were compared in terms of demographic characteristics, risk factors, previous cardiovascular history, disease severity, location of myocardial infarction (MI) and procedural characteristics.

Data on in-hospital clinical course were obtained from the Registry.

Statistical analysis

The male and female patient groups were analyzed according to continuous and categorical variables. Categorical variables were characterized in terms of absolute and relative frequencies. The central tendency and distribution of continuous variables were estimated by sample mean and standard deviation, or median and interquartile range, depending on whether values presented a normal distribution.