Sex-based differences in ST-segment elevation myocardial infarction: a multicentre national registry analysis

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Background: Sex differences in ST-segment elevation myocardial infarction (STEMI) are not fully understood. Female patients appear to have higher mortality.

Purpose: To establish sex-differences in Portuguese STEMI patients.

Material and methods: Retrospective multicentre analysis of STEMI patients included in the Portuguese Registry on Acute Coronary Syndromes (ProACS) between October 2010 and October 2022. Two cohorts were defined according to sex. Baseline characteristics, clinical findings, treatment and mortality were compared. Multivariate analysis was performed to assess predictors of mortality.

Results: A total of 14470 patients were included with a mean age of 64 ± 14 years, of which 26% were female. Female patients were significantly older (p<0.001) and with higher prevalence of several cardiovascular risk factors such as: high blood pressure (p<0.001), diabetes (p<0.001) and dyslipidemia (p=0.015), as well as higher reported past medical history, namely ischemic stroke/transient ischemic attack (p=0.001), renal disease (p<0.001) and dementia (p<0.001). On the other hand, previous coronary artery disease was less common comparing to men. Reperfusion therapy was less frequent in females (p<0.001), with less cases of multivessel disease (p=0.004). Regarding inpatient medical treatment women were less frequently prescribed medical therapy and more frequently needed inotropes (p<0.001). Regarding discharge medication, similar tendencies were observed, and women were less frequently referred to cardiac rehabilitation programs (p<0.001).

Concerning prognosis, women had more complications while at hospital, namely, congestive heart failure (p<0.001), ischemic stroke (p<0.001) and intra-hospital mortality (p<0.001). Similarly, women had higher thirty-day and one-year mortality (p<0.001) and non-cardiac hospital readmission (p<0.001). After multivariate analysis, female sex (OR=1.633; CI 95% [1.065-2.504]; p=0.025) remained as an independent factor for intra-hospital mortality but not for thirty-day and one-year mortality.

Conclusions: In our population, female patients had statistically significant differences in comparison to men regarding clinical characteristics, treatment and prognosis. Nevertheless, female sex was an independent risk factor only for intra-hospital mortality.