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Female gender is an independent predictor of one-year mortality following primary angioplasty for ST-segment elevation myocardial infarction, regardless of age, clinical severity and frailty

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Background: Gender-based differences in mortality of patients with ST-segment elevation myocardial infarction (STEMI) have been reported. However, controversy exists about the impact of female gender on mortality after correcting for baseline risk differences.

Purpose: Assess gender-based mortality in a cohort of STEMI patients following primary angioplasty.

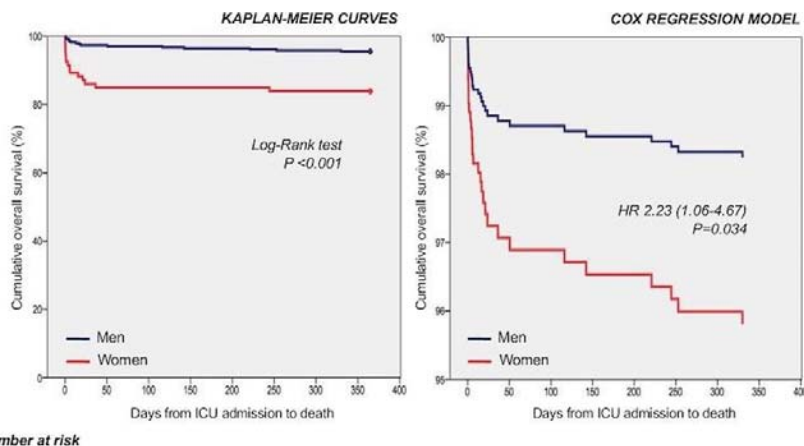
Methods: Retrospective cohort of 427 consecutive STEMI patients (64 years [55–75]; 78% men) admitted to a general ICU between November-2013 and February-2017. We used Kaplan-Meier and Cox regression models for survival analysis. The Clinical Frailty Scale (CFS) was used to assess frailty.

Results: Women were older and had a higher GRACE 2.0 and frailty

(CFS \geq 4). Women had lower creatine-phosphokinase and albumin levels and higher B-natriuretic peptide levels, despite the lack of gender-based differences in left ventricular ejection fraction (LVEF) and MI size and location. One-year mortality rate was higher in women, most often from cardiogenic shock during admission and at 30-day follow-up (Table). After Cox regression analysis, women had a 2.23-fold higher risk of one-year mortality compared with men (Figure), independently of age, frailty, GRACE 2.0, LVEF and inotropic agents requirements.

Conclusions: Female gender is an independent predictor of one-year mortality in STEMI patients, regardless of age, clinical severity and frailty. A potential myocardial dysfunction probably mediated by an increased frailty, may play a role in the high mortality rate among women after STEMI.

| Baseline characteristics | Women (n=93) | Men (n=334) | P value |
|--|---------------------|---------------------|---------|
| One-year mortality, n (%) | 15 (16.1) | 15 (4.5) | <0.001 |
| Cardiogenic shock, n (%) | 10 (62.5) | 6 (37.5) | <0.001 |
| Age (years) | 70.8 [51.2–80.3] | 61.9 [54.2–71.8] | <0.001 |
| Hypertension, n (%) | 54 (58.1) | 149 (44.6) | 0.022 |
| GRACE 2.0 | 129 [104.5–156] | 112 [94–139] | 0.001 |
| Clinical Frailty Scale \geq 4, n (%) | 28 (30.1) | 32 (9.6) | <0.001 |
| MI location (anterior), n (%) | 42 (45.2) | 152 (45.5) | 0.953 |
| Creatin-phosphokinase (U/L) | 1040 [300.5–2134] | 1517 [620.5–2852.8] | 0.004 |
| High-sensitivity troponin I (pg/mL) | 4003 [62.1–48526.6] | 9070 [65.8–65893] | 0.473 |
| Left ventricular ejection fraction (%) | 52 [40–60] | 55 [45–60] | 0.465 |
| B-natriuretic peptide (pg/mL) | 241.1 [99.9–896.9] | 103.6 [28.3–259.2] | <0.001 |
| Albumin (g/L) | 36.1 [34.3–38.5] | 38.4 [35.6–40.5] | <0.001 |
| Inotropic agents, n (%) | 14 (15.1) | 26 (7.8) | 0.033 |



Kaplan-Meier and Cox survival curves.