Delay between symptom onset and hospital admission in patients with ST-elevation myocardial infarction: different trends in men and women

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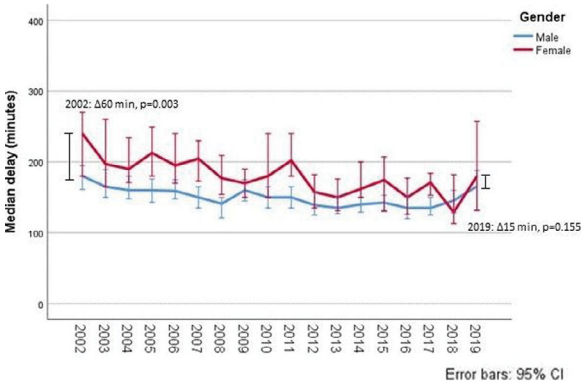
Introduction: The aim of this study was to analyse whether prehospital delay in ST-elevation myocardial infarction (STEMI) has changed in men and women since 2002.

Methods: We used data from the AMIS Plus registry of patients who were admitted for STEMI between 2002 and 2019. Patients who were transferred from another hospital or were resuscitated before admission were excluded. Patient delay was defined as the difference between symptom onset and hospital admission time. Trends in delay according to gender were depicted by medians per year with a 95% confidence interval. Differences between men and women were tested using the Mann-Whitney test. To analyse the adjusted effect of gender on delay, multivariable quantile regression was applied including the interaction between gender and admission year as well as the covariates age, diabetes, pain at presentation and myocardial infarction (MI) history.

Results: Among the 15,154 patients included (74.5% men), the overall median (IQR) delay between 2002 and 2019 was 150 (84; 345) minutes for men and 180 (100; 415) for women. Women were older (71.3y vs. 62.8y, $p<0.001$), had more often diabetes (20.0% vs. 16.9%, $p<0.001$), but less often MI history (11.2% vs. 14.9%, $p<0.001$) and less often pain at presentation (92.0% vs. 94.8%, $p<0.001$).

The unadjusted median delay decreased over the admission years. The decreasing trend was stronger in women than men: the unadjusted difference in delay between men and women decreased from 60 min in 2002 ($p=0.003$) to 15 min in 2019 ($p=0.155$) (Fig 1). The multivariable model confirmed a significant interaction between gender and admission year ($p=0.042$) indicating that the decrease in delay was stronger for women (–3.1 min per year) than for men (–1.4 min per year) even after adjustment. The adjusted difference between men and women decreased from 27.4 min in 2002 to –1.6 min for women in 2019. Additional independent predictors of longer delay were the covariates age (+1.6 min per additional year, $p<0.001$) and diabetes (+27.1 min, $p<0.001$). Conversely, pain at admission (–46.3 min, $p<0.001$) and MI history (–32.9 min, $p<0.001$) predicted a shorter delay.

Conclusions: The difference in delay between symptom onset and hospital admission in STEMI patients between men and women steadily diminished from 2002 to 2019. This might indicate that the public and health professionals' awareness of STEMI in women has ameliorated over time.



Unadjusted delay according to gender