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Acute ST elevation myocardial infarction in women

Infarto agudo de miocardio con elevación del ST en la mujer

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INTRODUCTION

ST-Elevation myocardial infarction (STEMI) manifests later in women than in men. The prevalence of myocardial infarction in the United States between 2015 and 2018 was lower in women than in men (2.1 vs 4.3%). Still, in-hospital mortality (7.4 vs 4.6%) and in the long term, has remained higher in women, varying according to age range.[1]

The INTERHEART study showed that although the risk factors (RFs) for having a myocardial infarction (MI) affect both sexes, some generate a higher relative risk (RR) in women: diabetes (4.3 vs 2.8), hypertension (3.0 vs 2.3), ratio ApoB/ApoA1 (4.4 vs 3.8) and psychosocial factors (3.5 vs 2.6).[2] Smoking is the most important preventable cause of MI in women.[3]

The randomized, multicenter VIRGO and GENESIS-PRAXI studies of STEMI in young women (< 55 years) showed that they are associated with multiple traditional and non-traditional RFs, a family history of early coronary disease and comorbidities, with psychosocial RFs having a great impact.[4,5]

There are pathophysiological differences in STEMI between women and men.[3,4] Plaque destabilization is the most common cause in both sexes, with 55% of plaque rupture and 25-30% of plaque erosion observed in women. Infarction in the absence of obstructive coronary disease follows in frequency (5-25%). Its treatment and prognosis will depend on the mechanism.[6] Spontaneous coronary artery dissection (1-4%) is associated with female gender, pregnancy, and fibromuscular dysplasia and is generated by emotional and physical stress.[4,7]

The most common symptom in both sexes is precordial pain. Compared with men, women are more likely to have high-risk clinical presentations, less likely to manifest central chest pain, and have a more significant number of non-anginal symptoms (atypical pain).[4,6] Canto et al. observed in a study of the National Registry of Myocardial Infarction of Acute Myocardial Infarction (NRMI registry of AMI, 1994-2006) that women without angina had a delay in diagnosis, a significant decrease in reperfusion treatment, an increase in reperfusion time, and the risk of in-hospital mortality.[8]

Despite the proven benefit in mortality, women are referred less frequently for reperfusion treatment. The strategy of choice should be primary transluminal coronary angioplasty (PTCA) because it has fewer serious bleeding complications and mortality. Regardless of the method used (fibrinolytics [FT] or PTCA), women have worse results than men, which is often due to confounding factors: age, RF, previous heart failure (HF), and comorbidities.[3]

The first analysis by gender in acute coronary syndrome (ACS) was presented at the XXVII Inter-American Congress of Cardiology in 2019 and is part of the National Registry of Acute Coronary Syndrome (RENASCA IMSS).[9] From 2014 to 2018, 37,168 patients were included, 73.8% men (27,419) and 26.2% women (9,749); the average age was 66 ± 11 in women compared to 62 ± 11 years ($p < 0.0001$). Risk factors were significantly more frequent in women *(Figure 1)*. In men,

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STEMI was more frequent (75.1 vs 64.9%, p < 0.0001), and in women, non-ST-segment elevation acute coronary syndrome (NSTE-ACS) (24.9 vs 35.1%, p < 0.0001).

In patients with STEMI with the IMSS Infarction Code strategy,[10] improvement in reperfusion strategies was observed after the implementation of the care protocol. However, there was a significantly higher frequency of non-reperfusion in women (33.3 vs 28.9%, p < 0.0001) *(Figure 2)*. Women had significantly more early hospital complications such as angina/re-infarction (16.4 vs 20.1%, p < 0.0001), HF (9.4 vs 15.5%, p = 0.001), cardiogenic shock (7.7 vs 10.6%, p < 0.0001), kidney failure (6.8 vs 8.1%, p < 0.0001) and death (11.0 vs 15.6% OR 1.49 95% CI 1.40-1.60, p < 0.0001).

Women are significantly less likely to be discharged according to international optimal medical treatment guidelines and less likely to adhere to long-term treatment.[4]

Everything analyzed above leads to women having worse prognoses in the short, medium, and long term. It is necessary to continue with public health messages and interventions to reduce the gender gap in results.

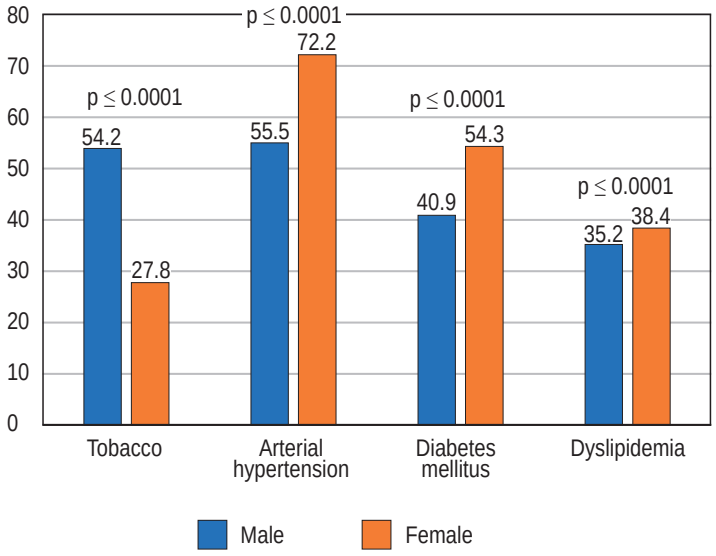
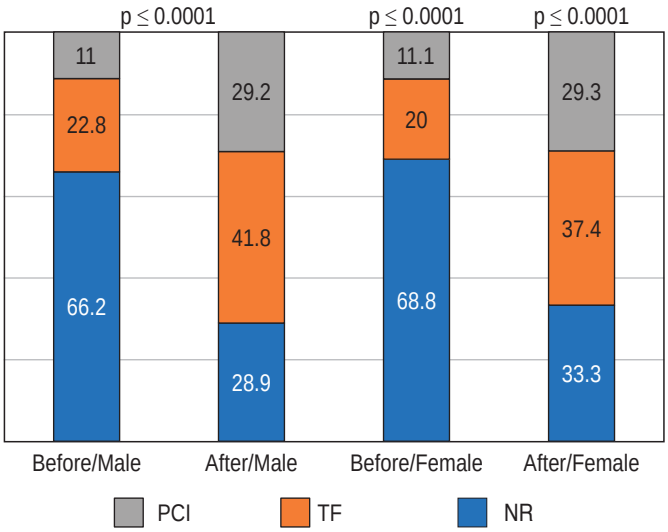


Figure 1: Differences by sex of risk factors in the RENASCA IMSS (National Registry of Acute Coronary Syndromes).



PCI = percutaneous coronary intervention. TF = fibrinolytic therapy. NR = no-reflow.

Figure 2: Differences by sex in reperfusion strategies, before and after code infarction.

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