

## Gender Gap Reduced for Post-AMI In-Hospital Mortality

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BARCELONA, SPAIN — The proportion of patients experiencing in-hospital mortality following an acute [MI](#) (AMI) has fallen substantially further in women than in men over the past 20 years<sup>[1]</sup>, suggest Swiss registry findings that researchers say point to greater equality in the provision of care between the sexes.

Examining data on more 50,000 AMI patients, the team found that, despite the overall rate of in-hospital halving over the study period, the effect was particularly noticeable in women, which was mirrored by reductions in the gender gap over use of treatments such as [PCI](#).

Indeed, in patients aged less than 60 years of age, women with ST-segment-elevation MI (STEMI) experienced a significant 6% reduction in in-hospital mortality, while those with non-STEMI had a 13% reduction in death rates. In contrast, male mortality rates in this age group remained unchanged.

The research was presented during a rapid-fire abstract session at the [European Society of Cardiology \(ESC\) 2017 Congress](#) by Dr Dragana Radovanovic (University of Zurich, Switzerland).

Asked during a press conference here how the improvements in AMI outcomes among women were achieved, she told *theheart.org* / *Medscape Cardiology* that, while women have always had heart attacks, she personally feels that the medical world "didn't care about this group of the population."

Over the years, she said, more data are available on women with MI, "and now we are very strict in the way that we treat it, even in younger women, younger than 50 or even 40 years of age."

Taking up the theme of gender equality in the treatment of AMI, Dr Josepa Mauri-Ferré (Hospital Germans Trias I Pujol, Badalona, Spain) added that the study is "very important, because it reinforces the importance of applying the guidelines in the clinic."

She emphasized that when studies have revealed gender gaps in outcomes following AMI, it is important to be aware that "women were treated less, with less PCI and so on," adding: "When you start to apply the guidelines, this disappears."

Dr Sarah C Clarke (British Cardiovascular Society, UK) told *theheart.org* / *Medscape Cardiology* that the entire focus of AMI management "has traditionally been on men, and all

the research has been on men, so a man presenting with chest pain was much more likely to be referred than a woman."

She believes that there are two elements to the shift in attitudes in recent years, saying that heart disease "was very much seen as a disease of men, and with women it's been about cancer, whereas I think women now understand it's applicable to them as well, so they're presenting and, because the guidelines are out there saying that we need to pay more attention to them, the profession is picking them up and investigating them," Clarke continued. "I think it's a combination of education and professionals responding."

To examine gender- and age-related temporal trends of in-hospital mortality among Swiss AMI patients, the team studied data from the [AMIS Plus](#) national registry of AMI in Switzerland, which collects information covering preadmission, hospital, and follow-up phases.

They gathered data for the period from 1997 to 2016 from 83 Swiss hospitals, representing all types of institutions treating AMI. This yielded a total of 51,725 patients, of whom 30,398 had experienced STEMI and 21,327 non-STEMI.

Overall, 27% of the patients were women, and the mean age was 66 years, which did not change over the study period. Among STEMI patients, the average age of male patients was 63 years, while that of female patients was 71 years. The mean age of male and female patients among non-STEMI patients was 66 years and 72 years, respectively.

The use of the latest therapies increased substantially during the study period, and the gender gap in their application reduced. For example, the proportion of patients receiving PCI increased from 5% to 76% in females and from 8% to 83% among males, while the proportion of patients given antiplatelet agents increased from 10% to 85% among females and from 13% to 90% among males.

The proportion of patients receiving statins also increased, from 46% in 2001 to 76% in 2016 among women, with the proportion increased from 56% to 80% among men over the same period.

For in-hospital mortality, the researchers found that, overall, rates decreased significantly for both men and women between 1997 and 2016.

Among STEMI patients, the rate of in-hospital mortality fell from 18.3% to 6.9% in women, at an odds ratio (OR) for each additional admission year of 0.95 (95% CI 0.93–0.96), while the rate among men fell from 9.8% to 5.5%, at an OR of 0.97 (95% CI 0.96–0.98) ( $P < 0.001$  for both).

In non-STEMI patients, the rate of in-hospital mortality in women fell from 11.0% to 3.6%, at an OR of 0.95 (95% CI 0.93–0.97), while it fell from 7.1% to 2.1% among men, at an OR of 0.94 (95% CI 0.93–0.96) ( $P < 0.001$  for both).

Interestingly, when the researchers restricted their analysis to AMI patients aged less than 60 years, they found that there was a significant decrease in in-hospital mortality over the study period in women, at an OR of 0.94 (95% CI 0.90–0.99) for STEMI patients and an OR of

0.87 (95% CI 0.80–0.94) for non-STEMI patients, but that there was no significant mortality decrease in men.

They conclude that, while the overall rate of in-hospital mortality following AMI has halved in Switzerland over the past 20 years, the age-adjusted mortality has decreased more prominently in women than in men, particularly among those aged less than 60 years.

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