

Women don't get to hospital fast enough during heart attack

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Women suffering a heart attack wait much longer than men to call emergency medical services and face significantly longer delays getting to a hospital equipped to care for them, putting women at greater risk for adverse outcomes, according to research to be presented at the American College of Cardiology's 64th Annual Scientific Session in San Diego.

The study found that delays in getting hospital treatment—either because [women](#) waited longer to call for help or were not taken to the right hospital as quickly as [men](#)—were associated with a higher risk of dying. Overall, women were nearly twice as likely to die in the hospital compared with men, with in-hospital deaths reported for 12 percent of women and 6 percent of men in the study. The risk of dying remained higher in women even after adjusting for other clinical variables including age, treatments received and cardiovascular risk factors. Women were also less likely to undergo treatment to open [clogged arteries](#) compared with men (76 versus 80.4 percent), which tend to work best within the first hour after a heart attack starts.

"Pre-hospital delays remain unacceptably long in women, and time matters," said Raffaele Bugiardini, M.D., professor of cardiology, University of Bologna, Italy, and lead author of the study, which examined records of 7,457 European patients enrolled from 2010 to 2014 in an international registry to study [heart disease](#) and treatments.

Many delays occurred because women simply waited longer than men to call [emergency medical services](#), with women waiting an average of one

hour compared to 45 minutes for men. Even after calling for help, Bugiardini said women "seem to disappear somewhere in the health care system." More than 70 percent of women in the study took longer than an hour to get to a hospital that could treat them, while less than 30 percent of men took that long. Overall delays—the time to call for help and then be taken to the right hospital—ranged from five minutes to three days.

Interestingly, once patients were admitted, there were no significant differences between men and women in time to treatment with a medication to breakdown blood clots, which took 26 minutes on average for men and 28 minutes for women, or with balloon angioplasty to open clogged arteries, which took 45 minutes on average for both men and women. Men and women who got to the hospital within 60 minutes and, therefore, received treatment relatively quickly, had similar in-hospital mortality rates. Bugiardini said the most important factor for worse outcomes for women in his study was the pre-hospital delay, and he called for broad efforts to improve recognition of heart attack symptoms, especially among women.

"Our findings should set off an alarm for women, who may not understand their personal risk of heart disease and may take more time to realize they are having a heart attack and need urgent medical help," Bugiardini said.

One challenge is that women typically don't have the "classic" signs of a heart attack. For example, instead of crushing chest pain, they may have shortness of breath, nausea or vomiting, or pain in the back, neck or jaw. These symptoms may develop slowly over hours or days and even come and go. Women and medical personnel may also attribute symptoms to other health conditions such as indigestion, which may lead to misdiagnoses.

Researchers also had access to patients' subsequent use of medications and cardiac revascularization procedures, which are usually less frequent in women. Bugiardini said inclusion of this data gives strength to the study because researchers not only looked at the time it took to receive care but also at what treatments were received by gender.

The total pre-hospital delay period includes: the time spent to recognize the symptoms were serious enough to call for help and the time between when emergency care arrived and hospital admission. Although the reasons for the lag in getting women to a center where they could be treated with balloon angioplasty and stenting is unknown, Bugiardini said it might be due to misdiagnosis or unnecessary stop-overs in hospitals not equipped to insert stents. He said these findings reflect similar trends seen in the United States where more than 400,000 women have heart attacks each year and demonstrate a need for broader quality indicators.

"It is time to look beyond using in-hospital quality initiatives that focus on door-to-balloon or needle time as the only performance measures, especially in women," he said. "In the last decade, hospitals in the U.S. and other countries have spent a lot of money improving in-hospital time to treatment for heart attack, but nobody considered what happens before they actually get to the hospital. We must take a step back and look at the overall 'time to reperfusion' and find strategies that can favorably impact outcomes in women."

ST segment elevation myocardial infarction or STEMI is a deadly type of heart attack that occurs when blood flow that brings oxygen to the heart muscle is severely reduced or cut off for a prolonged period of time. In the United States, nearly two-thirds of deaths from heart attacks in women occur in those who have no history of chest pain. Although awareness is improving, many women and health care providers still underestimate their risk of heart disease. A recent study also found that women are seven times more likely than men to be misdiagnosed and

sent home from the emergency department during a heart attack, Bugiardini said.

Researchers said future studies should investigate and identify factors associated with pre-hospital delays so that initiatives can be further developed to improve timely care and outcomes for women having a [heart attack](#).

The study, "Sex-Related Differences in Acute Coronary Care Among Patients with Myocardial Infarction: The Role of Pre-Hospital Delay," will be presented on March 14, 2015 at the American College of Cardiology's 64th Annual Scientific Session in San Diego.

Provided by American College of Cardiology

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