

Study examines factors associated with improvement in survival from heart attack in France

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The overall rate of death in patients hospitalized with ST-segment elevation myocardial infarction (STEMI; a certain pattern on an electrocardiogram following a heart attack) decreased from 1995 to 2010 in France, with possible factors associated with this decline including an increase in the proportion of STEMI patients who were women younger than age 60, and an increase in the use of reperfusion therapy and recommended therapeutic measures following a heart attack, according to a study being published online by *JAMA*. The study is being released early to coincide with its presentation at the European Society of Cardiology Congress.

"Several sources, including registries specific to [acute myocardial infarction](#) [AMI; [heart attack](#)] and large administrative or billing databases, have shown a decrease in mortality in patients with STEMI over the past 10 to 15 years. This decline is usually attributed to increased use and improved delivery of reperfusion therapy, in particular primary [percutaneous coronary intervention](#) (PCI; procedures such as [balloon angioplasty](#) or stent placement used to open narrowed coronary arteries). We hypothesized that, beyond primary PCI, other factors such as temporal changes in patient population characteristics may account for part of the observed reduction in mortality of patients with STEMI," the authors write.

Etienne Puymirat, M.D., of the Hôpital Européen Georges Pompidou, Paris, and colleagues conducted a study to assess the association between changes in early mortality following STEMI and patient management and risk profile. The researchers analyzed data from four 1-month French nationwide registries, conducted 5 years apart (in 1995, 2000, 2005 and 2010), which included a total of 6,707 STEMI patients admitted to intensive care or coronary care units.

During the study period, the average age of patients with STEMI declined from 66.2 years to 63.3 years, and history of cardiovascular disease, such as heart attack, [heart failure](#), [peripheral artery](#) disease, stroke or transient ischemic attack also decreased. The proportion of younger women (60 years or less) with STEMI increased from 11.8 percent to 25.5 percent, consistent with their increased prevalence of smoking (from 37.3 percent to 73.1 percent) and obesity (from 17.6 percent to 27.1 percent). The proportion of younger patients developing STEMI despite not having hypertension, diabetes, or hypercholesterolemia increased markedly, particularly in younger women.

The authors also found that the use of reperfusion therapy increased over time, from 49.4 percent to 74.7 percent, with more frequent use of primary PCI, (11.9 percent to 60.8 percent). The use of evidence-based treatments during the first 48 hours from admission increased gradually over the 15-year period, including the early use of b-blockers, ACE inhibitors or angiotensin-receptor blockers, and statins. Also, there was increasing early use of antiplatelet agents and low-molecular-weight heparins.

Thirty-day mortality decreased from 13.7 percent in 1995 to 4.4 percent in 2010; mortality decreased from 9.8 percent to 2.6 percent in men and from 23.7 percent to 9.8 percent in women. Consistent with the decrease in mortality, major hospital complications of STEMI also decreased over this time period.

In addition, time from symptom onset to hospital admission decreased, with a shorter time from onset to first call, and broader use of mobile intensive care units.

"The progressive decline in early mortality over time

observed in the present nationwide surveys is consistent with many other sources in the United States and Europe," the authors note.

"Within the STEMI population targeted by these sequential registries, the relative proportion of older patients has decreased, while the proportion of younger men and the proportion and numbers of younger women have increased. These observations suggest that future reductions in the incidence and mortality related to AMI will need specific targeting of preventive measures toward younger women and possibly younger men."

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