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Risk of sudden cardiac death appears increased within 30 days of heart attack

The risk of sudden cardiac death following a heart attack has declined significantly in the past 30 years, although patients appear to be at elevated risk for sudden cardiac death for the first month after having a heart attack, after which time their risk decreases unless they develop heart failure, according to a study in the November 5 issue of *JAMA*.

"Sudden cardiac death is a devastating complication of myocardial infarction [heart attack]," the authors write as background information in the article. Determining which patients are at risk for this complication remains challenging, they note. Currently, risk prediction approaches are based on characteristics assessed shortly after heart attack—a strategy that may be insufficient. Other factors that occur in the days to weeks following heart attack, such as heart failure or recurrent ischemia (which may cause chest pain from narrowed or blocked coronary arteries), may be associated with risk of sudden cardiac death.

A. Selcuk Adabag, M.D., M.S., of Veterans Affairs Medical Center, Minneapolis, and colleagues at Mayo Clinic, Rochester, Minn., studied 2,997 residents (average age 67, 59 percent men) who had a heart attack in Olmsted County, Minn., between 1979 and 2005. Patients were followed through medical records for a median (midpoint) of 4.7 years, through Feb. 29, 2008.

During this time, 1,160 patients died, including 282 (24 percent) from sudden cardiac death. The 30-day cumulative incidence of sudden cardiac death was 1.2 percent, which is four times higher than expected. For each following year, however, the rate of sudden cardiac death was constant at 1.2 percent per year—lower than the rate among the general population. The cumulative five-year incidence of sudden cardiac death among heart attack patients was 6.9 percent.

A total of 842 patients developed recurrent ischemia, 365 developed heart failure and 873 developed both. Recurrent ischemia was not associated with sudden cardiac death. However, compared with patients who did not experience heart failure during follow-up, those who did

had a 2.5 percent higher risk of sudden cardiac death within 30 days of heart attack and in each year thereafter.

"The risk of sudden cardiac death has declined significantly over time for myocardial infarctions that occurred between 1997 and 2005 compared with between 1979 and 1987," the authors write—a decline of more than 40 percent over the past 25 years. This decline predates the widespread use of defibrillators but coincides with other drastic changes in therapy for heart attacks, including secondary prevention and reperfusion therapy, which re-opens blocked arteries.

"In the community, the risk of sudden cardiac death is the highest during the first month after myocardial infarction when it markedly exceeds the rate in the general population," the authors conclude. "Among 30-day survivors, the risk of sudden cardiac death declines rapidly but it is markedly increased by the occurrence of heart failure during follow-up. This underscores the importance of continued surveillance of patients after myocardial infarction and the dynamic nature of risk stratification."

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