

Complication of broken heart syndrome associated with both short- and long-term risk of death

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When patients with broken heart syndrome survive a life-threatening complication that renders the heart suddenly unable to pump enough blood, they remain at greater risk of death for years afterwards, according to research to be presented in Chicago at the American Heart Association's Scientific Sessions 2018. The study will also be simultaneously published in the American Heart Association's journal *Circulation*.

"Beyond the higher short-term mortality, for the first time this analysis found people who experienced [broken heart syndrome](#) complicated by cardiogenic shock were at high risk of death years later, underlining the importance of careful long-term follow-up especially in this patient group," said Christian Templin, M.D., Ph.D., lead author of the study and head of acute cardiac care at the University Heart Center at University Hospital Zurich, Switzerland.

Broken heart syndrome (also called takotsubo syndrome) is often triggered by physical or emotional stress in which the heart's main pumping chamber enlarges and does not pump well. Symptoms, such as chest pain and shortness of breath, mimic those of a heart attack, but there is no heart muscle damage or blockage in the heart's arteries, and recovery usually occurs in days or weeks, provided that the patient overcomes the acute phase, which can be life-threatening.

In about one in ten cases, [patients](#) with broken heart syndrome develop cardiogenic shock, a condition in which the heart suddenly cannot pump enough blood to meet the body's needs. Cardiogenic shock is a well-known cause of death after a severe heart attack, but prior to this study little was known about risk factors and outcomes when it occurs in patients with broken heart syndrome.

In the current analysis, researchers used the largest database on the syndrome, the International Takotsubo Registry, to compare 198 patients who developed cardiogenic shock (average age 63.4 years, 14.1 percent men) with 1,880 patients who did not (average age 67.2 years, 9.3 percent men).

The investigators found that, compared to broken heart syndrome patients without cardiogenic shock, those who experienced such complication were more likely to:

- have had the syndrome triggered by physical stress such as surgery or an asthma attack (66.7 percent vs. 33 percent);
- die while in the hospital (23.5 percent vs. 2.3 percent) and also significantly more likely to have died 5 years after the initial event;
- have a common arrhythmia (atrial fibrillation), 13.1 percent vs. 5.7 percent, and/or less blood pumped out with each beat (lower ejection fraction), 32.7 percent vs. 41.6 percent, when admitted to the hospital;
- have X-rays or ultrasound that show apical ballooning of the left ventricle (80.3 percent vs. 70.2 percent); and
- have a history of heart disease risk factors such as diabetes (21.0 percent vs. 14.8 percent) or smoking (27.4 percent vs. 19.3 percent).

"The history and parameters that are easily detectable on admission to the hospital could be helpful to identify broken heart syndrome patients at higher risk of developing cardiogenic shock. For such patients, close monitoring could reveal initial signs of cardiogenic shock and allow prompt management," said Templin, who is also the deputy head of interventional cardiology at the Andreas

Grüntzig Heart Catheterization Laboratories at the hospital.

The study also indicated that patients with cardiogenic [shock](#) were less likely to die during the initial episode if they were treated with cardiac mechanical support, such as an inflatable device that helps boost blood flow (12.8 percent vs. 28.3 percent).

"Although these devices should be used with caution, it could be considered as a bridge-to-recovery in patients without contraindications," Templin said.

Although the exact mechanism is not certain, broken heart syndrome is believed to occur in response to high levels of stress hormones following physical or emotional stress. Emotional stressors may be negative (such as the death of a loved-one) or positive (such as finding out you're a lottery winner). In about one-third of cases, the syndrome occurs without a known stressor.

Broken [heart](#) syndrome occurs most often in older women. Although the syndrome was first identified in Japan, the International Registry has documented cases from around the world.

Provided by American Heart Association

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