

Mending a broken heart: Study offers closer look at 'broken heart syndrome'

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"Broken heart syndrome" is still a mystery to many in the medical community, but new data from researchers at The Miriam Hospital may shed some light on the clinical characteristics and outcomes of this relatively rare, life-threatening condition.

Researchers created a registry of 70 [patients](#) with the syndrome, known medically as Takotsubo cardiomyopathy, who were diagnosed between July 2004 and April 2008. Two-thirds of the patients - almost all post-menopausal women - had experienced a very stressful physical or emotional event just before arriving at the hospital with heart attack-like symptoms. Although 20 percent were critically ill and required emergency treatment to keep them alive, all patients survived the first 48 hours and experienced a full and complete recovery,

The report is published in the April 1 issue of the [American Journal of Cardiology](#).

"It can be difficult for cardiologists and emergency room physicians to diagnose and manage patients with [broken heart syndrome](#). However, this data will help us better understand the disease process and could play a major role in developing and tailoring more effective short and long-term treatment strategies," says lead author Richard Regnante, MD, an interventional cardiology fellow at The Miriam Hospital and a teaching fellow in medicine (cardiology) at The Warren Alpert Medical School of Brown University.

Broken heart syndrome was first described by Japanese researchers in the early 1990s. Symptoms typically mimic a [heart attack](#) and tend to follow exposure to an intense physical or emotional event. Experts believe these symptoms may be brought on by the heart's reaction to a surge of [stress hormones](#), like adrenaline, causing a part of the heart to temporarily weaken or become stunned (cardiomyopathy), although the exact mechanism is unknown. However, it appears that broken heart syndrome is temporary and completely reversible.

All patients in the Rhode Island Takotsubo Cardiomyopathy Registry arrived at the hospital with heart attack-like symptoms, including chest pain and shortness of breath. Because of those similarities, patients underwent emergency cardiac catheterization. Approximately 67 percent of patients had been exposed to some sort of physical or emotional distress - such as bad news about a family member, a domestic argument, severe physical illness or a car accident - just before the onset of symptoms. All were eventually diagnosed with broken heart syndrome during their hospital stay.

Researchers identified a wide spectrum of disease severity among patients in the registry. Six patients presented with cardiogenic shock and three patients experienced sustained ventricular arrhythmias, requiring emergency defibrillation or cardioversion. Overall, the majority of those in the registry were prescribed aspirin, beta blockers, ACE inhibitors and statins during their hospitalization, consistent with treatment protocol for patients with acute coronary syndrome. Similarly, most patients left the hospital on a cardiac regimen very similar to that prescribed for heart attack patients.

Looking at long-term prognosis, researchers say patients tended to do well from a cardiac standpoint, with only two patients experiencing a recurrence of broken heart syndrome, while the remaining patients did not appear to have any other cardiac issues during the four-year follow-

up.

"Although there is much we're still learning about broken heart syndrome, we do know that it is rarely fatal as long as patients are fully supported with medications, respirators and other critical devices in the first 48 hours," says Regnante.

The registry also revealed an interesting and unexpected discovery that researchers say is not easily explained: the majority of broken heart syndrome cases occurred during the spring and summer months. Regnante points out that this is in complete contrast to the seasonal timing of heart attacks, which tend to occur during the winter months, and says this finding fuels the debate about what actually causes the weakened muscle in broken heart syndrome.

"Some believe it is simply a form of a heart attack that 'aborts' itself early and therefore doesn't leave any permanent heart muscle damage. Others say that the syndrome has nothing to do with the coronary arteries and is simply a problem with the heart muscle," he says. "Since the seasonal pattern of broken heart syndrome that we observed is opposite of what it seen with heart attack patients, our findings suggest - but certainly does not prove - the latter theory may be correct."

As a next step, Regnante and colleagues are currently enrolling patients with broken heart syndrome for a new study in which intravascular ultrasound (IVUS) will be used during cardiac catheterization. This imaging technique can uncover evidence of ruptured plaque in the artery or a small blood clot, which happens when a patient suffers a heart attack, but cannot be seen well on angiography alone. Researchers say this important study may help answer the ongoing question about the mechanism that causes broken heart syndrome.

Source: Lifespan

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