

## Unlocking a Broken Heart

Karen Schillings had the classic symptoms and signs of a heart attack: chest pain, shortness of breath and heart muscle weakness. The diagnosis would have likely ended there had she been taken to any other hospital after the water taxi accident. But physicians here identified her condition as stress cardiomyopathy, colloquially referred to as “broken heart syndrome.”

Caused by intense emotional or physical stress brought on by a sudden event, such as the shock of a loved one’s death or an automobile accident, stress cardiomyopathy differs from myocardial infarction, or heart attack, because the affected section of the heart muscle is temporarily stunned—not infarcted, or killed. Ilan Wittstein, a cardiologist who has been studying the syndrome, suspects the mechanism behind it is an abrupt spike in stress hormones.

Long interested in the link between stress and sudden death, Wittstein had noticed that certain patients diagnosed with heart attacks—all of whom had suffered acute emotional stress—improved more rapidly than others. Later, he saw the same pattern in those with intense physical stressors: emergency intubations, asth-

ma flairs and other sudden respiratory abnormalities. During trigger events, these patients experienced an immediate surge of catecholamines, hormones the body produces in periods of severe stress.

When catecholamines spill into the blood stream, they can be temporarily toxic to the heart in some people. Wittstein has found that levels of catecholamines in stress cardiomyopathy patients can be 30 times higher than normal levels and up to five times the levels seen in someone who’s had a heart attack.

The syndrome’s hallmarks are a unique electrocardiographic pattern, a surprisingly mild cardiac enzyme elevation (a heart attack usually shows much higher elevations), the absence of significant coronary artery disease, and very rapid improvement in heart muscle function. Wittstein says a correct diagnosis not only determines what tests and procedures physicians order, but also influences patients’ state of mind post-hospitalization. “It’s important to be able to tell patients that they did not have a conventional heart attack,” he says. They can walk out knowing that they’re going to do well in the long run.”

The syndrome most typically affects middle-aged women, and it’s far more common



Ilan Wittstein studies stress cardiomyopathy, the condition that affected Karen Schillings.

than believed, says Wittstein. “If one recognizes the features, I think one would see this probably on a weekly basis somewhere in the hospital.” Patients with stress cardiomyopathy rapidly recover heart function. Schillings improved markedly only 48 hours after being admitted.

“She was a dramatic case with multiple levels of stress,” says Wittstein. “The primary stressor was likely the fear of nearly drowning. Certainly there was a lot of grief, too. But her fear generated the catecholamines she needed to get out alive.”

—LR and MEM