

Changes in heart attack timing continue years after hurricane

March 7 2013

The upheaval caused by Hurricane Katrina seems to have disrupted the usual timing of heart attacks, shifting peak frequency from weekday mornings to weekend nights, in a change in pattern that persisted a full five years after the storm, according to research being presented at the American College of Cardiology's 62nd Annual Scientific Session.

The study, which could inform decisions about hospital staffing after natural disasters, compared the timing of heart attacks in patients admitted to Tulane Medical Center six years before and five years after the storm hit the Gulf Coast in August 2005, devastating New Orleans with floods and killing more than 1,800 people. The latest analysis expands on the previously published research that looked at these trends in the three years post-Katrina. The new data show that even five years after the hurricane, heart attacks were still less likely to occur in the mornings or on weekdays and were instead more frequent at night and on the weekends—a major shift from what [cardiologists](#) and hospitals normally see. Researchers point to prolonged periods of stress as the most likely cause.

"The stress and devastation brought on by Katrina doesn't just make a heart attack more likely, but it also can alter when they occur," said Matthew Peters, MD, a second year internal medicine resident at Tulane University School of Medicine and the study's lead investigator. "It may even outweigh or augment some of the [physiological mechanisms](#) [behind heart attacks]."

Heart attacks tend to be more common in the morning and on weekdays, especially Mondays, because of surges in the body's stress (cortisol) and "fight-or-flight" ([catecholamines](#)) hormones, higher than [normal blood pressure](#) and [heart rate](#), and a dip in the body's ability to break up [blood clots](#). But the shifts in behaviors and routines seen after the storm may have trumped some of these factors, Dr. Peters said.

Still, researchers did find a potentially encouraging sign from this latest analysis—a slight return of Monday morning heart attacks in a pattern closer to pre-storm events. Before the hurricane, 23 percent of heart attacks occurred on Mondays. This dropped to 10 percent in the three years after the storm and only recently crept up to 16.5 percent, though it is not a statistically significant change.

"It suggests some normalization in employment and work patterns, but generally things still appear to be pretty much in disarray," Dr. Peters said.

He speculates that with so many people forced out of work after Katrina, weekday mornings and Mondays, in particular, became less stressful. In the last two years, the unemployment rate in New Orleans has dropped slightly—from 17.9 to 15.2 percent; however, it is still twice the pre-storm unemployment rate of 7 percent. Night and weekend heart attacks may be more likely because day-to-day life at home became more anxiety-ridden with temporary housing, rebuilding homes and financial stressors.

Researchers looked at heart attack trends in a total of 1,044 confirmed [heart attack](#) cases; 299 before Katrina, 408 in the three years after Katrina and another 337 in the four and five years after the storm.

Compared to the pre-Katrina group, morning and weekday heart attacks continued to be a significantly smaller portion of total heart attacks in

years four and five after the storm (45.2 vs. 30.5 percent and 60.2 vs. 36.3 percent, respectively). Heart attacks occurring over the weekend were nearly twice as likely as before the storm hit (30.6 vs. 16.1 percent of all heart attacks) and night heart attacks remained significantly elevated as well (43.6 vs. 29.8 percent). Compared to the one to three years after the storm, years four and five showed non-significant decreases in morning, weekday and weekend heart attacks and a substantial (but non-significant) reduction in heart attacks at night.

Patients in the post-Katrina group were more likely to be smokers (52.3 vs. 34.4 percent) and lack health insurance (17.1 vs. 8.4 percent) compared to those before the storm. No significant differences were noted between groups in terms of age, sex, ethnicity, medical comorbidities, medications or substance abuse. Excluded from the study were non-New Orleans residents, hospital transfers, patients with symptom onset while hospitalized and patients without adequate documentation of timing of symptom onset.

Dr. Peters says this research may affect hospitals and health care workers in areas hard-hit by hurricanes and other natural disasters as they tend to be understaffed at night or on the weekends because, under normal circumstances, fewer patients come in. However, based on these findings, after a disaster the opposite might be true. He says this could affect patient outcomes as well because patients who are treated at night generally have higher failure rates for angioplasty, longer door-to-balloon times and higher rates of in-hospital mortality, he adds.

"With the increased incidence of major disasters in the U.S. and worldwide, it is important to understand how these disasters affect the heart because clearly they do," Dr. Peters said.

Dr. Peters and his team, led by Anand Irimpen, MD, associate professor of medicine at the Heart and Vascular Institute of Tulane University

School of Medicine and chief of cardiology at the Southeast Louisiana Veterans Health Care System, are planning to collaborate with medical centers in other regions hard-hit by hurricanes or other [natural disasters](#) to collect more data on these trends.

More information: Dr. Peters will present the study "Alteration in the Chronobiology of Onset of Acute Myocardial Infarction in New Orleans Residents Following Hurricane Katrina" on Saturday, March 9 at 10:00 a.m., in Moscone Center, Expo North. The alteration in the timing of heart attacks seems to mirror the continued increase in the number of heart attacks post-Katrina, also reported at ACC.13.

Provided by American College of Cardiology

Citation: Changes in heart attack timing continue years after hurricane (2013, March 7) retrieved 24 April 2024 from <https://medicalxpress.com/news/2013-03-heart-years-hurricane.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.