

Study finds barriers to angioplasty for life-threatening heart attacks

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Women, the elderly, and patients admitted to the emergency department on weekends are all less likely to receive same-day coronary angioplasty for a life-threatening heart attack in Florida, University of South Florida researchers found. Their study was published this month (Oct. 1) in the *American Journal of Cardiology*.

Angioplasty, also known as percutaneous coronary intervention (PCI), uses a catheter-guided balloon to open a blocked artery and restore blood and oxygen to the heart. A stent is usually placed to hold open the artery. The procedure is the recommended treatment for the most serious and deadly of heart attacks known as ST-elevation myocardial infarctions or STEMIs, according to guidelines published by the American College of Cardiology and the American Heart Association. Studies show that rapid access to PCI can reduce heart muscle damage, hasten recovery, improve survival and prevent long-term disability better than clot-busting drugs alone.

Elizabeth Pathak, PhD, and Joel Strom, MD, both of USF, examined same-day PCI rates in over 58,000 acute heart attack patients who were admitted to emergency rooms in more than 200 Florida hospitals from 2001 to 2005. The study included men and women ages 18 and older from the three largest ethnic groups in Florida: whites, blacks, and Hispanics. The researchers found that the use of same-day PCI for heart attack patients more than doubled -- from 20 percent to 40 percent -- during the study period. However, despite increased use of the clinically proven procedure, statewide most patients admitted to emergency rooms

still did not receive same-day PCI by the end of 2005.

The researchers identified several barriers to treatment, including:

- Some patients were admitted to hospitals that do not perform PCI.
- At PCI-providing hospitals, patients ages 55 to 64, were on average about twice as likely to receive same-day PCI as patients 75-years-old or older.
- Men were more likely to receive same-day PCI than women throughout the study period.
- While black patients were less likely to receive same-day PCI than whites in early 2001, the racial disparity disappeared by the end of the study.
- Even by late 2005, patients admitted on weekends were 25 percent less likely to receive same-day PCI than those admitted on week days.

Hospital PCI volume was also a significant factor in receiving same-day procedures. Patients admitted to medium to high-volume hospitals that performed at least 200 PCIs a year were five times more likely to receive same-day PCI than those at low-volume hospitals performing fewer than 200 procedures a year.

"The trend is positive, but the state still has a long way to go before all heart attack patients receive the optimal level of care," said lead investigator Dr. Pathak, an associate professor of epidemiology at the USF College of Public Health. "Many leading hospitals in Florida and across the nation are putting into place new policies and protocols that are eliminating the 'weekend problem.' However, the reasons behind the apparent age and gender disparities shown in our study and others are

likely more complex and require further focused research.

"As a woman, if I had a heart attack I would want to be treated just as aggressively as a male patient. But I don't think this is a matter of simple discrimination – the answer is going to be more complex," Dr. Pathak said. "Future research will need to examine more detailed medical data to evaluate whether some patients were excluded from PCI for legitimate clinical reasons such as certain risk factors or complications."

Supported by a new grant from the American Heart Association, Dr. Pathak will be examining the feasibility of a statewide system for routing STEMI patients to high-volume PCI hospitals. She will examine hospital, geographic (rural) and financial barriers limiting patient access to PCI, continue to track PCI use, and investigate patient outcomes.

The study has implications for shaping future state and national policies related to heart attack care.

"Today national standards recommend that patients with STEMIs should be identified and treated by balloon angioplasty within 90 minutes of first contact with medical personnel, ideally an EMS paramedic," said Dr. Strom, professor of medicine and chemical and biomedical engineering at USF. Dr. Strom serves as cardiology co-chair for the AHA's state-level STEMI task force and co-chairs a local committee, including representatives from all hospitals and EMS services in Hillsborough County, which established the county's STEMI triage and care program.

"Florida needs to develop a regional network for STEMI care that integrates Emergency Medical Services and PCI-capable hospitals, similar to the current statewide systems governing stroke and trauma care," he said. "It's extremely critical to act quickly in delivering treatment to patients suffering life-threatening heart attacks because

time is heart muscle. Within two hours of the onset of a heart attack, you've lost 50 percent of the affected heart muscle and by six hours it's gone altogether."

Source: University of South Florida Health

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