

Saving heart attack patients in the middle of the night

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When Joyce Moss recently arrived at Loyola University Hospital with a life-threatening heart attack, it took just 42 minutes to perform an emergency balloon angioplasty.

The procedure opened up an artery that was 100 percent blocked. "There was no damage to the heart because of how quick they were," said Moss, 56, of Berwyn. "I feel good."

To further improve its emergency angioplasty times, Loyola will become the first hospital in Illinois to staff a Heart Attack Rapid Response Team (HARRT) at the hospital 24 hours a day, seven days a week. The HARRT program includes board-certified and highly-experienced interventional cardiologists, nurses and technicians.

Most hospitals do not have such personnel on site during nights and weekends. Thus, precious time is lost when the team has to be called in from home. This is especially true when staffers are delayed by snow storms or other bad weather.

"The HARRT program will provide the next leap of care for patients," said Loyola interventional cardiologist Dr. Fred Leya. Leya is among a team of interventional cardiologists who will rotate night and weekend shifts at the hospital. Leya is medical director of Loyola's cardiac catheterization lab.

Reducing angioplasty times is a coordinated effort that begins with

paramedics who take patients to the hospital. There are 51 west suburban fire departments and ambulance companies in the Loyola Emergency Medical Services System. A growing number of ambulances are being equipped so that paramedics can administer 12-lead EKG exams while en route to the hospital. An EKG can confirm a heart attack, and results are radioed ahead to the hospital, said Dr. Mark Cichon, Loyola's director of emergency medical services.

Once a heart attack is confirmed, it takes less than five minutes to prep the patient. The interventional cardiologist then threads a catheter (thin tube) from an artery in the groin to the heart. The cardiologist inflates a balloon at the tip of the catheter to open the artery. In many cases, the cardiologist places a stent (wire mesh tube) to keep the artery open.

The doctor must be fast and accurate. "You become very focused," said interventional cardiologist Dr. Bruce Lewis. "It's like shooting a three-pointer with two seconds to go, except that you can't afford to miss." Lewis is a professor in the division of cardiology at Stritch.

Experience helps improve outcomes. Interventional cardiologists on the HARRT team each perform approximately 300 angioplasties per year. "We have seen just about every permutation," Lewis said.

A task force of the American College of Cardiology and American Heart Association recommends that a patient undergoing a heart attack receive a balloon angioplasty as soon as possible or at least within 90 minutes of arriving at the hospital -- known as the door-to-balloon time. Speed "is of central importance because the benefits of therapy diminish rapidly with delays in treatment," the task force said in a November, 2008 statement published in the heart association journal *Circulation*.

During a heart attack, a blockage in an artery stops blood flow. Heart muscle begins to die due to lack of blood and oxygen. An emergency

angioplasty can reopen a blocked artery and restore blood flow. The procedure does the most good if done within one hour of the patient's arrival, known as the Golden Hour. After three hours, there may not be enough benefits to justify the risks of the procedure.

"Time is heart muscle," said Dr. David Wilber, director of Loyola's Cardiovascular Institute. "The sooner we can open the artery, the better."

A balloon angioplasty is the most effective way to reopen an artery, according to a review of 23 studies published in the British medical journal *Lancet*. In the studies, heart attack patients were randomly assigned to receive a balloon angioplasty or an intravenous clot-busting drug such as streptokinase. Among patients receiving clot-busting drugs, 14 percent died or suffered a stroke or subsequent heart attack, compared with only 8 percent in the angioplasty group.

Loyola is among a small but growing number of hospitals that are establishing around-the-clock angioplasty teams. Other hospitals include Detroit Medical Center, Vanderbilt Medical Center in Nashville, Tn. and Aurora St. Luke's Medical Center in Milwaukee. Detroit Medical Center has cut its door-to-balloon time to 47 minutes.

"There is increasing evidence that timely angioplasty not only results in better patient outcomes, but may actually reduce overall health care costs in the long run by cutting down the need for later diagnostic procedures, interventions, and hospitalizations," Wilber said. "This is achieved despite the additional effort and expense on the front end. As physicians and hospitals strive to improve the quality of care while controlling long-term costs, it is likely that more centers will adopt these programs."

In Moss' case, there was a blockage in a branch to one of her major heart arteries. After reopening the blockage, Lewis placed a stent. An echocardiogram later found there was no significant damage to her heart

muscle.

Moss' heart attack occurred while she was driving to her job as a school bus driver. She said it felt like there was a 50-pound weight on her chest. Her left arm went numb and fell off the steering wheel. She was sweating and nauseous. She pulled off the road and called 911. "I knew it was a heart attack," she said.

Moss, who has six children and 11 grandchildren, said "It's good to still be here."

Loyola University Health System board member James Dowdle and his wife, Sally, have pledged \$500,000 to help offset the initial costs of opening the program. The Dowdles have donated more than \$2 million to LUHS and to Loyola University Chicago. James Dowdle, a retired executive vice president of the Tribune Co., is the 2001 recipient of the Sword of Loyola, the highest honor of Loyola University Chicago. Sally Dowdle has served as co-chair of the hospitality committee of the Stritch School of Medicine's annual award dinner.

Source: Loyola University Health System

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