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## Pump saves heart attack victims

By Marjory Sherman  
Staff Writer

Salvatore D'Alessandro, 61, counts himself among the lucky.

It was his good fortune that he was rushed to Lahey Clinic in Burlington when he suffered a massive heart attack this winter, where doctors are the first in New England to test an experimental outside-the-body heart pump the size of a hockey puck that literally brings people back from near-death.

The percutaneous ventricular assist device, or pVAD, is being tried out at 20 hospitals across the country as a mini-artificial heart requiring no major surgery. It can pump blood for heart attack victims for days or even weeks until the patient can withstand a heart transplant, by-pass surgery or even recover on his own.

"It saved my life," said D'Alessandro, looking disarmingly spry as he recuperates at home in Derry, N.H.

His cardiologist, Dr. Bruce E. Mirbach, is equally impressed.

"The fact that he survived was so remarkable," said Mirbach, "I can't help but think the pVAD was a factor. He'll need constant watching, constant attention to his health habits, but he has done exceedingly well."

D'Alessandro is a former trucking company owner and onetime high school football star who was still carting packages of 50 and 75 pounds from Logan Airport in a courier service the week the heart attack hit in late January. He had given up the trucking business 15 years earlier because he knew his 80-hour work weeks and four-pack-a-day cigarette habit would kill him.

He was in seemingly good health, though still sneaking up to a pack of cigarettes a day, when he awoke at 4 o'clock in the morning on Jan. 27 gasping for air.

"I just couldn't catch my breathe. I was breathing heavier and heavier. It was so bad that I could barely call out to my wife to call 911," he remembered.

The ambulance was streaming toward Lahey Clinic when D'Alessandro took a turn for the worse. Paramedics jumped in and placed a breathing tube down his windpipe to breathe for him. They took him to Winchester Hospital to stabilize him before continuing on to Lahey Clinic.

The cardiac catheterization team at Lahey Clinic was waiting for D'Alessandro and his wife, Clare. They quickly performed an angiogram to assess the damage. The situation looked grim.

D'Alessandro was in cardiogenic shock, an often-fatal condition suffered by 10 percent of all heart attack victims in which the heart's pumping ability fails. He was cold and clammy and his color was waxen. Only 15 percent to 20 percent of his heart muscle was working, and two of the three parts of his by-pass were blocked.

Dr. Thomas C. Piemonte, an interventional cardiologist, delivered the news to D'Alessandro's wife.

"All of his natural vessels are blocked. There is a very, very, very good chance he will not make it," Piemonte told her. "The only thing we can do is enroll him in the study, and he will have a 50 percent chance."

Clare D'Alessandro was "floored" to learn the severity of her husband's condition. She decided immediately to accept his best shot at survival.

"They sat down and talked to me about this pump. They offered it to me and I took it. I didn't have a choice. They just said, 'This is a chance,' and I took it, because the way it was going, he wasn't going to live," she said.

Until now, patients who land in the hospital with a barely pumping, quivering heart have had one option -- a balloon pump installed in the aorta behind the heart. The results with the so-called intra-aortic balloon pump or IABP are not very promising, leaving doctors with little else to offer patients with severely damaged heart muscle.

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That is what makes the new pVAD pump, called TandemHeart, so intriguing. Of the four patients at Lahey Clinic who have tried it, two survived.

The entire procedure, performed in the cardiac catheterization laboratory, takes less than two hours.

Doctors strap the small pVAD pump to the thigh, then insert a catheter through the groin, snaking a wire into the heart. Piemonte is one of only a handful of interventional cardiologists in the Boston area trained to perform the delicate procedure. Once in place, the pump takes the place of the heart while the patient's lungs oxygenate the blood.

The trickiest part is puncturing the wall from the right atrium into the left atrium, which holds the oxygenated blood. It is called a transeptal puncture, performed using X-ray technology to correctly position the needle.

"It takes a fair amount of training to do," said Piemonte. "It's not exactly a thing you want to miss."

Lahey is the only hospital north of New York City to date to enroll patients in pVAD testing. Brigham and Women's Hospital in Boston is also in the process of starting a trial.

Pump manufacturer Cardiac Assist of Pittsburgh will seek approval from the Food and Drug Administration in a year or more, when the second phase of testing is complete, to offer the pVAD to the general public. Once the pump is widely available, patients could have the procedure at any hospital that has a cardiac catheterization laboratory.

The pVAD has already been used successfully in Europe in cases of high-risk angioplasties, pumping for the heart while the surgery is taking place.

In the U.S. cases under study, all of the candidates for the pump have suffered massive heart attacks, and the pVAD is used as a "bridge" to keep the patient alive until the heart heals on its own or he can withstand surgery. In D'Alessandro's case, the pVAD stayed in place for 24 hours. Doctors were able to unblock his clogged arteries while the pump was in place.

He was recovering well, and even beginning to attend cardiac rehabilitation sessions at nearby Parkland Hospital in Derry, N.H., when he suffered a small setback last week.

D'Alessandro was sipping a diet root beer at Cracker Barrel restaurant when his eyes went blank and he seemed to stop breathing.

"He just stopped talking," his wife recalled. "He was staring straight ahead and he was just unconscious, gone. And I screamed bloody blue murder."

D'Alessandro was rushed back to Lahey Clinic, where doctors determined that his electrical heart rhythms were off.

"Doctor Mirbach called it just a little bump in the road," said Clare D'Alessandro. "It set me back, but not him."

A medical team installed a combination pacemaker and defibrillator in D'Alessandro, similar to the one inserted in Vice President Dick Cheney, said Mirbach. As D'Alessandro recovered over the next few days in the coronary-care unit, a legion of nurses, doctors and resident physicians stopped by to visit the fellow they have taken to calling the "bionic man."

Now home once again, D'Alessandro is taking a philosophical view of life. His wife of 41 years is more anxious, especially after the latest heart incident.

"I know his heart isn't good," she said. "He probably doesn't have the longevity of other people. But I don't want to be a widow so soon."

D'Alessandro, meanwhile, is taking every day as it comes.

"I can live a quiet life," he said. "I'm perfectly happy riding around in the cart in the supermarket. I'm thankful to be alive."

He already misses the break-neck pace of his courier job, but he is happy to spend time with his grandchildren. His daughters, Lisa Connors and Susan Calderone, each with two children, live in Derry. His son and two children live in Ohio.

"I was happy doing what I was doing," he said. "It keeps you young. This thing was just unexpected. It's just by the grace of God that I went to the right place at the right time. This pump will give people a chance because sometimes, you know, they die before they ever get a chance."