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Pump helps patients heal without heart transplants

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Norbert Hilbert's heart problems came at the most inconvenient moment.

He was renovating his farm house in September 1994 in a village near Gera, when he had to be flown to the German Heart Center Berlin with cardiomyopathy a life threatening disease of the heart muscle.

Mr. Hilbert's heart had failed before, but this time a transplant was seen his only life saving option.

But three years later, with his own heart as good as new, the salesman again enjoys his full time job and family life.

He remembers too well how Berlin doctors told him he had no more than three days to live and that no donor heart was available. So they suggested the implantation of a left ventricular assist system, or LVAS, to bridge the time to a transplant.

"They sent another patient so I could have a look at this machine," says Mr. Hilbert now 44. "But I could not have cared less. All I thought was either they do it or I'll kick the bucket."

Ten weeks later, with a donor heart available at last, Mr. Hilbert had to make a difficult decision. With the help of the device, his heart had healed considerably. And doctors believed that further recovery was likely. Should this assumption prove wrong, a transplant could be carried out later.

It took Mr. Hilbert only 20 minutes to make up his mind. On May 31, 1995, the ventricular device was removed. He was the world's second patient to recover because of this method.

"The idea of acute heart conditions healing again had been in the air for a long time, and we had already treated several children to the same effect, though with different medical devices," says Dr. Roland Hetzer, medical director of the German Heart Center Berlin. "Yet nobody believed so far that it also worked with chronic diseases."

Dr. Hetzer and his team had watched patients who on average wait 200 days for a heart.

Previously, when the demand and the number of donor hearts available was comparable, the transplants were done so quickly that doctors never saw what the device could do. Today's longer waiting periods, however, let doctors see how it can aid healing.

In 1984, Dr. Peer Portner implanted the world's first ventricular device at Stanford University. Since then nearly 500 patients worldwide have received the Novacor LVAS. In Germany, the hearts of four patients, including Mr. Hilbert have recovered so well that they no longer need the device's support.

The system consists of an electromechanically driven pump that is implanted in the abdomen and connected to the left ventricle, the heart's main pumping chamber.

A lead through the skin joins the pump to an electronic controller and a rechargeable battery pack. Both are so small that patients can easily carry them in a belt around the waist or in a shoulder bag.

After the implantation, the device works like the left ventricle and pumps blood through the body. The pump adjusts to the beat of the live organ.

When doctors can see the heart is healing, the machine's pumping frequency is slowly reduced to allow the real heart to take over. So far, 46 LVAS patients have returned home to normal lives.

One of them is world-record holder Reiner Hege, who recently celebrated two years of living with the system. At year's end, doctors will decide whether Mr. Hege's heart is stable enough to take out the device.

Of the 3 million Europeans suffering from heart failure, many are likely to need a transplant soon, doctors say. Only 2,300 donor hearts are available each year, and it is the increasing demand for hearts that makes therapeutic alternatives valuable, says Dr. Hetzer.

"If further studies show our assumptions to be true, which is more than likely, it would be only logical to treat patients before they enter the stage of fatal heart failure," Dr. Hetzer adds. "So far this has not been done though. We do not have reliable markers yet which tell us which heart will recover and which will not."

Dr. Hetzer adds that this therapy only applies to cardiomyopathy patients. And there are patients who even prefer transplants.

"To keep my own heart, I don't know. It might fall again," says Friedrich Wilhelm Schulz, 48, who was taken to the Berlin center because of heart failure in September 1995.

Mr. Schulz is connected to the so-called Berlin Heart, a pump that the patient carries in a belt outside the body and whose large controller and batteries are positioned on a movable cart.

"At first I could not imagine my life to continue with a new heart," Mr. Schulz says. "But by now I have seen so many positive examples that for me the transplant cannot happen quickly enough. Once it's done, I will get going again for good."

Mr. Hilbert, on the other hand, is glad his heart has recovered. Back at his 50-hour-a-week job, however, he now considers breaks more important than sales when he gets tired.

"Verging on death I have learned to value my own life more than anything else," Mr. Hilbert says. "I enjoy what I achieve today instead of planning too far ahead. Nobody knows what tomorrow will bring, anyway."