Supporting the aorta instead of replacing it: "We are the second hospital in the Netherlands to perform the PEARS procedure."

Medical Spectrum Twente

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Recently, the PEARS operation was launched for the first time in Thorax Centrum Twente Run. The #PEARS surgery (Personalized External Aortic Root Support) is a heart surgery in which the aorta – the largest artery of our body – is #ondersteund from the outside. This happens when the aorta is dilated and therefore threatens to rupture. "To prevent that, you have to intervene in time," says surgeon Mimi and Weeme. "Normally, part of the aorta is replaced by a tube prosthesis, but with the PEERS procedure, the own aorta is preserved."

Fewer complications

Supporting rather than replacing offers patients a less invasive treatment. At the same time, it reduces the risk of complications. "Because the aorta is not replaced, there is no chance of leakage. In the long term, there is no need for lifelong intake of blood thinners, as is often the case in patients with a mechanical valve," says surgeon Tomasz Płonek MD, PhD, FEBCTS (cardiac) shut.

Strict blood pressure monitoring

During traditional surgery on the aorta, the heart stops and a heart-lung machine takes over the blood circulation. During the PEARS procedure, this is not necessary; The prosthesis is placed around the aorta, while the heart is still pumping blood.

"That makes the operation challenging," says anesthesiologist Nicobert Wietsma

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"When the heart pumps blood, it puts pressure on the aorta (blood pressure). The surgeons can only put the prosthesis around the aorta when the pressure is low. Too high a pressure can cause the aorta to break down." The collaboration between anesthesiologists (who lower blood pressure) and neurophysiologists (who monitor the patient's brain activity) is extremely important here. "We are going to a systolic pressure of around 65, which is a bit of a gray area. If you look at the limits for blood pressure regulation in the literature, we are far below that. Hence the strict surveillance, to prevent neurological damage". Mimi adds: "That also makes this operation a team effort. You need each other".

Multi-disciplinair

Various disciplines are also involved in the process before surgery. The custom-made prosthesis is developed using advanced CT imaging. The resulting images are converted into the physical Dacron prosthesis by a specialized team in England. The radiologists in MST have to use a new protocol for advanced CT imaging.

3D print of an aorta

The first patient

"The first PEARS operation ever was performed 20 years ago at the inventor's own premises, Tal Golesworthy. That's quite unique," says Tomasz. Since then, about 1,000 of these operations have been performed. There is a large database that describes every PEARS operation that has been performed. This shows that the results of the operation are exceptionally good. Was the first patient tense because it was the first PEARS surgery in MST? "No, certainly not. It is absolutely not an experimental treatment. We can always fall back on the traditional method for this operation if necessary."

Mimi: "We are of course heart surgeons; Such a new intervention is mainly interesting for us, but not exciting."

Learning a new procedure: collaboration AMC

Cardiologist Lodewijk Wagenaar first sent two patients to Amsterdam UMC for this operation and then he threw the ball in MST: "Medical Spectrum Twente is one of the few hospitals in the Netherlands where cardiology and cardiac surgery form one #vakgroep. As a result, we have extremely short lines of communication."

"We all went to Amsterdam UMC once to attend the operation there," says Nicobert. David (Dave) R. Koolbergen, who works at Amsterdam UMC, has performed the operation dozens of times and is the only expert in this field in the Netherlands. Dr. Koolbergen came here for the first operation in MST as a proctor. The team expects that dr. Koolbergen will be present 5 to 10 more times, during which they will perform the operation more and more independently.

"Such a collaboration with Amsterdam UMC is extremely important. You have to transfer knowledge, you do it together," says Tomasz.

Successful

The team agrees on one thing: "We are extremely proud that we have done this #samen with so many different disciplines. We are a #innovatief centre, are open to new ideas and work well together within different departments. That way, a lot is possible." They hope to be able to perform about 20 of these operations per year: "It would be nice if hospitals from other regions also know where to find us. Patients may then spread nationwide across Amsterdam UMC and MST."