

[MUSIC PLAYING]

HOWARD C. HERRMANN: Aortic stenosis is a disease in which the main heart valve, through which all the blood has to pass from the heart to the rest of the body, gets narrowed. And as that valve develops a narrowing or blockage, it's more difficult for blood to leave the heart and it backs up, leading to symptoms of chest pain, shortness of breath and sometimes fainting.

JOSEPH E. BAVARIA: It develops mostly and usually as an acquired disease. There's no genetic component in the sense that it's not congenital, although that does occasionally happen. But usually, it's acquired disease, especially in these older patients.

And you just get progressive calcification of the valve. Sometimes it could be accelerated because of diabetes, but some people have a predisposition to calcification of the valve as they get older. It can accelerate with diabetes, and that's how it happens.

HOWARD C. HERRMANN: Traditionally, as the patient develops symptoms of aortic stenosis and the valve is severely blocked, the only way to treat it is by mechanically replacing the valve with open heart surgery. That involves opening the chest, putting the patient on a heart/lung bypass machine, cutting out the diseased valve, and replacing it with either a biologic one or a mechanical one.

JOSEPH E. BAVARIA: Transcatheter aortic valve implantation is a means of placing an aortic valve in the native aortic valve annulus that's usually calcified through a catheter instead of through open heart surgery. A transcatheter aortic valve implantation is a mechanism where we put in the aortic valve into a human being through the groin or through the left ventricular apex, which is a small incision on the left chest down below, in the lower portion of the left chest.

And we don't have to go on a heart/lung machine. We don't have to do any of the big open heart surgery approaches. And the valve is then delivered into the aortic valve annulus, which is where the aortic valve resides. And we then blow it up and push the native aortic valve aside. And then we basically have a new aortic valve. We do not take out your old valve.

HOWARD C. HERRMANN: It involves the use of a specialized valve that is essentially a bovine pericardial valve, similar to the kind of valve that's placed surgically. But it's mounted in a stent, where it can be crimped on a balloon and then inflated inside the patient's diseased valve.

JOSEPH E. BAVARIA: Well, the procedure is radically different from what we've done in the past. In the past, a standard aortic valve operation required a standard open heart surgery. We'd make an incision on the chest somewhere, go on the heart/lung machine, open up the aorta and the heart, take out the original aortic valve, and put in a new aortic valve and then close up.

And this is major open heart surgery. We do it all the time, but that's what kind of surgery it is. This procedure is very different from that. We do not have to open up the chest in any big form. We do not have to go on a heart/lung machine at all.

And it is a means of placing an aortic valve through the groin or through a small incision in the chest. This is very much less invasive. As a matter of fact, in open heart surgery we often talk about a minimally invasive procedure.

Well, this is not even minimally invasive. This is transcatheter. We've skipped that step. This is a much less invasive procedure than regular open heart surgery.

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