

Heart Transplant

What is it?

A heart transplant is performed by replacing the patient's heart with a donor heart. Doctors remove the patient's heart by transecting the aorta, the main pulmonary artery and the superior and inferior vena cava, and dividing the left atrium, leaving the back wall of the left atrium with the pulmonary vein openings in place. The donor heart is then connected by sewing together the recipient's and donor's vena cava, aorta, pulmonary artery and left atrium. In patients with congenital heart disease, the surgeon may need to repair other heart defects during the transplant.

What causes it?

Heart transplantation is performed in patients with congenital heart disease for several reasons. The most common reason is that one or both ventricles has poor function and severe heart failure is present. Ventricular failure can happen in many forms of congenital heart disease. It's more common in a single ventricle or if valve stenosis or leakage places extra stress on the heart. Patients who have had the Fontan procedure may need a heart transplant because the blood flow through the venous system is slow and the veins are congested. This leads to swelling, fluid accumulation and/or protein loss.

How does it affect the heart?

The donor heart is matched to the recipient by blood type and body size. In most cases, no specific immune matching is performed. The heart transplant recipient must take immunosuppressive medications to prevent his or her immune system from rejecting the new heart. The amount of immunosuppressive medication is balanced against the risk of side effects. Taking too much of the medication can result in infection or cancer.

How does a heart transplant affect my child?

A heart transplant gives a patient with congenital heart disease the opportunity to have a normal heart with normal blood circulation. If the transplant goes well, heart function and blood flow will be better than ever. A patient who has had a heart transplant requires lifelong medication and monitoring for possible rejection. The transplanted heart grows to adult size as your child grows. Heart transplant recipients need to take their immunosuppressive medications and other medicines that control the side effects of a transplant for the rest of their lives. During young adulthood, a patient's medical care will be transitioned from a pediatric to an adult heart transplant cardiologist.

What will my child need later in life?

Heart transplant recipients are closely monitored for heart rejection, which can happen in the heart muscle cells or in the heart's arteries. Side effects of the immunosuppressive medications include diabetes, infection, kidney disease, cancer or high blood pressure. If any of these problems arise, often the immunosuppressive medications type or doses are changed. As new immunosuppressive medications become available, a patient's medications may be changed.

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What medical follow-up is needed?

Heart transplant recipients require regular checkups by a transplant cardiologist. At these visits, blood tests will be done to check the levels of the immunosuppressive drugs and look for side effects. Electrocardiogram, echocardiogram and Holter monitoring help doctors monitor the heart rhythm and function. An endomyocardial biopsy can detect signs of rejection in the heart. Your doctor will evaluate your child's coronary arteries yearly or bi-yearly to monitor for signs of narrowed coronary arteries in the transplanted heart. Your child should also have routine medical checkups to maintain overall health.

Will my child need more surgery?

The rhythm of the transplant heart may become slow and a pacemaker may need to be placed. Rarely, the tricuspid valve can become damaged by the endomyocardial biopsy procedure and need to be repaired or replaced. In patients with congenital heart disease who have had a coarctation repair or problems with narrow or small pulmonary arteries, surgery or interventional catheterization may be needed after the transplant to increase the size of these areas. The transplanted heart may fail because of rejection, damage to the heart cells or coronary arteries of the heart (which leads to heart failure). In some recipients, doctors can transplant another heart.

What activities will my child be able to do?

Heart transplant recipients have no specific activity restrictions. Discuss activity ideas with your transplant cardiologist.

What about preventing endocarditis?

Your child can be at increased risk for endocarditis if heart valve problems develop. Ask your pediatric cardiologist about your child's need to take antibiotics before certain dental procedures to help prevent endocarditis.