

Organ Transplant Benefit

Background

Transplantation-*healthy organs for damaged ones*-is fostering a revolution not only in the technology of medicine, but in the basic philosophy of health care. When an organ is removed from one person and put into another, the procedure is called an allogenic transplantation. It is by far the most common form of transplantation. In a newer procedure that shows promise, doctors reposition tissue within an individual's own body. This form of transplantation is known as an autologous transplant. Transplant surgery can restore the body to near-normal. It can postpone death and vastly improve the quality of life.

Factors Leading To Transplantation

There are several factors which need to be considered before transplantation occurs:

- Medical assessment
- Personal factors
- Organ availability.

Medical Assessment. The first step to becoming a candidate for transplantation, the initial evaluation, is fairly routine. In fact, conventional treatment will continue because transplantation is by no means assured, either soon or ever. Next comes a thorough work-up to be sure the patient has a good chance of benefiting from transplantation.

Personal Factors. The *human factor* also is vital. The patient's attitude and willingness to follow directions, including taking powerful anti-rejection drugs for life-helps determine whether such patient will become a transplant candidate.

Organ Availability. Statistics on every potential organ recipient are entered into the United Network for Organ Sharing (UNOS). This national network of data was created out of the 1984 National Organ Transplantation Act to assure equitable distribution of available organs throughout the country. To be eligible for federal funding, all transplant centers must belong to and abide by the rules of UNOS.

Transplants and the Immune System

The major challenge to organ transplantation is rejection by the body's immune system. Programmed to defend the body against disease-causing bacteria, viruses and fungi, the immune system also regards the cells of transplanted tissue as foreign.

If a patient were to have a transplant and preventive steps were not taken, the immune system immediately would set out to destroy the new tissue by activating release of white blood cells called T lymphocytes. If unchecked, T cells would attack and eventually destroy the transplanted organ. For this reason, preventive measures are routinely administered.

Kidney, heart, lung, liver, pancreas and allogenic skin transplants are particularly vulnerable to rejection. The cornea and bone usually are less susceptible to rejection. Because bone marrow contains its own T cells, it is unique in its ability to identify the recipient's tissues as *foreign*, leading to what specialists in blood disorders call a graft vs. host disease.

To minimize rejection and the eventual destruction of transplanted tissue, doctors use these techniques:

- ***Cross-Matching Blood.*** The immune system regards proteins in your blood as foreign only if they differ from one's own proteins. By matching the recipient's donor's ABO blood types, doctors greatly increase chances for acceptance of the organ.
- ***Tissue Typing.*** If a patient needs an organ transplant, the ideal donor is an identical twin. That's because identical twins have identical blood proteins. To further enhance compatibility, doctors match another protein in the blood. This protein is called the human leukocyte antigen (HLA) system.
- ***Immune-Suppressing Therapy.*** Before operating, physicians use a variety of drugs and techniques to suppress the immune response and thus prepare the individual for surgery. Because every approach weakens the body's normal defense against illness, doctors must strike a delicate balance between preventing rejection and allowing a fatal infection. During the past decade, an anti-rejection drug called cyclosporine has gained wide acceptance. Unlike other drugs, it has a more focussed impact on the immune system. Another family of drugs, called corticosteroids, also helps prevent rejection. Prednisone, for example, is widely prescribed for this purpose. These drugs are most commonly used to treat episodes of acute rejection.

Transplants and the Health Care Plan

The common organ transplants are these:

- Cornea
- Liver
- Kidney
- Pancreas
- Heart/Lung
- Bone Marrow
- Skin
- Bone.

The model plan specifies what organ transplants will or will not be covered. Some of the transplants (skin, bone, cornea, e.g.) are to be treated as any other illness. Federal statute requires that end stage renal disease (i.e., kidney transplant) should be treated as

any other illness. Transplant rules, even though covered by plan, are to be followed by the other transplant procedures.

Cornea Transplants

The Organ. The cornea plays an important role in focussing images on the retina and allows one to see clearly.

Injury and Disease. Many conditions can cause swelling or scarring of the cornea. Bacterial, viral and fungal infections can lead to ulcers on the cornea. Infections also can cloud the cornea, like frost on a windowpane, diminishing sight to the point of blindness. A small percentage of people who undergo cataract removal may develop clouding and swelling of the cornea.

The Procedure. Corneal transplantation can be either an inpatient or outpatient procedure, requiring only local anesthetic. The operation usually takes less than two hours.

Donor. Most donors are age 70 or younger at the time of death. Donors must not have had a history of systemic (generalized) infections, or neurologic conditions such as Alzheimer's disease.

Recipient. If the cornea becomes cloudy, transplantation is the only way to restore sight. Although other types of transplant surgery have requirements relating to age, health and tissue compatibility, this is not so far a corneal replacement. The procedure is available to people from childhood to age 80 and beyond.

Outcome. Corneal transplantation does not guarantee 20-20 vision. But in up to 95 percent of cases, it can improve sight, although the patient may need to wear glasses or contact lenses. After the surgery, it can take three months to a year to achieve optimal vision. Occasionally, following surgery, astigmatism can occur.

Liver Transplants

The Organ. Life is not possible without the liver, one of the body's largest organs. The liver converts food to energy, manufactures blood clotting factors, processes medication, produces bile that breaks down fatty foods, and it helps excrete toxins removed from the blood stream.

Disease. Transplantation in adults has been particularly effective for three forms of chronic liver disease: chronic active hepatitis, which is a long-term inflammation of the liver; primary biliary cirrhosis, a usually progressive liver disease that mainly affects women; and primary sclerosing cholangitis, a disease affecting bile ducts within the liver and those connecting the liver to the intestine.

The Procedure. It takes three to four hours for a transplant team to remove a donor liver. Transplantation takes about seven hours. Surgeons remove the diseased liver and gallbladder and place the donated organ in its position.

Donor. Donors can be up to 60 years of age. They cannot have liver disease or a bacterial or viral infection, including the human immunodeficiency virus (HIV), or cancer. Other illnesses may be acceptable if liver function is normal. Donor livers are obtained primarily from individuals who die from brain damage. Almost all liver donors

are considered for multiple organ donation, including the heart, pancreas, lungs and kidneys.

Recipient. Candidates for liver transplantation have chronic, progressive liver disease for which no other medical or surgical treatment exists. Conditions that preclude liver transplantation include active infection, severe heart or lung disease and the presence of cancer elsewhere in the body.

Outcome. Most liver transplant recipients are alive one year after the operation. Half of all patients have no physical problems. Most recipients enjoy an excellent quality of life and return to normal activities within a year.

Kidney Transplants

The Organ. The kidneys are located at the back of the abdominal cavity, just above the waist, on either side of the spine. These organs help to regulate blood pressure, control your body's water and salt balance, filter waste products from the blood and excrete waste and excess water in urine. A person can live normally with just one kidney. This means that living relatives can donate a kidney in addition to organs that become available when a donor dies.

Disease. Sudden kidney failure usually responds to medical treatment. Chronic or gradual failure tends to be irreversible. Causes include chronic glomerulonephritis, polycystic kidney disease and diabetes mellitus.

The Procedure. Transplant surgeons place the new kidney into the pelvis, connect blood vessels and attach the donor kidney's ureter (a tube through which urine passes) to the recipient's bladder. The procedure takes about three hours.

Donor. A living relative who makes a donation must be in excellent health. Tests must assure that the donor's remaining kidney will be able to support a full, active life without the need for medication.

Recipient. Annually, about 50,000 Americans with end-stage kidney disease receive dialysis; one-fourth are candidates for kidney transplantation. Recipients range from infants to adults up to age 70. People who have cancer, active bacterial infection, severe heart disease or HIV infection are not candidates.

Outcome. One-year survival for recipients for a kidney from a non-living related donor is about 85 percent. About 95 percent of people who receive a kidney from a living relative survive a year or more.

Pancreatic Transplants

The Organ. The pancreas is a slender gland between the stomach and spinal column. It secretes many hormones. For example, insulin and glucagon help control the level of surgery in the blood. The pancreas also produces enzymes for digestion.

Diabetes. Transplantation of the pancreas is a treatment-not a cure-for some people with Type I (insulin-dependent) diabetes mellitus (previously known as juvenile diabetes). Type II diabetes occurs after age 40 and usually responds to exercise, change in diet and oral medication.

The Procedure. Pancreas transplantation is reserved for people with Type I diabetes. Surgeons remove the donated pancreas and a connection portion of the bowel. Transplantation usually takes place within 18 hours. Surgeons leave the recipient's own pancreas intact. Although insulin production has failed, the organ's other functions remain. Medicare or private insurance carriers do not provide blanket coverage.

Donor. The standard practice is to use an entire pancreas from a cadaver donor. Cadaver donors must have normal organ function and no evidence of infection. Partial pancreas transplants from living related donors have been performed with some success.

Recipient. People with Type I diabetes who have kidney failure are candidates for pancreas transplantation. Most are younger than 40.

Outcome. About 85 percent of patients survive the first year. After a successful operation, the new pancreas goes to work immediately, allowing the recipient to enjoy a normal diet. Also, insulin injections are no longer necessary. Researchers are studying whether a pancreas transplant can prevent, stop or reverse the complications of diabetes.

Heart or Lung Transplants

The Organs. The heart is a muscular pump that circulates blood. The lungs exchange the carbon dioxide produced by the body's metabolism for the oxygen necessary to sustain life.

Disease. Heart transplantation is necessary if the heart muscle cannot contract adequately and fails to respond to medication. The usual cause is cardiomyopathy, resulting from coronary artery disease, viral infection or unknown factors. Lung transplantation becomes necessary if emphysema, cystic fibrosis or pulmonary fibrosis prevents the lungs from exchanging oxygen. Also, if pressure in the blood vessels of the lungs causes the right side of the heart to fail (this condition is called pulmonary hypertension), a transplant is necessary.

The Procedure. A heart transplant is no more or less difficult than other types of heart surgery. The first step is to connect the individual's major blood vessels to a heart-lung bypass machine, which pumps oxygenated blood to the body while surgeons remove the heart. Surgeons are assessing the various uses for lung transplantation. Originally, single-lung transplants were recommended for people with pulmonary fibrosis, while double-lung and heart-lung procedures served people with emphysema and pulmonary hypertension. Recent data indicate that single-lung transplants may be effective for these latter conditions as well.

Donor and Recipient. When heart and lung transplantations are performed, the new organs must work well immediately. Surgical criteria, therefore, are tighter than for other transplants. Most donors are age 50 or younger and were in good general health. Recipients may be up to age 65, with no other disease that would limit life expectancy. Ideally, the donor heart is retrieved while it is still beating. The heart remains viable only for four to six hours.

Bone Marrow Transplants

The Substance. Bone marrow procedures most of the body's blood cells and antibodies to fight infections.

Disease. Several conditions, such as leukemia, aplastic anemia, lymphoma, multiple myeloma and Hodgkin's disease, may destroy bone marrow.

The Procedure. The donor receives a general anesthetic, and doctors remove about a pint of bone marrow from bone in the person's pelvis. The recipient receives the marrow through a vein in a manner similar to a blood transfusion. The marrow cells find their way to the recipient's bone marrow. In about three weeks, they begin to grow and reproduce.

Risks. Because the blood (HLA) match is perfect, the person who receives donor marrow from an identical twin has the greater chance for a successful transplant. The fewer antigens a donor and recipient share, the greater risk of the life-threatening graft vs. host disease (GVHD).

Donor and Recipient. Usually a sibling donates the bone marrow. A parent also may be a donor, and the patient may donate his or her own marrow if it is free of disease.

Skin Transplants

The Organ. Skin stops microorganisms from invading and infecting your body. It regulates temperature and fluid balance, helps make hormones and offers protection from the sun's ultraviolet radiation.

Disease. Loss of skin following a disease, an injury or a burn, may require a skin transplant. The new skin may come from another area of the person's own body (autologous) or, in rare instances, from a cadaver donor (allogenic). Transplanting skin from one person to another offers only a temporary solution. Skin from another person is even more likely than other organs to be rejected by the recipient's immune system.

The Procedure. For most skin transplantations, a thin layer of healthy skin is removed and placed over the wound. After several weeks, the transplanted skin adheres, develops a new blood supply and matures. Cultured, autologous skin transplants are applied in the same manner.

Donor and Recipient. Virtually anyone can receive a skin transplant. Age is not a limitation. Younger recipients usually fare better. Skin donor banks, similar to blood banks, operate in several regions around the country.

Bone Transplants

The Substance. Bone is made up of collagen, which gives it its form, and calcium phosphate, which provides strength. Like all living tissues, bone constantly breaks down and is replaced with new bone.

Disease. Bone transplantation is an established treatment for people with serious bone injuries, infections or certain types of malignant bone tumors.

The Procedure. Surgeons replace damaged bone with bone tissue harvested from cadaver donors, or they graft bone taken from another site within the recipient's body. Bone taken from a cadaver usually is frozen prior to the transplantation surgery.

Risk. Freezing donor bone reduces the chance for rejection due to an immune response. Typically, immune-suppressive medications aren't needed.

Donor and Recipient. The sex of the donor is not a factor, but age is. Donors generally must be older than age 19 to ensure that bone growth is complete. Ideally, donors should be younger than age 50. They also must be free of infection. Unsuitable donors include people with a history of hepatitis, or those who have a malignant tumor or disorders of normal bone chemistry.

Plan Benefits

The plan document treats certain organ transplants in a special way; these organs are:

- Heart
- Lung
- Liver.

Please note that kidney transplants are not deemed to be organ transplants but are to be treated as any other procedure. The plan document shows the dollar maximum which is applicable to the above-cited procedures. By federal law, no special maximum or limitations may be applied to kidney transplant surgery.

The plan required advance notice of a transplant and approval of the medical center at which such transplant surgery is to be done.

Certain liberalized benefits are available:

- Transportation to the transplant center even if not local
- Organ acquisition expenses up to \$10,000.

Donor Expenses

The Schedule of Benefits states that donor-related expenses are not covered. This limitation applies to all transplants including kidney. The organ transplant benefit, however, makes an acquisition benefit available for all transplant surgeries except kidney. This benefit is used for purchase, storage, and transportation costs of the new organ.

Organ Transplant Exclusions

A transplant will not be covered if such was approved by the transplant center prior to the effective date of the patient's coverage. A transplant made in a non-approved center will not be covered. Transplants of non-human organs are not covered. This applies to mechanical organs such as an artificial heart. Drugs and medicines under clinical trials are not covered. Transportation costs are limited to an ambulance not to exceed 500 miles, and excluding foreign travel.