

News

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****Transplant team celebrates 20th anniversary
of kidney transplants in Texas.**

DALLAS--Kidney transplant experts have come medical miles since the belief 20 years ago that transplants would work only in identical twins. Today new technology and scientific knowledge make it possible to transplant more patients with greater success than ever before.

November 5 marked the 20th anniversary of kidney transplantation in Dallas at The University of Texas Health Science Center at Dallas and Parkland Memorial Hospital.

During those 20 years medical advances have taken the transplant community from a period of basic experimentation to an era marked by tremendous clinical success. The UTHSCD/Parkland renal transplant team has been instrumental in breaking new ground in this field. Chief among recent scientific accomplishments is a greater understanding of the body's immune process and how organ rejection occurs. Based on this knowledge, newer drugs and treatment options are working to enhance transplantation in patients with end-stage renal disease.

The UTHSCD/Parkland kidney transplant program has grown during the 70s and 80s achieving a peak of activity with 74 transplants in 1981. Graft survival for living donor-recipient pairs has been nearly 100 percent. Graft survival using cadaver organs is more than 70 percent, "placing the UTHSCD/Parkland Memorial Hospital Transplant Program among the best programs in the nation," says Dr. J. Harold Helderman, medical director of the renal transplant unit.

Figuring prominently in the kidney transplant field is Dr. Paul Peters, who performed the first kidney transplant in Texas in the early 1960s. Peters is chairman of the Division of Urology at UTHSCD and a member of the transplant team. Prior to this historic form of surgery, patients were irrevocably tied to dialysis.

"When I came to Dallas in 1962, the 2 1/2 year survival for people with end-stage renal disease was zero," Peters recalls. "Kidney transplant results are better, however, than results with cancer surgery even in the beginning and today. We can save 93 out of 100 organ transplants if patients have a brother or sister to donate an organ, and 70 if they need a cadaver donor."

End-stage renal disease is defined by the function of the kidney. "So end-stage equals death, dialysis or transplantation," Peters says.

Today renal transplants have become relatively common events. To date, more than 30,000 have been performed worldwide since they became a clinical reality in the 1950s. Almost two transplants are performed each week at Parkland, according to Helderman. "From the single program in organ transplantation in our state has grown a network of transplant programs that has reached the number of nine and is still growing. From that single transplant in 1964 the city of Dallas now does a transplant every other day," Helderman said in a recent Medical Grand Rounds presentation on campus.

"For 18 years we were the only game in town," says Peters. "There were 11 teams in the U.S. when I started here in the 60s. Now there are more than 250."

An explosion of medical discoveries in the last decade has produced better methods to increase both graft and patient survival. "We are at the vanguard of new treatments and preventions for rejection; therefore, there is an increased success rate of transplants while continuing improved patient survival," according to surgical director of the renal

(Over)

transplant unit Dr. Arthur Sagalowsky.

Specific improvements in kidney transplants include:

* Preparation of patients using transfusions. Various types and forms at various intervals may have a beneficial effect on the transplant recipient. Random third party blood transfusions are used in both living related (parent to child or sibling to sibling) and cadaver organ recipients. "We like to give five or more transfusions before the kidney transplant," Peters explains. "This sorts out the people who are high or low reactors to foreign antigens."

Donor specific transfusions (DST) are given from the donor to the recipient and have "greatly improved the success rate in a certain category of living donor recipients," says Sagalowsky. He says all living donor pairs that are less than a perfect match are considered for DST. While DST may cause some recipients to become sensitized against their donor and unable to accept their kidney, there is a 90 percent success rate with those who don't become sensitized.

* New drugs and technology are showing excellent results in preventing rejection of the transplanted kidney. In the past, rejection episodes were treated only with corticosteroids, drugs associated with substantial side effects. Now anti-lymphocyte preparations are used to block the responding T Cells in the recipient that allow rejection to take place, according to Sagalowsky.

Monoclonal antibodies allow more precise targeting of anti-white blood cell preparation, so there is less of a "shotgun therapy" in suppression of the immune system.

Cyclosporin A, a fungal derivative, has been shown to have powerful immunosuppressive properties. It is used in selected categories of patients who have historically had a poor result with transplantation, says Sagalowsky. A major complication of cyclosporin is renal toxicity or kidney damage. "It is almost a paradox that the very agent used to maintain renal transplant function also causes renal transplant damage," according to Helderman.

Peters said there are cases where high doses of cyclosporin was used in patients following heart or liver transplants to prevent rejection of the transplanted organs. The resulting kidney damage was so severe, many patients had to go on dialysis.

Despite the "hoopla" surrounding this new drug, Helderman says "it is not going to be a panacea... The agent has very real problems which make it difficult to use and potentially hazardous... As a potent immunosuppressive agent the drug can be associated with infectious complications, especially those produced by opportunistic organisms and viruses."

Even so, infectious complications due to cyclosporin A are fewer than with other drugs. And clinical trials have shown cyclosporin can overcome some of the important donor-recipient matching features allowing many more individuals to be transplanted with results equalling those of precise tissue matched donor-recipient pairs, Helderman says.

* A better form of tissue typing -- DR typing -- is used with a greater success rate in cadaver recipients. Physicians can mix donor and recipient lymphocytes together and determine the genetic disparity. Thus, they are able to transplant people with a better match, according to Peters. With cyclosporin, however, there is a 70 percent survival rate in cadaver organ recipients regardless of the match.

While the treatments have changed dramatically, the causes of damage to the patient's own kidneys have remained constant over a 30-year span. The most common cause of kidney failure is glomerulonephritis, a disease in which a person's body is making antibodies against his or her own kidney. Hypertension, diabetes mellitus, lower urinary tract dysfunction and pyelonephritis are other causes. Early detection and treatment of urinary tract problems may help reduce further damage to the kidney. Controlling blood pressure may lessen hypertension-caused kidney disease. "With glomerulonephritis, the damage is set in motion at the time we diagnose," says Sagalowsky. "So this cause is the least likely for diagnosis and treatment to prevent further disease."

For those who do need a kidney transplant, organ availability continues to be a major need throughout this country.

"There are many more patients dying in hospitals with a diagnosis of brain death who would have been suitable organ donors than there are organs procured. So better physician

(More)

and general public education to the concept of brain death and organ donation is one of the key issues confronting all of the transplant community at this time," says Sagalowsky.

The recent medical breakthrough of a California child receiving a baboon's heart opens up the possibility of future interspecies transplants.

Yet, there are many obstacles to overcome. Humans make antibodies against red blood cells in transfers from one species to another. Known as natural species selection, humans resist foreign material from animals.

"It would be nice if techniques could be found for interspecies transfers. There will need to be considerable research continued in that area," says Peters.

A major difference between patients awaiting a donor kidney and patients on waiting lists for hearts and livers is the back-up life support system of dialysis. "So the urgency is very different, but it may not be any less important," says Sagalowsky.

Dialysis is able to partially correct chemical or metabolic imbalances patients are suffering because of kidney failure. "But it is not a total treatment. Imbalances are not always corrected and there are continued risks of long-term use," says Sagalowsky. Patients may suffer complications of their disease while they are waiting for a transplant. Such complications may make them an unacceptable or less suitable recipient for organ transplantation.

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