

Transplant Update

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Treatment of Ascites

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Machine Preservation of Donor Kidneys

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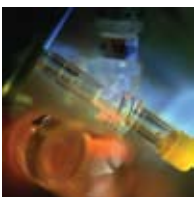
As a result of advances in technology, machine preservation of kidneys from deceased donors is making a comeback. Kidney pumps allow the cold preservation solution to flow through the blood vessels of the kidney, therefore improving exposure of tissue to the solution.



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Treatment of Ascites

Ascites—the accumulation of fluid in the abdominal cavity—is the most common complication of cirrhosis. While other conditions can cause ascites, more than 90 percent of the cases treated at Baylor are caused by end-stage liver disease or cirrhosis.

If untreated, ascites can cause weight loss, spontaneous bacterial peritonitis or hepatorenal syndrome.

“Treatment is generally done in a stair-stepped fashion,” said James Trotter, MD, medical director of liver transplantation at Baylor University Medical Center at Dallas. “We start with restriction of dietary sodium and the use of diuretics. Patients obviously must avoid drinking any alcohol.”

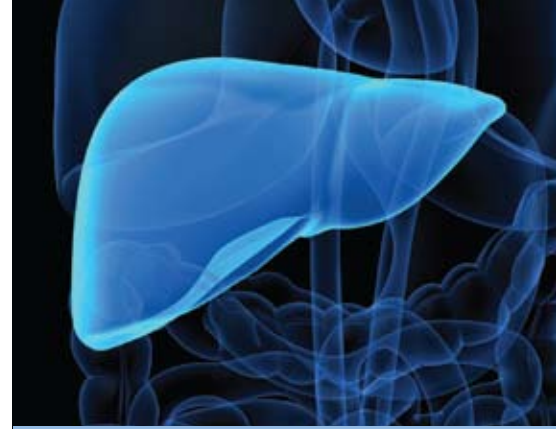
For patients who do not respond to medical treatment, paracentesis to drain the ascites or a transjugular intrahepatic portosystemic shunt (TIPS) may be used.

“With most patients, we are able to control the ascites with one or more of these treatments,” Dr. Trotter said.

While TIPS is a common therapy for cirrhotic patients with diuretic-resistant or diuretic-refractory ascites, some patients are unsuitable for the procedure for technical or medical reasons. A newer therapy that may benefit these patients is the use of chronic intravenous albumin infusions (50 g weekly for at least four weeks).

“Our experience, as well as randomized trials, indicates that recurrent intravenous weekly albumin infusions can result in significant loss of edema and ascites as measured by loss of the patient’s body weight,” Dr. Trotter said. “In fact, this is one of the most effective diuretic therapies that we have for patients with ascites caused by severely decompensated liver disease.”

In addition, a new class of diuretic agent called vaptans is available that may be used in selected patients who don’t respond to other treatments.



Quick Facts

- Over 25 years ago, Baylor pioneered the first liver transplant program in the Southwest.
- One of three programs in the nation to perform more than 3,300 liver transplants.*
- Baylor’s expertise in the areas of hepatitis B and C is internationally renowned.

* Volumes based on liver transplants at Baylor University Medical Center and Baylor All Saints Medical Center.

Machine Preservation of Donor Kidneys

As a result of advances in technology, machine preservation of kidneys from deceased donors is making a comeback. Kidney pumps allow the cold preservation solution to flow through the blood vessels of the kidney, therefore improving exposure of tissue to the solution.

Machine preservation of donor kidneys was first attempted in the 1970s. But the original machines were heavy, bulky, with cumbersome controls that someone had to constantly monitor. Because of difficulties with the technology, this method was eventually abandoned in favor of cold storage, once improved storage solutions were discovered.

Recently, kidney pumps have returned to the forefront as a preservation method. The refined technology has produced a pump that is smaller and portable with automated controls. The new pumps do not require as much surveillance by personnel as in the past.

“After transplantation, 20 to 40 percent of kidneys from deceased donors can have delayed graft function that requires the patient to temporarily undergo dialysis after transplant,” said Nicholas

Onaca, MD, a transplant surgeon on the medical staff of Baylor University Medical Center at Dallas. “Studies have shown that machine perfusion lowers the risk of delayed graft function, which helps some patients avoid temporary dialysis after transplant.”

Baylor has been using machine preservation for more than three years, beginning with extended criteria donors and now with the majority of kidneys from deceased donors. Extended criteria donors are all donors above the age of 60 and donors above age 50 who had two of three conditions: hypertension, stroke and elevated creatinine.

“All organs can experience shock from whatever caused brain death in the donor,” Dr. Onaca said. “This is what causes delayed graft function. In certain situations, machine preservation allows the kidney to recover before it is transplanted, which lowers delayed graft function.”

Machine preservation also allows a donor kidney to be stored for a longer period of time prior to transplantation.

This benefits recipients who may require more complex preparation and recipients who may need to travel longer distances.

“This method also provides for better matching,” Dr. Onaca said. “We have patients who have a hard time getting a kidney because their crossmatch is problematic; it takes time to do the matching between donors and certain recipients. By keeping the kidney longer without compromising the viability of the organ, we can perform more complex interventions before transplant when necessary.”

Quick Facts

- With more than 2,900 kidney transplants performed, our kidney and kidney/pancreas program is one of the largest in Texas.*
- According to the United Network for Organ Sharing (UNOS), survival rates for Baylor kidney recipients exceed the national and state averages.

* Volumes based on kidney transplants at Baylor University Medical Center and Baylor All Saints Medical Center.

Kidney

Pancreas Transplant Offers Treatment Options for Type 2 Diabetes

While type 1 diabetes is the primary indication for a pancreas transplant, the procedure is becoming more recognized as an option for patients with type 2 diabetes.

When a patient's pancreas produces no insulin at all, as in type 1 diabetes, giving that patient an organ that can produce insulin is clearly beneficial. However, patients with type 2 diabetes have less of an abnormality in insulin secretion, but more of a problem with insulin action and insulin resistance. Their bodies do not respond well to the insulin produced.

"Type 2 diabetes accounts for 90 percent of diabetic cases worldwide, so if we can apply pancreas transplantation to this patient population, then we can help a larger number of people," said Richard Ruiz, MD, a transplant surgeon on the medical staff of Baylor University Medical Center at Dallas.

Transplant surgeons on the medical staff of Baylor Dallas recently have developed criteria for patients with type 2 diabetes who may be considered for a pancreas transplant.

Quick Facts

- First facility in the Southwest to be approved by the American Society of Transplant Surgeons as a surgical training program in pancreas transplantation.
- Pancreas patient survival rates at Baylor University Medical Center and Baylor All Saints Medical Center exceeded the national average for one year survival.

The first four criteria are the same as those for patients with type 1: acceptable cardiac risk, absence of severe peripheral vascular disease, non-smoker and age less than 55, although the latter is not an absolute criterion.

In addition to these standard prerequisites, transplant candidates with type 2 diabetes must have: a C-peptide less than 10, which is an indicator of some defect in the insulin-secreting ability of the pancreas; taken insulin for more than five years; a hemoglobin A1C less than 7; and a BMI less than 30.

"Until recently, there have been few publications regarding whole organ pancreas transplant for type 2 diabetes," Dr. Ruiz said. "But it is becoming more recognized and accepted that pancreas

transplantation can cure type 2 diabetes, the same as it does for type 1."

Dr. Ruiz emphasizes that potential candidates must have an acceptable perioperative risk for surgery.

"It's also important to have a high-quality graft," he said. "The pancreas is a very delicate organ, so the criteria to accept a donor pancreas also are very strict," he said. "Any amount of fat in the donor pancreas might compromise the result after transplantation."

Pancreas

Baylor Team Presents at International Islet Cell Transplant Meeting

A team of transplant surgeons and research scientists from Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth, which compose Baylor Regional Transplant Institute, were prominent participants at the International Pancreas and Islet Transplant Association (IPITA) meeting, held Oct. 12 through 16, 2009, in Venice, Italy.

IPITA, which holds the meeting every other year, is a subgroup of the international Transplantation Society. The IPITA conference is the preeminent meeting for islet cell transplant surgeons and researchers. The Baylor team joined 600 other scientists from around the world.

“To anyone studying in the field of islet cell transplantation, both attendance and presentation at this meeting is critical,” said Marlon Levy, MD, FACS, surgical director of transplantation and physician on the medical staff at Baylor Fort Worth and Baylor Dallas. “It’s important to publicize our efforts within the islet cell transplant community. We received very positive feedback on our science and our presence at this meeting. And we made important contacts with collaborating scientists worldwide.”

The Baylor team, which consisted of Dr. Levy, Shinichi Matsumoto, M.D., Ph.D., Bashoo Naziruddin, Ph.D., Nicholas Onaca, M.D., Masayuko Shimoda, M.D., Ph.D., and Morihito Takita, M.D., made 14 presentations. The focus of the Baylor presentations was on the improvements in extracting islets from donor pancreases and establishing early islet function.

“This is the most effective way to communicate the activities of Baylor and help position ourselves for potential grants from various funding agencies,” Dr. Levy said. “We established new contacts within the industry and with other researchers with whom we can develop joint projects. It’s important that we educate ourselves about what else is going on in the field and apply new knowledge and best practices to our own efforts.”

Quick Facts

- North Texas’ first islet cell transplant.
- Baylor’s islet cell laboratory, one of only a few in the country and the only one in the Southwest, processed cells for transplantation.



Tools to Make Heart Biopsy Obsolete

For recipients of a heart transplant, organ rejection accounts for two thirds of all deaths within the first month and about 10 percent in the first year. As a result, patients must undergo heart biopsies every other month. Although an invasive procedure that carries a risk of complications, heart biopsy is currently the best method available to diagnose rejection.

Increasingly, scientists are turning to biological markers or biomarkers as a clinically useful but less-invasive alternative to biopsy. A biomarker is a substance in the body that can indicate whether conditions are normal or pathologic and whether there are changes in response to therapy.

Brian Susskind, PhD, director of the Transplant Immunology Laboratory at Baylor University Medical Center at Dallas, said a research project in conjunction with Baylor Institute for Immunology Research (BIIR), will begin this year to identify biomarkers in blood that can be measured with a simple blood test.

“We believe blood is an excellent window into the entire body,” Dr. Susskind said. “We’re looking at three types of biomarkers: proteins, messenger RNA

(mRNA) and lymphocytes. We believe these three areas hold the most promise in helping us diagnose rejection.”

Because rejection is mediated by the immune system, scientists at Baylor will look at the action of lymphocytes. How they respond to stimulation can give an indication of whether a patient is rejecting the heart or is possibly over-immunosuppressed or under-immunosuppressed. Immune system-produced proteins, such as antibodies and cytokines (hormone-like molecules), also have diagnostic and prognostic potential.

But the major focus of the study will be on changes in gene expression profiles of white blood cells by measuring messenger RNA, the molecules that carry instructions from genes in the nucleus to the sites in the cell which execute the instructions, Dr. Susskind said.

“Baylor also has made significant strides in gene expression profiling of the immune system,” he said. “Dr. Damian Chaussabel and his team at BIIR have developed advanced assays to rapidly and precisely look at what mRNAs the white cells are making, and interpret their significance in cancer, autoimmune and infectious disease. Hopefully there

will be breakthroughs in transplantation immunology as well.”

Each time a patient comes in for a heart biopsy, a blood sample will be drawn. Researchers at Baylor will look at the mRNA and protein biomarkers and correlate those results with the results of the biopsy. Through this, researchers hope to be able to determine which of the biomarkers can best distinguish between health and disease and ultimately obviate the need for heart biopsy.

“We hope to gain in three major areas, the first being a procedure to diagnose rejection that is less risky and less expensive,” Dr. Susskind said. “By looking at biomarkers, we may be able to better understand the causes of heart graft rejection and determine better ways to treat it. And we may be able to reduce immunosuppression, all of which would improve quality of life for our patients.”

Quick Facts

- The VAD program at Baylor Dallas was the nation’s first to receive the Gold Seal of Approval from the Joint Commission.
- The Baylor/UTSW heart transplant program ranked above the national average for one year and three year patient survival statistics.



Baylor All Saints Medical Center at Fort Worth Opens First PH Clinic in Tarrant County

In July 2009, Baylor All Saints Medical Center at Fort Worth established a pulmonary hypertension clinic. The clinic, which expects to treat almost 90 patients in its first year, is the first in Tarrant County to exclusively serve patients with a PH diagnosis.

For patients with pulmonary hypertension, there are unique therapies that require expertise in selecting the appropriate one for the individual patient. Determining the type of lung disease and the etiology, if possible, can help physicians choose from the available treatment options, as well as assist in predicting outcomes.

“In the PH clinic, we use a disease management approach to try to keep patients stable and out of the Emergency Department. We also stay in communication with the patient’s primary care physician,” said David Hernandez, MD, a pulmonologist on the medical staff of Baylor Fort Worth. Dr. Hernandez and Stuart Lander, MD, a cardiologist on the medical staff of Baylor Fort Worth, serve as co-medical directors of the program.

During the initial visit, the patient is evaluated by a physician and then started on the medication determined to be most appropriate for him or her. A registered nurse trained in critical care monitors the patient to gauge the patient’s reaction. Depending on their condition, some patients may need to be admitted to the hospital for medication induction.

In addition to medication, nutritional guidance is a key part of PH disease management. Transplant-certified dietitians provide nutritional information and monitoring to address the build-up of fluid.

The PH clinic at Baylor Fort Worth is part of a plan to establish a comprehensive advanced lung disease program. This program will bring together the expertise of numerous physicians on the medical staff of Baylor University Medical Center at Dallas and Baylor Fort Worth to diagnose and treat patients with pulmonary hypertension, interstitial lung disease and a variety of other types of advanced lung disease.

“The literature shows that specialty clinics around the country are helpful in categorizing what type of interstitial lung disease a patient has and comparing clinical trials of patients with similar disease,” said Kenneth Ausloos, MD, medical director of lung transplantation and pulmonary hypertension program on the medical staff of Baylor Dallas. “Through this type of collaboration, we can select the types of disease that may respond to certain treatments.”

Quick Facts

- The Baylor Dallas lung transplant program has a one year lung graft survival and patient survival that exceeded the national average. In addition, the three year patient survival exceeded the national average.
- Dallas’ first single and double lung transplant.



Baylor Regional Transplant Institute



The Baylor Regional Transplant Institute is the integration of transplant services at Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth. Together, Baylor Dallas and Baylor Fort Worth are one of the largest multi-specialty transplant centers in the country.

Liver

We have performed more than 3,000 liver transplants, one of the few transplant centers to reach this milestone.

Kidney and Pancreas

Our patient survival outcomes exceed the national average as reported by the United Network for Organ Sharing.

Small Bowel

This rare procedure may be a treatment for intestinal failure.

Heart and Lung

We have been providing new hope, restored health and freedom for patients with end-stage heart and lung disease.

Islet Cell

The first center in Texas to receive FDA permission to independently process pancreatic islet cells for transplantation.

For More Information, Please Call 1-800-774-2487.

With one phone call, a physician can request additional information, an appointment for a patient, or a consult. Call 1-800-774-2487 and a Baylor Regional Transplant Institute representative will assist you.



**Baylor University Medical Center at Dallas
Baylor All Saints Medical Center at Fort Worth**



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