A relatively new application of an established medical procedure is facilitating kidney transplants between donors and recipients who were once considered incompatible.

The process, called plasmapheresis, removes potentially harmful antibodies from the bloodstream of the kidney recipient, and reduces the risk that the donor organ will be rejected.

At The Ohio State University Medical Center and other major transplant centers throughout the United States, the treatment is allowing patients to receive kidneys from relatives or acquaintances who at one time may have been ruled out as donors, either because of incompatible blood types, or because the recipient had become sensitized to foreign tissue, as a result of a previous transplant or another medical condition.

Without prior treatment to remove the harmful antibodies that are present in patients with these conditions, donor organs would be rejected immediately.

During plasmapheresis, a process similar to dialysis, harmful antibodies are removed from the blood’s plasma by spinning the blood at high speed. Beneficial blood cells are returned to the patient, and the antibodies are discarded.

The process takes a few hours and is repeated over several days to reduce the antibodies to a suitable level before the transplant procedure. Additional treatments may be needed after transplantation to keep antibodies from building up in the blood.

Dr. Ronald P. Pelletier, associate professor of surgery in the Division of Transplantation, says plasmapheresis has been used at Ohio State on several highly sensitized patients who otherwise would never have made it off the waiting list.

“Patients who require kidney transplants are extremely sick, and often the only barrier between their ill health and a better quality of life is the absence of a donor organ,” he says. “More people are getting off the waiting list for donor organs because we can eliminate the antibodies in their body, which in the past made them poor risks for a transplant.”

In addition to having their antibodies removed, kidney transplant recipients receive immunoglobulin to replace the antibodies that are needed to fight infection. In some cases, the recipient’s spleen is removed during transplantation to prevent additional antibodies from being produced.

Pelletier says a donation from a living person is preferred to one from a deceased donor. “The organ often starts working more quickly and efficiently when taken from a living donor,” he says.

Until a few years ago, the majority of U.S. kidney transplants came from cadavers. But several factors, including donor education and advanced technology, have helped change the donor profile, so that today, the source for the majority of transplanted kidneys is living donors.
CARDIOThorACIC SURGERY

Minimally invasive heart procedure used to treat atrial fibrillation

Cryoprobe technology redirects electrical impulses, produces more regular rhythm in heart

Cardiothoracic surgeons in The Ohio State University Department of Surgery are using a minimally invasive surgical procedure to treat patients suffering from atrial fibrillation, the most common form of arrhythmia, or heart rhythm disorder.

Patients with atrial fibrillation suffer from a rapid, irregular heart rhythm caused by abnormal electrical impulses that begin in the atria, the upper chambers of the heart, and cause the ventricles, the lower chambers, to beat rapidly and irregularly. Once thought to be harmless, atrial fibrillation is now known to be associated with heart disease, stroke, and heart failure.

One of the techniques that has been developed to treat the condition is a procedure called cryoablation, in which extreme cold is used to create lesions that redirect electrical impulses in the heart, producing a more coordinated contraction of the heart.

The technique is a variation of a complex and difficult operation called the Cox maze procedure, in which surgical incisions create the lesions that guide the heart’s electrical impulses.

During cryoablation, surgeons use a cryoprobe, a tube about 2 inches long and less than .15 inches wide, which has been chilled to minus 140 degrees. Using the probe, the surgeon sketches a minute maze on the tissue of the heart, making the same lesions created during the maze procedure, but in a fraction of the time.

“With a tool like this, we can work across all areas of the heart, including the valves, and complete a maze procedure in about one minute,” says Dr. Robert E. Michler, the John G. and Jeanne B. McCoy professor of surgery and chief of cardiothoracic surgery and thoracic transplantation.

The minimally invasive procedure, which is performed at the time of bypass or valvular surgery, not only takes less time than the conventional operation, but also reduces the time needed for the heart to heal, Michler says. The minimally invasive technique, which has an 85 percent success rate, enables some patients to discontinue medical therapy, such as the use of blood thinners. Patients whose conditions have previously resisted medical treatment can benefit from the procedure, he says.

One such patient, who has had a heart murmur for most of his life, is Alden Farner, 71, a retired pastor from Lancaster. Last December, he underwent combined valve repair and cryoablation at University Medical Center. After only three days in the hospital, Farner returned home, and soon he began to notice a difference: he could open a jug of milk sealed with plastic tabs. “I got so I had to take a spoon or something to tear those off,” Farner says. “After I had the procedure, I could open those right up with no problem.”

Farner reports that he is back to his routine of doing housework, going to the store, helping with his teen-age grandchildren, and leading a weekly Bible study. “I’ve felt good since the surgery,” he says. “I feel stronger. I recently helped my daughter move, and that’s something I wouldn’t have wanted to do before.”

This is just the result surgeons are hoping for, Michler says. “We want to help our patients get back into a regular rhythm.”

About 2.2 million Americans are living with atrial fibrillation, according to the American Heart Association, and experts say more than 160,000 new cases are diagnosed each year. ✤
Breast cancer patients treated with taxanes as part of their chemotherapy regimen have stronger immune systems one year after completing therapy than do women undergoing similar treatments without taxanes, according to a study conducted at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

Taxanes are chemotherapeutic agents like paclitaxel (Taxol) and docetaxel (Taxotere).

The study’s finding challenges conventional medical wisdom. “This was totally unexpected,” says Dr. William E. Carson III, associate professor of surgery in the Division of Surgical Oncology and associate director of clinical research for the OSUCCC-James. “Most oncologists believe taxanes — just like the rest of the chemotherapeutic agents we use — suppress the immune system, and do not enhance it.”

The study was published in the May 15 issue of Clinical Cancer Research.

Researchers examined 227 women enrolled in a study investigating the relationship between stress and immunity in women with breast cancer. They divided the group into 55 women who received taxanes as part of their treatment and 172 who did not.

Researchers drew blood from the patients and measured levels of key markers of their immune status immediately after the women joined the study and one year following completion of treatment. Scientists examined the activity of patients’ T cells and natural killer (NK) cells.

T cells are white blood cells that can fight infections and cancer cells, and NK cells are another type of white blood cell that can kill cancer cells and cells infected with viruses.

Researchers found that T cell growth was 37 percent higher and the cancer-killing activity of the NK cells was 39 percent higher in patients receiving taxanes, compared to those who did not.

Scientists controlled for multiple variables that might contribute to the strength of the patients’ immune function, including age, menopausal status, hormone receptor status, treatment, hormonal therapy at 12 months, and cell counts.

“These findings are important because they suggest taxanes may enhance a woman’s ability to respond to infection or even to fend off a possible recurrence,” Carson says.

He says the research team had the ideal population to study. All of the women were part of an ongoing clinical trial at Ohio State, under way from 1994 to 2006, to study the effects of stress on the immune system among breast cancer patients with stage II or stage III disease.

Patients in the study were assigned to either a stress-reduction group or an assessment group. Stress-reducing elements in the intervention group included periodic relaxation techniques and group support.

Halfway through the study, taxanes emerged as common options for patients whose disease had spread to the lymph nodes.

Carson notes that T cell formation and NK cell function only partially reflect the vigor of a patient’s immune system, and the relationship between the strength of a patient’s immune system and the ability to fend off cancer is not yet completely understood.

“The real question is whether the use of taxanes improves patient outcomes or quality of life,” he says.

A study to assess the use of taxanes is under way at Ohio State.
Ten surgical specialists — with interests in cardiothoracic surgery, general surgery, minimally invasive surgery, surgical oncology, and urology — and a researcher in antioxidant biology have joined The Ohio State University Department of Surgery faculty.

Dr. Doreen M. Agnese, a fellow in surgical oncology and clinical cancer genetics at Ohio State from 2001 to 2004, was appointed assistant professor of surgery in the Division of Surgical Oncology.

Agnese received her medical degree and completed her general surgery residency and a research fellowship at the University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School, in New Brunswick, N.J. She is particularly interested in cancer genetics and breast cancer.

Dr. Juan A. Crestanello, previously a thoracic surgery resident at the Mayo School of Graduate Medical Education, in Rochester, Minn., was appointed assistant professor of surgery in the Division of Cardiothoracic Surgery, in August.

Crestanello received his medical degree at the University of the Republic of Uruguay Medical School, in Montevideo, Uruguay, and completed his surgical residency at the University of Maryland Medical System, in Baltimore. He was involved in cardiothoracic surgery research at Hahnemann University, in Philadelphia, and at the University of Maryland.

The recipient of a number of awards for research, he has published 75 journal articles and abstracts.

Dr. S. Scott Davis Jr., previously a general surgery resident at Northwestern Memorial Hospital, in Chicago, began a one-year appointment as clinical assistant professor of surgery in the Center for Minimally Invasive Surgery, in July.

Davis received his medical degree at Tulane University School of Medicine, in New Orleans, where he was a member of Alpha Omega Alpha Honor Medical Society and a recipient of a Tulane Student Teaching Award.

During his residency at Northwestern Memorial Hospital, he was involved in research examining laparoscopic Heller myotomy and the effects of laparoscopic bypass on obese patients.

Dr. Matthew I. Goldblatt, previously chief administrative resident at the Medical College of Wisconsin, in Milwaukee, began a one-year appointment as clinical assistant professor of surgery in the Division of Urology, in July.

He completed his medical degree at Tulane University School of Medicine, in New Orleans, where he was a member of Alpha Omega Alpha Honor Medical Society and a recipient of a Tulane Student Teaching Award.

Goldblatt was involved in urologic research at the University of Maryland Medical System, in Baltimore.

The recipient of a number of awards for research, he has published 75 journal articles and abstracts.

Dr. Richard Manilchuk, previously a radiology fellow at the Medical College of Wisconsin, in Milwaukee, began a one-year appointment as clinical assistant professor of surgery in the Division of Vascular Surgery, in July.

Manilchuk received his medical degree at the University of Pennsylvania School of Medicine, in Philadelphia, and completed his radiology residency at the Medical College of Wisconsin, in Milwaukee.

The recipient of a number of awards for research, he has published 75 journal articles and abstracts.
the Center for Minimally Invasive Surgery, in July.

Goldblatt received his medical degree at the Medical College of Wisconsin, where he was a member of Alpha Omega Alpha Honor Medical Society. During his residency, he won several awards for research presentations, and was a member of a number of medical staff committees.

**Dr. Henry J. Kaufman IV**, previously a fellow in surgical oncology at Ohio State, was appointed clinical assistant professor of surgery in the Division of Surgical Oncology, in September.

Kaufman received his medical degree at Louisiana State University School of Medicine, in New Orleans, and completed his residency in general surgery at the University of Tennessee Health Sciences Center, in Chattanooga, Tenn.

**Dr. Andrei V. Manilchuk** was appointed assistant professor of clinical surgery in the Division of General Surgery, in July.

Manilchuk previously held a one-year appointment as clinical assistant professor of surgery in the Center for Minimally Invasive Surgery at Ohio State, and completed his general surgery residency at Ohio State in 2003.

He is a graduate of Gorky State Medical Institute, in Nizhny Novgorod, Russia, and he received specialty training at Nizhny Novgorod Medical Academy and Regional Cancer Center.

His specialty interests are gastrointestinal and pancreato-biliary surgery.

**Dr. Marc P. Michalsky**, previously assistant professor of surgery at the University of Virginia, in Charlottesville, Va., and a pediatric surgery resident at Ohio State from 2000 to 2002, was appointed assistant professor of clinical surgery in the Division of Pediatric Surgery, in July.

Michalsky received his medical degree and completed his general surgery residency at the University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School, in Newark, N.J. He was a pediatric trauma and research resident at Columbus Children’s Hospital from 1999 to 2000.

His research interests include intestinal immunology and gut inflammatory response.

**Dr. Dean J. Mikami** was appointed assistant professor of surgery in the Division of General Surgery, in July.

Mikami previously held a one-year appointment as clinical assistant professor of surgery in the Center for Minimally Invasive Surgery, and completed his general surgery residency at Ohio State in 2003. He received his medical degree at the University of Kansas, in Kansas City, Kan.

He is interested in minimally invasive surgery, bariatric surgery, and robotic surgery.

**Sashwati Roy, Ph.D.**, previously a research scientist in the Center for Minimally Invasive Surgery at Ohio State, was appointed assistant professor of surgery in the Division of General Surgery, in July.

Roy, who joined the Department of Surgery in 2000, is a graduate of Meerut University, in Meerut, India, and received her Ph.D. at the University of Kuopio, in Kuopio, Finland.

Her research interests are antioxidant and redox biology focusing on signal transduction and gene expression.

**Dr. John H. Sirak**, previously a fellow at the Cleveland Clinic, and a former resident and fellow at Ohio State, was appointed assistant professor of clinical surgery in the Division of Cardiothoracic Surgery, in July.

Sirak received his medical degree at Case Western Reserve University, in Cleveland, and received residency training at the University of California, in Davis, Calif. At Ohio State, he completed his general surgery residency in 2000, and a fellowship in minimally invasive cardiothoracic surgery in 2003. Most recently, he was a fellow in arrhythmia surgery at the Cleveland Clinic.

He is interested in surgery for atrial fibrillation.

**Dr. Daniel L. Vodovotz**, previously a clinical staff member at the James A. Haley VA Medical Center, in Tampa, Fla., was appointed clinical assistant professor of surgery in the Division of Urology, in September.

Vodovotz received his medical degree at the National University of Buenos Aires, Argentina. He completed a residency in general surgery in Tel Aviv, Israel, and a residency in urology at Mount Sinai Hospital and Weiss Memorial Hospital, in Chicago.

The Department of Surgery has 70 attending faculty and six research faculty, in nine surgical specialty divisions and a multidisciplinary center devoted to minimally invasive surgery.
GRANTS


PUBLICATIONS


Skarupa DJ, Ellison EC, Vitellas KM, Frankel WL. Hepatocellular adenomatosis is a rare entity that may mimic other hepatocellular lesions. Ann Diagn Pathol 2004; 8(1)43–49.


Groner JI. Damage control and the pediatric surgeon. Meir Hospital, Kfar Saba, Israel, July 21, 2004.


RECOGNITIONS

Dr. Gail E. Besner, professor of surgery in the Division of Pediatric Surgery, in July began a four-year term as a full-time member of the Surgery, Anesthesiology and Trauma Study Section of the National Institutes of Health.

David R. Brigstock, Ph.D., associate professor of surgery in the Division of Pediatric Surgery, has been appointed a senior editor of the Journal of Endocrinology.

Dr. William E. Carson III, associate professor of surgery in the Division of Surgical Oncology, has been elected to the American Society for Clinical Investigation, one of the nation’s oldest and most respected medical honor societies.

Dr. E. Christopher Ellison, the Robert M. Zollinger professor and chairman of surgery and associate vice president for health sciences and vice dean of clinical affairs in the College of Medicine and Public Health, was reappointed chairman of the Department
of Surgery by The Ohio State University Board of Trustees, at its May 7 meeting.

Charles G. Oroz, Ph.D., professor of surgery and director of transplant sciences in the Division of Transplantation, has been elected to the board of directors of the United Network for Organ Sharing, as a histocompatibility representative.

Darrell Peters, publications editor in the Department of Surgery, received a vice president’s award for a painting displayed in the 13th Annual Ohio State Staff Arts and Crafts Exhibit. Dr. Fred Sanfilippo, senior vice president for health sciences at Ohio State, dean of the College of Medicine and Public Health, and CEO of University Medical Center, chose Peters’ painting, titled “Obelisk,” as his personal favorite in the show.

Dr. Robert L. Ruberg, professor of surgery in the Division of Plastic Surgery and senior vice chairman for academic and administrative affairs in the Department of Surgery, has been elected president of the American Association of Plastic Surgeons (AAPS). The AAPS is the oldest and most prestigious organization of plastic surgeons in North America, representing individuals who have made significant contributions to the specialty.

Chandan K. Sen, Ph.D., associate professor of surgery in the Center for Minimally Invasive Surgery and vice chairman for research in the Department of Surgery, has been named an Ohio State University Roads Scholar.

Dr. John H. Winston III, assistant professor of surgery in the Division of General Surgery, was included in the 2004–2005 edition of Who’s Who in Black Columbus.

IN THE NEWS

Dr. William E. Carson III, associate professor of surgery in the Division of Surgical Oncology, was quoted on May 15 by The Columbus Dispatch, WBNS-TV/10, WCMH-TV/4, and WTVN-AM, in stories about the finding by researchers at Ohio State that some breast cancer drugs may boost immunity.

Carson was mentioned on May 21, by Business First, which noted his appointment to the American Society for Clinical Investigation.

Dr. E. Christopher Ellison, the Robert M. Zollinger professor and chairman of surgery and associate vice president for health sciences and vice dean of clinical affairs in the College of Medicine and Public Health, was interviewed on June 23, on WBNS-TV/10, about the universal protocol for eliminating wrong-site, wrong-procedure, and wrong-person surgery errors.

Ellison and Patrick S. Vaccaro, professor of clinical surgery and chief of the Division of General Vascular Surgery, were quoted on May 21, in Business First, in a story about the recent recruitment of five new faculty members to the division.

Dr. Gayle M. Gordillo, assistant professor of surgery in the Division of Plastic Surgery, was mentioned on May 19, in The Columbus Dispatch, in a story about an Iraqi infant referred to Gordillo for treatment of an hemangioma.

Dr. Jonathan I. Groner, associate professor of clinical surgery in the Division of Pediatric Surgery, was quoted on June 10, in The New York Times, in a story about a woman planning to donate a kidney to her ailing boss.

Dr. Robert E. Michler, the John G. and Jeanne B. McCoy professor of surgery and chief of the Division of Cardiothoracic Surgery, was quoted on July 19, in The New York Times, and on May 23, in The Columbus Dispatch, in stories about an experimental surgical procedure for weakened hearts.

Dr. Bradley J. Needleman, assistant professor of surgery in the Division of General Surgery, was interviewed on May 11, by WSYX-TV/6 and WTTE-TV/28, in stories about the increasing popularity of gastric bypass surgery as a weight-loss option.

Dr. Patrick Ross Jr., associate professor of clinical surgery in the Division of Cardiothoracic Surgery, was quoted on July 11, in The Columbus Dispatch, in a story about surgery for advanced lung cancer.

Dr. Steven M. Steinberg, professor of surgery in the Division of General Surgery, was quoted on May 10, in The Columbus Dispatch, in a story about wrong-site surgery errors.
INSIDE:

1. Plasmapheresis increasing number of successful transplant matches
2. Minimally invasive heart procedure used to treat atrial fibrillation
3. Taxanes may enhance immunity in breast cancer patients, study says
4. Researcher, ten clinical specialists join Department of Surgery faculty

IN MEMORIAM

Daniel W. Elliott, M.D.

Dr. Daniel W. Elliott, a former resident and faculty member in the Department of Surgery at Ohio State, and an active member of the Zollinger Surgical Society, died August 1, at the age of 81, at his home in Dayton, Ohio.

Elliott was a senior intern and a resident in general surgery at Ohio State under Dr. Robert M. Zollinger, the renowned professor and chairman of surgery. After completing the residency program in 1957, Elliott joined the surgery faculty, and six years later he was promoted to professor of surgery.

In 1964, he left Ohio State to accept an appointment at the University of Pittsburgh, where he served as professor of surgery and chief of surgical services at Western Pennsylvania Hospital and then at the Veterans Hospital.

In 1976, he helped found the medical school at Wright State University, in Dayton, Ohio, where he was appointed professor of surgery and first chairman of the department of surgery.

Elliott was a fellow of the American College of Surgeons, was certified by the American Board of Surgery, and was a member of the Society of University Surgeons and the American, Central, and Western Surgical Associations. He was president of the Central Surgical Association in 1987.

He retired in 1988.