

Transplant Chronicles

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Why I'm Not Crazy

By Rachel Jones

This summer I rode my bike from my house in Pittsburgh to Fargo, North Dakota. I tell people this and they call me crazy. I tell them I had a kidney transplant a year and a half ago and they want to drag me to the insane asylum. But really, with a good bicycle, some motivation and good health, bicycle touring is not hard. In fact, it's an amazing adventure that allows one to reap the benefits of traveling, exercise, thinking time and "an experience of a lifetime."

However, I'd first like to talk about why I took this trip in the first place—assuming you believe me that I'm not crazy. My story is

as follows: at age 17, I was suddenly diagnosed with Goodpasture's syndrome, a rare autoimmune disease that attacks the kidneys and lungs. I had lost about 75 percent of my kidney function, had a creatinine of 3 and knew nothing about kidneys, their function or what it is like to live without their help. After two weeks in the hospital, a lung biopsy, plasmapheresis and dozens of other tests and procedures, I was on my way home and on the slow road to recovery—with the Goodpasture's in remission, recovering lungs and lots of new medications. I managed to finish my last semester of high school and planned to go away to Tufts University in Boston.

Life was pretty normal until the summer after my first year in college. My kidneys had lost more function, and I was forced to go on dialysis. I was also evaluated and accepted as a suitable candidate for a transplant. My mother and father were evaluated as donors, but neither was able to donate. I decided to go back to Boston in the fall and continue my dialysis treatments while remaining a full-time student. My uncle Bart had been accepted to donate while I was away at school, and so when I came home for winter break, I had the transplant. I decided to take the next



Rachel Jones, with her bike that traveled 1,648 miles in 28 days.

semester off so I could fully recover from the transplant. My life became pretty standard again, with minimal complications now and then. And then last summer, at age 21, I rode my bike "really far," in the words of some kids I met while cycling through Freedom, Wisconsin.

I've pretty much been able to maintain a "normal" life, despite my medical problems. Much of this success, I believe, is due to my attitude toward my health. I don't let my medical problems hold me back (unless they are staring me down). I deal with things when they come up, but don't stress over them (as much as possible) and I don't let them interfere with what I want to do. I wanted to

Continued on page 4

In this volume of Transplant Chronicles

- Learn about the importance of maintaining bone health before transplantation. See the story on page 3.
- Find out which vaccinations are appropriate and necessary for transplant recipients on page 5.
- What is the government doing to increase organ availability? See page 15 to find out.

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Editorial Office:

National Kidney Foundation, Inc.
30 E. 33rd Street, New York, NY 10016
(800) 622-9010, (212) 889-2210
<http://www.kidney.org>

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**Beverly
Kirkpatrick**
Editor-in-Chief

Happy New Year! *Transplant Chronicles* rings in 2003 with several new editorial board members and the promise to continue publishing up-to-date articles addressing the issues you tell us are important. In this issue you will find articles about bone health, and, being the beginning of a new year, how could we not mention resolutions like diet and exercise?! Motivation and tips are available from our dietitian and exercise specialists.

We are introducing a new feature! For the first time we are posing a question to our readers and requesting a response. See page 16 for details. We also address how organ donation is not keeping pace with the need for organs. Suzanne Lane-Conrad's article explains how a grant program was developed by our government to address the problem. We are very interested in your feelings and concerns. Let us know what topics you would like to read about. Write, e-mail or call us and let us know how you are feeling!

Have a Great Year! **TC**

Beverly Kirkpatrick
for the Editorial Board
transplantchronicles@kidney.org

Letter to the Editor:

Dear Ms. Kirkpatrick:

My wife Shirley received a kidney from her cousin's son Jason on August 16. In the search for a live donor we went through several candidates: some didn't match, some chose not to donate. My mother-in-law and I wanted to donate, but we were the wrong blood type. Shirley's mother offered to swap kidneys with another family who had the same problem, and we were told this wasn't being done at our transplant center but was being done on the east coast. Your article about third-person kidney exchange in Vol. 10, No. 1, Summer 2002 ("*Transplant News Digest*") discussed this profound idea. I think it needs to be pursued more actively on a national scale. I imagine there are many people like myself and Shirley's mother who wouldn't care if their organ went directly to their loved one if the end result saved the life of their loved one or prevented suffering. From a human standpoint and a business one, this idea seems like a winner.

Sincerely,
Richard L. Williams

Editor's Reply:

Upcoming issues will address these and other innovative trends that have the ability to encourage living donation and save lives.

Editor's Note:

I received several letters questioning whether recipient non-compliance is truly a main reason why donated organs fail. Though non-compliance resulting in chronic rejection is a significant cause of organ failure, of course there are recipients who take their medications faithfully despite tremendous hurdles, and through no fault of their own can suffer from rejection or organ failure. The National Kidney Foundation is dedicated to helping you, the recipient, keep the organ you have. This is the main purpose of *Transplant Chronicles*. If you have ideas for articles or topics that can help you keep your organ healthy and strong please let us know!



Bone Health and Kidney Transplantation

By Bruce A. Julian, MD

Success rates for kidney transplantation have steadily increased over the last decade, and complications due to acute rejection have diminished. As a result, the focus for many transplant centers has turned to the long-term health of recipients. This includes concerns about damage caused by impaired kidney function before transplantation, and side effects of immunosuppressive medications started after surgery. One part of the body that often develops problems is the skeleton. In addition to its importance for mobility and bearing weight, the skeletal system is vital for maintaining a normal blood calcium level (to keep muscles working properly) and also for buffering the acid produced as a waste product of day-to-day metabolism. These functions of the bones are little noticed, unless problems arise.

The factors to healthy bones most commonly monitored are the blood levels of vitamin D, calcium, phosphorus and parathyroid hormone (PTH). Imbalances among these may cause a wide range of disorders, including hyperparathyroid (high-turnover) bone disease, osteomalacia (defective mineralization of bone) and adynamic (low-turnover) bone disease. The latter two conditions substantially increase the risk for fracture. Treatment for these problems centers on controlling the blood's serum phosphorus level by taking phosphate binders during meals and suppressing the PTH level with vitamin D compounds. Other approaches now under study include dialysis membranes that better remove phosphorus, and new medications that reduce the production of PTH without increasing absorption of dietary or phosphate-binding calcium.

Disorders of bone health due to chronic kidney failure may persist for months after successful transplantation, despite restoration of good kidney function.

Furthermore, anti-rejection medications may add new problems. For example, prednisone slows production of new bone so that the tissue lost in normal day-to-day activities is not fully replaced. Most kidney transplant recipients lose bone mass after transplantation, although the amount varies considerably between patients and parts of the skeleton. The best method to measure changes is bone densitometry. This test usually examines two sites, the lower spine and a hip.

Bone mass falls into one of three categories: normal, osteopenia (moderately decreased) and osteoporosis (markedly decreased). The loss of bone mass after kidney transplantation is most rapid in the first six months and usually more pronounced in the spine than hip. The rate of loss then slows over the next year, and thereafter generally reflects the normal age-appropriate decline. Better laboratory measurements of bone metabolism have recently become available, but these tests have not yet proved helpful to guide treatment.

The most important complication of decreased bone mass is fracture, and the risk generally corresponds to the severity of the loss. As many as 24 percent of kidney transplant recipients suffer a fracture within five years of surgery. The bones in the feet are most commonly affected. Post-transplant bone loss may also increase the risk for osteonecrosis (a segment of bone tissue dies and the skeletal structure collapses, leading to severe arthritis). This most frequently involves the hip, but the knee, shoulder, wrist and ankle are also susceptible. Patients with osteonecrosis in a hip usually describe experiencing pain with walking that progressively worsens over several months. Routine x-rays may not show any abnormality, even when pain is present, so magnetic resonance imaging (MRI) is the preferred method for imaging the affected

bone. Research studies have found recently that osteonecrosis in the hip usually develops within six months of surgery, though patients may not experience pain until later.

In terms of management, bone health should be optimized before transplantation by controlling the PTH level. Adequate buffering of acid in the blood should be ensured (the serum bicarbonate level on routine blood tests is a good guide). Furthermore, avoiding tobacco and excessive amounts of alcohol, with regular weight-bearing exercise (e.g., walking two miles per day, four or five days a week), is helpful. **After transplantation, other steps to maintain bone mass include:**

1. Bone densitometry measurements shortly after transplantation and about one year later
2. Calcium intake of 1,500 mg per day (through diet and supplements)
3. Daily multivitamin with 400 to 800 IU vitamin D
4. Supplemental estrogen or testosterone may be appropriate for some men and postmenopausal women (to be discussed with and supervised by a physician)
5. Reduced intake of caffeine (because it increases the loss of calcium in the urine).

Consider treatment with a bisphosphonate (such as Fosamax® and Actonel®) if rapid loss of bone mass occurs after transplantation, or osteopenia or osteoporosis is detected at any time. Caution is necessary for patients with a creatinine clearance less than 30 mL/minute.

With this approach, most patients will enjoy better bone health after kidney transplantation. **T_C**

About the Author

Bruce A. Julian, MD, is a professor of medicine and transplant surgery, University of Alabama at Birmingham.



Don't Resist Resistance Training

By Vanessa Underwood, BS, AFAA, ACE, ACSM, CSCS

As a transplant recipient and professional trainer, I know the impact that resistance training has had on my clients as well as my own personal health. Resistance training, also known as strength training, builds strength by adding some form of resistance (such as weights, bands or balls) to the body's movement during exercise. As we get older, our bodies begin to deteriorate. It is simply part of the aging process. With the added burdens of disease and medications, we MUST, without hesitation, incorporate exercise into our lives.

Many health care professionals advocate walking and simply staying "active." While this is also important, cardiovascular exercise should be done in conjunction with some form of resistance training. Loss of muscle mass may also contribute to bone density reduction. Once you lose muscle strength and density, your risk of other musculoskeletal disease is greater. Falling also becomes a grave problem. This is a major concern for the elderly. Not only does resistance training improve strength, but it also improves one's balance, coordination and mind-body control. The effects of resistance training can often lessen or counteract the impact of age-related declines in bone health by maintaining or increasing bone mineral density.

Resistance training can improve physical activity levels as well, which can dramatically reduce the risk of fractures in people with osteoporosis. Once you begin to add a positive stress to your bones and muscles, the body will respond by increasing the matrix of your bones and improving your muscle mass. Your strength will improve, you will feel stronger all

over, so those "walks to stay active" become more challenging and more fun.

Muscle is metabolically more active than fat. This means the more muscle you have, the faster and more efficiently your body will work. This will allow you to burn those calories while at rest. The positive effects of resistance training are numerous. Studies show that improved strength can decrease pain and disability and improve physical performance in individuals affected with osteoarthritis. Moderate resistance training

programs may have a greater and faster effect on increasing bone density than nutritional and pharmaceutical alternatives. Talk to your health care team about getting started on a resistance training program, and always speak to your doctor before you begin any exercise program.

Studies continue to prove that with just 10 minutes a day of resistance training, new bone may begin to form within two months!

IN HEALTH & HAPPINESS! **T_C**

Why I'm Not Crazy...

Continued from page 1

bike cross-country; my doctors didn't have too big a problem with it, so I did it. This philosophy has allowed me to explore and learn new things—while being aware that with a transplant one must be cautious.

It has been my experience that caregivers tend to worry about their patients and often discourage them from doing things that have a minimal risk to their health. However, when told confidently, "I'm riding my bicycle across the country this summer. What should I watch out for? What do you recommend?" They responded in an interested, but cautious manner: "Don't hit cars and drink lots of water." They also reminded me of the signs of rejection and infection, and we made plans to keep in touch on a regular basis.

I feel this attitude is extremely beneficial for patients who will have to deal with the medical system their whole lives. Many times we feel like we have to change our lifestyles due to

the limitations on transplant patients; although there are many things that do change, we should not be afraid to push our limits—you may be surprised how far you can go. Dreams and aspirations are still dreams and aspirations with a transplant.

Carrying about 40 pounds of gear, the trip was exhausting, yet exciting and rewarding. By the time it was all over, my bicycle partner Roger and I traveled roughly 1,648 miles in 28 days—averaging 50 to 60 miles a day in the beginning and 70 to 80 miles at the end. One day we went 100 miles.

So, basically, what I would like people to learn from my experience is that having a transplant isn't the end of having fun, or the end of exploring new things. Sometimes it's scary to do something a little risky, but often the risk is minimal and the benefit is huge. And most of all, bicycling is a wonderful sport; it's simple and fun and accessible to so many people, including transplant patients in good health. Just remember, like my transplant coordinator said, "Don't hit cars and drink lots of water." **T_C**



ask the pharmacist

Immunizations Important for Adult Patients

By David J. Post, PharmD, BCPS

Most organ transplant patients have their vaccinations updated before their transplant and that's the end of it. But it's a good idea for you to develop the habit of getting those yearly "flu" shots and making sure that other vaccinations are up to snuff as well. In general, recipients of organ transplants need the same immunizations that are given to the general population.

You should consider a couple of factors before having any vaccination. First, how long has it been since your organ transplant? Generally, we recommend waiting at least six months after a transplant before taking vaccines. The primary reason for this delay is that the immunosuppressive medicines you have to take may cause an over-response to the mild viruses in a vaccine and reduce the effectiveness of the vaccine.

Second, what type of vaccine will be administered? "Live" vaccines usually are not given to recipients of solid organ transplants. Such vaccines contain small amounts of active viruses. The body responds to these viruses by producing protective antibodies. For transplant patients who are taking anti-rejection medicines, the use of live vaccines carries the risk of giving you the disease instead of preventing it. To avoid this complication, most patients are given these vaccines before their transplant operations. Common vaccines in this category include oral polio vaccine, varicella or "chicken pox" vaccine; measles, mumps and rubella vaccine (MMR); and yellow fever vaccine for travelers.

The influenza virus is one of the most preventable of all common serious infections. Flu shots usually are given annually in the late fall. Even in

healthy persons, the flu virus may cause nausea, fever and a general feeling of sickness. But for transplant patients, symptoms of the virus may be much worse. You could even develop a life-threatening infection. Getting a flu shot on a yearly basis is a profound example of how a little prevention can go a long way!



Author David Post, left, and Dr. Adyr Moss consult on vaccinations.
(Photo by David A. Rose)

Other vaccinations that should be kept up to date include those for diphtheria and tetanus. The diphtheria and tetanus toxoid with pertussis vaccination series is usually given to children under age seven. Diphtheria is a bacterial infection located primarily in the airways. In the early 18th and 19th centuries, diphtheria caused widespread deaths. Tetanus is a bacterial infection spread either by mother to infant or by an acute injury, such as a puncture of the skin. To maintain immunity, you need a tetanus-diphtheria booster shot every 10 years.


Pneumococcal pneumonia is another preventable infection. This bacterial infection of the lungs is quite serious and may require hospitalization, along with intravenous antibiotics. About five

years after you receive your initial vaccination, you will need a booster shot.

Some vaccinations are necessary depending on where you live. Hepatitis A vaccine is administered to people who live in high-risk geographic areas, such as in states that border Mexico or that have populations at greater risk. Consuming contaminated water or food also can spread the hepatitis virus. The vaccination is a two-shot series. The second dose is given about six months after the first.

Hepatitis B virus is a risk for people who have received multiple blood transfusions. Liver transplant patients also are at greater risk of acquiring this infection. The hepatitis B vaccine has multiple dosing schedules. As recommended by the manufacturer, the three-shot series is given initially, then again at one month and at six months. For optimal immunity, there are a number of modified dosage regimes.

The side effects to any of these immunizations are similar. They include muscle soreness and redness around the site of the injection. You may get a queasy feeling that lasts a few days or perhaps even a fever. People rarely have serious reactions that require immediate medical attention.

These are general guidelines, so if you have questions, please consult your transplant coordinator to find out what policy your institution follows. For vaccinations that do not "take hold" because of immunosuppressive medicines, you may require an additional injection or increased dosage. 

Taking Precautions Against West Nile Virus

By Kathleen Falkenstein, PNP

West Nile virus made its first appearance in the United States in 1999. Last year there were 1,500 cases of West Nile virus reported in the United States, with more than 70 deaths. Most cases involve the elderly, according to the National Centers for Disease Control and Prevention. Only one percent of people bitten by infected mosquitoes become seriously ill. The mosquitoes that are most likely to carry the virus bite primarily at night and in the early morning.

People can be infected with West Nile virus when bitten by a mosquito that has bitten an infected bird. The virus is not spread directly from birds or other animals to humans and is not spread person to person. The risk of contracting the virus from blood transfusions is low.

Symptoms of West Nile virus are similar to many other viruses and include headaches, fever, chills, stiff neck and fatigue. Most people get better with fluids and over-the-counter painkillers, such as Tylenol or Motrin. Some people may require hospitalization for fluids and observation.

There is no specific treatment for this virus.

Since there is no treatment for this virus, prevention is the best way to manage it. Cities have introduced mosquito control programs. The areas with the highest risk of disease have begun to spray for mosquitoes, which has helped decrease the number of cases of the virus.

One of the best ways for individuals to protect against mosquito bites is by using insect repellent. However, these products should be used with caution because DEET, the active chemical in repellent, can cause harm. Reports of skin and respiratory irritation as well as seizures have been linked to its use. The U.S. Environmental Protection

Agency provides the following guidelines that should be observed when using DEET-containing products:

- Do not use with children less than two months old.
- Apply repellents only to exposed skin and/or clothing, but do not use under clothing. Applying repellent to clothing offers added protection with less potential for exposure.
- Never use repellents over cuts, wounds or irritated skin.
- Do not apply to the eyes or mouth, and apply sparingly around ears. When using sprays, do not spray directly onto face; spray on hands first, and then apply to face.
- Do not allow children to handle the products, and do not apply to children's hands. When using on children, apply to your own hands and then put it on the child.
- Do not spray in enclosed areas. Avoid breathing repellent spray, and do not use it near food.
- After returning indoors, wash treated skin with soap and water or bathe. This is particularly important when repellents are used repeatedly on one day or through consecutive days. Also, wash treated clothing before wearing it again.

- If you suspect that you or your child is reacting to an insect repellent, discontinue use, wash treated skin and call your local poison control center. If required to go to a doctor, take the repellent with you.

Studies show insect repellents with DEET concentration of 30 percent are more protective than lower concentrations, but those with concentrations higher than 30 percent do not provide more protection.

Because of these findings, a concentration of 30 percent is considered safe for adults and children. If parents are concerned, they can use repellents with 10 percent concentration.

Remember that patients with organ transplants who are on anti-rejection medications are more susceptible to viruses. So during mosquito seasons, it is especially important to make sure that there is no standing water in your yards, dress in long sleeves and pants when outside at dawn or dusk and use bug spray as per guidelines. **TC**

About the Author

Kathleen Falkenstein, PNP, is a pediatric liver transplant coordinator at A. I. duPont Hospital for Children in Wilmington, Delaware.

Transplant Infection Risk Seen as 'Low'

To better assess the risk of West Nile virus transmission through blood transfusion or organ transplant, the Centers for Disease Control (CDC) and the Food and Drug Administration have been studying the problem. According to the CDC Web site (www.cdc.gov), there is a "low" risk of acquiring WNV infection by blood transfusion or organ transplantation, but "additional studies are needed to quantify that risk and are being developed."

The Web site reports that in emergency situations, the benefits of such procedures outweigh the risk of infection. In non-emergencies, however, the CDC suggests that medical decisions take patient preferences into account, and offer deferral of an elective procedure, or autologous (self) blood transfusions.

—the Editors

Transplant News Digest

from the editors of **Transplant News**

By **Jim Warren**, editor and publisher

Transplant News, edited and published by Jim Warren, is a twice-monthly newsletter for the transplant community focusing on developments in organ, tissue, eye and bone marrow procurement and transplantation. *Transplant News Digest* is written exclusively for quarterly publication in *Transplant Chronicles*. For more information about *Transplant News* visit: <http://www.trannews.com>



Jim Warren

Relaxed selection process for heart donors, increased use of NHBDs could substantially increase donors

With more than 4,000 Americans and thousands more worldwide dying each year while awaiting heart or kidney transplants, researchers are constantly searching for new strategies to enlarge the pool of donor organs. According to two recent reports, the supply of hearts and kidneys for transplantation could be increased substantially simply by relaxing selection criteria for heart donors and using kidneys from non-heart-beating donors (NHBD).

Easing Heart Donor Selection Criteria

The pool of donor hearts would grow if doctors medically stabilized donors before evaluating their hearts and took action to resuscitate ailing hearts to normal function, recommended a consensus panel of transplant experts.

“Don’t give up if the heart looks weak—try to make it better,” said Jonathan Zaroff, MD, of the University of California, San Francisco, co-chair of the panel that included other physicians, surgeons, researchers, organ procurement organization personnel and United Network for Organ Sharing representatives.

Good recipient outcomes have been achieved even when using organs that fail to meet all of the traditional criteria for an optimal cardiac donor, the panel pointed out. Thus, they said, criteria can be expanded with regard to donor age and size and the

presence of minor structural abnormalities. In the absence of angiographic evidence of suitably healthy arteries, the panel suggested that hearts from men between the ages of 46 and 55 or women between 51 and 55 can be considered, provided the donor has no known risk factors for coronary artery disease.

If these recommendations are implemented across the country, “we’re hoping we could gain an additional 400 to 800 available hearts for transplant per year in the United States,” said Zaroff. Currently, between 6,000 and 8,000 people are placed on U.S. heart transplant waiting lists each year, during which time only 2,500 new hearts become available. About 17 percent of those on waiting lists die before receiving a new heart.

Non-Heart-Beating Donors

In a comparison of 122 NHBD kidney transplants and 122 transplants from donors with a heartbeat, with recipients matched in age, sex, number of transplants and year of transplantation from 1985 to 2000, Swiss researchers noted a significantly higher incidence of initial delay in graft function among those receiving NHBD kidneys: 48.4 percent versus 23.8 percent in the heart-beating donor group. However, at 10 years post-transplant, the rate of graft survival was comparable for the two groups—78.7 percent and 76.7 percent, respectively—and survival rates continued to be similar for as long as 15 years.

“These data support the concept that kidneys from donors without a heartbeat can routinely be included in kid-

ney transplantation programs, thus decreasing waiting times and mortality rates among patients who are waiting for organs,” wrote Markus Weber, MD, and colleagues at University Hospital Zurich. “A successful program of transplantation from donors without a heartbeat could increase the number of kidneys available for transplantation by 30 percent.”

In an accompanying editorial, J. Michael Cecka, PhD, from the University of California, Los Angeles, conservatively estimated that transplantation from NHBD would represent up to 1,000 more kidneys available for transplant in the United States each year.

“It is important that we begin this work on a wide scale and that we educate the public, hospitals and physicians about the possibilities of organ donation from donors without a heartbeat,” Cecka wrote.

World’s first double gene ‘knock-out’ pig could be major breakthrough in success of xenotransplantation

Scientists at PPL Therapeutics have produced the world’s first double gene “knock-out” piglets, an advancement that could have a profound impact on the eventual success of xenotransplantation.

The four healthy piglets were born without the gene (alpha 1, 3 galactose) responsible for making an enzyme that adds sugar to the surface of pig cells, which is recognized by the human immune system as foreign

Continued on next page

and in turn leads to hyperacute rejection of the pig organ.

“The ability to knock-out both copies of the gene provides a vital step in producing pigs with organs and cells which can be used in humans,” PPL said in a statement announcing the breakthrough. “Because both copies of the gene have been inactivated, tissues from these pigs have been shown to be completely devoid of the pig sugar that caused the hyperacute rejection to take place.”

PPL, the creator of Dolly the sheep, the first mammal cloned from adult cells, reported four healthy piglets were born at PPL Therapeutics in Blacksburg, Virginia, on July 25 using the company’s proprietary gene targeting technology and nuclear transfer, i.e., cloning.

“I believe the PPL achievement will result in a big advance in progress in the field of xenotransplantation,” David Cooper, MD, immediate past president of the International Xenotransplantation Society, told *Transplant News*. “The single most important hurdle that has been facing us for the past 10 years should now be overcome, and we will be in a position to clarify what obstacles may lie ahead. I do predict, however, that survival of pig organs in the laboratory will now be much longer than we have achieved in the past.

“This breakthrough, coupled with the work by the Immerge group indicating how a low or absent risk of infection by porcine endogenous retroviruses, will prove a major stimulus to the field. The day when every patient will be able to have an organ or cell transplant whenever needed is one step closer.”

The company indicated the first application of the new technology could be the testing of insulin-producing islet cells for the treatment of Type 1 diabetes from the double knock-out pigs, first in animals and then in humans. [Testing of heart and](#)

kidney pig organs would follow the first cell experiments with human clinical trials starting in two to four years.

Female donor kidneys linked to worse outcomes

People who receive kidneys from female donors are more likely to lose their grafts or die, compared with those who receive a kidney from a male donor, according to a report in the October issue of the *Journal of the American Society of Nephrology*.

The findings, based on a review of medical data involving nearly 125,000 kidney transplants, 25,000 heart transplants and 16,000 liver transplants performed worldwide, confirm the results of other studies showing a worse outcome for transplanted kidneys from female donors. While it is unclear how gender affects transplant outcomes, immunologic factors may play a role, said Martin Zeier, MD, and colleagues at the University of Heidelberg in Germany. The researchers found that a higher percentage of male recipients required anti-rejection treatment one year after transplantation when the kidney came from a female donor.

Among men, the risk of graft loss was 22 percent higher when it came from a female. The risk was 15 percent higher among women who received a kidney from a female donor. Similarly, both male and female recipients were more likely to die when their transplanted kidneys came from women, particularly if the donor was under 45 years of age.

[Female-to-male, but not female-to-female heart transplantation also was associated with reduced survival. No association between donor gender and survival was observed for liver transplants.](#)

Older age not a barrier to heart transplantation

Heart transplant recipients age 60 and older at the time of surgery fare just as well in the long run as younger patients and are less likely to experience acute or chronic rejection, according to the longest study ever done of older people given donor hearts.

Philippe Demers, MD, and colleagues at Stanford (California) University School of Medicine compared outcomes for transplant recipients between the ages of 18 and 60 at the time of transplantation (403 patients) and recipients aged 60 to 70 years when they received their new hearts (81 patients). Thirty days after transplantation, six percent of both the younger and older patients had died, and both groups spent an average of 20 days in the hospital, the researchers reported at the Canadian Cardiovascular Congress held in Edmonton, Alberta, in October.

While younger patients experienced an average of 2.6 episodes of rejection during the first few post-transplant months, older patients had only two rejection episodes over the same time period. One year later, 39 percent of older patients still had not shown any signs of rejection, compared with 27 percent of younger patients. Survival up to 10 years after transplantation was the same for both groups. At one year, 83 percent of younger patients and 88 percent of older patients were still alive. Five years later, 73 percent of the younger group and 75 percent of the older group were living. And at 10 years, 50 percent of the younger recipients and 51 percent of the older recipients were alive.

As might be expected with increasing age, older patients were more likely to develop various types of cancer over time than younger patients. However, older recipients were no more likely to develop lymphomas or infections than younger recipients.

“We believe the critical element in transplant patients over the age of 60 is careful pre-transplant assessment in order to detect any cancer that might be present prior to the operation,” Demers said. At Stanford, the upper age limit for heart transplantation is between 70 and 75.

Transplants okay for HIV-positive patients, ethicists say

Patients who are HIV-positive and need a transplant should receive equal access to donor organs, according to some ethicists and doctors.

Given the chronic shortage of donor organs, many transplantation centers are reluctant to allocate this precious commodity to HIV-infected patients because of their poor prognosis. In addition, there is concern that the life-long immunosuppressant regimen required post-transplant could further damage an HIV patient’s already-challenged immune system. A 1997 survey of kidney transplant centers revealed that 88 percent would not transplant an otherwise healthy HIV-positive patient. And only a small proportion of U.S. transplantation centers have agreed to participate in a proposed multi-center study of transplantation in HIV-positive patients.

But Scott Halpern and Arthur Caplan, PhD, of the University of Pennsylvania School of Medicine in Philadelphia and colleague Peter Ubel, MD, of the Veteran Affairs Ann Arbor Healthcare System in Michigan argued that, as a result of new drug therapies, HIV-positive patients now live for years and are more likely to die from organs that become diseased than from HIV. Furthermore, they said there is no evidence suggesting that HIV patients will experience a worsening of their conditions as a result of organ transplantation.

Since most programs offer organs to people with various conditions that could shorten their lives, such as diabetes and hepatitis C, “there is no

justification for providing organs to these groups of patients but not to patients infected with HIV,” the group wrote in the *New England Journal of Medicine*. “As with any new patient population, accumulating data will inform future analyses of the appropriateness of transplantation in HIV-positive patients.”

It is safe to travel after heart transplant, German researchers find

Provided certain precautions are taken, traveling after heart transplantation is safe and appears to improve quality of life, according to a report in *Clinical Transplantation*.

To develop appropriate safety and behavior guidelines, researchers from Hannover Medical School in Germany analyzed questionnaires focused on travel activities and complications completed by 100 heart transplant patients. The average number of trips was 1.3 per patient per year, with a mean cumulative traveling time of 120 days per patient. Fifteen patients (15.8 percent) reported complications, mostly small accidents and episodes of fever. No rejection episodes or other life-threatening events were reported, and the observed complications were not correlated with gender, age, time post-transplant, immunosuppression or comorbidities, such as diabetes.

Prior to traveling, heart transplant recipients should take certain precautions, the researchers advised. These include contacting the transplant physician; possibly undergoing exercise testing; evaluating the accommodations and hygiene of the destination; carrying at least twice the amount of required medication, in case of loss; and having contact addresses and phone numbers of the nearest transplant centers in the city or country of destination.

More than a third of lungs suitable for transplant may be turned down

More than 40 percent of lungs rejected for transplantation may actually be transplantable, according to a study in the August 24 issue of the *Lancet*.

“Our results, combined with reports of successful outcomes with lungs from marginal donors, highlight the urgent need for a prospective, scientific assessment of selection of donors for lung transplantation,” said lead author Lorraine Ware, MD, from Vanderbilt University School of Medicine in Nashville, Tennessee.

When deciding whether to accept donor lungs, doctors and organ procurement organizations weigh a number of factors, such as chest x-ray findings, presence of infection in the donor and donor smoking history. While these criteria help protect transplant patients from receiving unhealthy lungs, many on the waiting list die before receiving a transplant. Present criteria exclude more than 85 percent of donor lungs, Ware reported, a rejection rate that exceeds that of other organs, including hearts.

The investigators obtained 29 pairs of rejected lungs and assessed them using physiologic, microbiologic and histologic techniques. Most of the lungs had no or only mild pulmonary edema (83 percent), intact alveolar fluid clearance (74 percent) and normal or mildly abnormal histologic findings (62 percent). After considering all factors, including those extrinsic to the potential lung donor, the investigators determined that 12 pairs (41 percent) of rejected lungs were suitable for transplantation.

“If twice as many donor lungs are truly suitable for transplants, we could save an additional thousand lives a year in the United States alone,” said senior author Michael Matthay, MD, of the University of California at San Francisco.

COMMENTARY: *The Debate on Financial Incentives*

By *Jim Warren*
Editor & Publisher

The debate on whether to legalize payment for human organ donation is filled with many opinions but few facts. Two new studies, however, offer preliminary evidence that paying for organs does not pay—either for donors or recipients.

Those findings, along with the National Kidney Foundation (NKF) Board of Director's unanimous vote in October to oppose any effort aimed at offering a financial incentive to donate, would seem to deal a blow to the idea that offering money for organs might motivate more people to donate and, hence, whittle down waiting lists.

Writing in the October 2 issue of the *Journal of the American Medical Association (JAMA)*, a team of researchers reported that their study of 305 paid donors in India revealed there was little long-term financial gain and donors often experienced health problems.

The findings of donor dissatisfaction complemented those of a small study in Great Britain that found almost half of 29 British patients who traveled abroad and paid for a kidney in recent years subsequently died.

The Indian study, led by Madhav Goyal, MD, an internist at the Geisinger Health System in State College, Pennsylvania, looked at 305 residents of Chennai who sold their kidneys to pay off debts. Almost all (95 percent) of the participants said helping a sick person with kidney disease was not a major factor in their decision to sell.

Seventy percent of the participants sold through a middleman, and 30 percent directly to the clinic. The

sellers were promised an average of \$1,410 to sell their kidney (the range was between \$450 and \$6,280), but the researchers found the amount received averaged \$1,070 (ranging from \$450 to \$2,660). Both the brokers and clinics promised on average about one third more than they actually paid.

Among all the sellers, the researchers found that the average family income declined from \$660 at the time of the nephrectomy to \$420 at the time of the survey, the percentage of participants below the poverty line increased from 54 percent to 71 percent, and 74 percent of those who sold the kidney to pay off their debts were still in debt.

When asked to rate their health status using a 5-point Likert scale ranging from excellent to poor, almost half (48 percent) reported a 3 to 4 point decline.

Finally, when asked what advice they would give someone else with the same reasons to donate that they had, 79 percent said they would not recommend selling their kidney.

Goyal and colleagues acknowledged while “sellers have a right to make informed decisions about their own bodies,” their unwillingness to recommend donating to others “suggests that potential donor would be unlikely to sell a kidney if they were better informed of the likely outcomes.”

A small study conducted by physicians at the Queen Elizabeth Hospital in Birmingham found that six patients from their renal unit had traveled to India in recent years to purchase a kidney transplant, and four had died, according to BBC News.

After hearing the results, Andrew Ready, the hospital's clinical director, sent a questionnaire to 32 other renal units in Great Britain asking if they


had patients who had traveled abroad for a kidney transplant in recent years.

In a letter published in the September 21 issue of *The Lancet*, Ready said of the 17 units who responded, 12 said that a total of 23 patients from their hospitals had traveled abroad for a kidney transplant and all had opted to do so against medical advice. Ready said 8 of the 23 patients ultimately died of causes directly related to the transplant and another 5 lost their kidney graft.

“We recognize that whilst the demand for kidneys exceed supply, there will always be some people who will resort to desperate measures,” Ready said in a statement. “We would urge any in the U.K. in need of a kidney transplant to discuss their options with their U.K. consultant.”

The NKF board's decision, which was passed unanimously on October 8, opposed payment directly to families or indirectly through funeral homes.

“The national shortage of organs for transplant is a major concern of the NKF and we will intensify our efforts to encourage people to donate organs when a loved one has died. But we cannot condone or support paying for organs,” said Andrew Baur, NKF chairman, in a press release announcing the board's decision.

The foundation's National Donor Family Council was also firmly against offering any financial incentives. “Money is an insult to donor families,” said Ellen Gottman-Kulik, chair of the council. “A son or daughter's heart should not be ‘worth’ \$300. The Gift of Life is a gift and no person's organs should be made into a commodity.” 

Brush, Floss, Smile

By Cheryl A. Thomas, RDH

The importance of good oral health following organ transplantation is essential. Kidney disease, dialysis and immunosuppressants leave the transplant recipient with unique conditions that should be monitored regularly by a dental professional.

After transplantation, there is a period when anti-rejection medications are being adjusted to the correct level. This is usually during the first three months following transplantation. This is not the appropriate time to visit the dentist. However, once stabilized, the patient and transplant team should begin to plan the first post-operative dental visit. **It is important for transplant recipients to remember to take an antibiotic prescribed from their transplant team one hour before all future dental appointments.**

Immunosuppressants allow recipients to enjoy the benefits of transplantation, but they are not without side effects. Cyclosporine, for example, is notorious for a condition referred to as gingival hyperplasia. Simply put, this is an overgrowth of gum tissue in response to plaque, which is made of bacteria. When plaque is not removed thoroughly every day, the gum responds by swelling, bleeding and becoming tender. If a patient is taking cyclosporine, the response is exagger-



ated. In some cases the gums can actually grow so large that they completely cover the tooth. With good oral hygiene this condition can be avoided.

Fungal infections are another complication the post-transplant patient might encounter. Candidiasis, otherwise known as thrush, is a yeast infection common to patients on immunosuppressants. This infection appears as a white, creamy film usually located on the tongue. It is normally treated with anti-fungal medication such as Mycelex troche lozenges or nystatin rinses. Changing to a new toothbrush frequently will also help avoid this problem.

Anti-rejection drugs can also mask infections that are occurring in the mouth, such as gingivitis and periodontitis. Gingivitis is an infection of the gums. Symptoms include swelling, bleeding and tenderness. Good oral hygiene at home and routine cleanings (every three to six months) can help avoid this condition. Periodontal disease, which is usually chronic, involves loss of bone that holds the teeth in place. This condition is more serious than gingivitis. It requires deeper cleaning with local anesthetic, at least every three months. Good oral hygiene at home and anti-microbial mouth rinses can help keep bacteria at bay. In advanced cases, general dentists will refer patients to a gum specialist, or periodontist. When the bone loss is too severe, the dentist will recommend removal of the tooth.

Transplant patients are also more susceptible to cancers. During routine dental examinations, patients are evaluated for any suspicious signs of cancer inside and outside the mouth. It is important that patients taking immunosuppressive drugs not only use sunscreen to protect against skin cancer, but also a lip balm that offers UV protection to protect their lips.



Cheryl Thomas with her husband, Richard, and her dogs, Peanut Butter and Jelly.

Many transplant recipients find themselves with bone disease, such as renal osteodystrophy, as a result of their kidney disease. Calcium is removed from the bones because of this disease and is deposited into the soft tissues. Calcium deposits in the oral region, which are normally benign, should be monitored by a dentist with panoramic x-rays. The calcified cysts have the potential of turning into cancerous cysts, e.g., giant cell granuloma. The nerve of a tooth is also made of soft tissue, so calcium deposits can form there. This could make the tooth “non-vital,” which means that the tooth is no longer alive because there is no blood supply. Complications from this condition could involve root canals or possible problems during dental extractions.

Again, good oral hygiene is essential to the transplant patient. Studies show that transplant patients have an increase in plaque and tartar (hardened plaque) because of the medications they take to control blood pressure and fluid levels. These can lead to dry mouth, a condition commonly referred to as xerostomia. Saliva is a natural cleansing mechanism, and when it is decreased, even slightly, there will be more plaque and tartar buildup. If a patient experiences dry mouth, oral hygiene must be meticulous. Patients should brush no less


Continued on page 12

Transplant Chronicles salutes the National Donor Family Council on its 10th Anniversary

The National Kidney Foundation's National Donor Family Council (NDFC) celebrated its 10th anniversary as the "home for donor families" this fall. Created in 1992 to support and empower donor families, the Council has made donor families a vital part of the organ donation and transplantation team. "With more than 10,000 members, it's the largest organized group of donor families in the world," says Ellen Kulik, chair of the NDFC.

Since its inception, the NDFC has had a dramatic impact on the care and support for donor families in the United States. According to Maggie Coolican, RN, donor mom and founder of the NDFC, "Ten years

ago, the needs and concerns of donor families were not factored into the transplant equation. The NDFC has given a voice to donor families and we are proud that the innovative programming based on expressed need of the 'experts,' the donor families, has positioned the Council as the recognized leader in shaping standards of care for families."

For more information on the National Kidney Foundation's National Donor Family Council, please visit www.donorfamily.org or call (800) 622-9010. 




Brush, Floss, Smile

Continued from page 11

than twice a day and floss once a day. Studies show that flossing is best performed at night before bed; however, if flossing is done every 24 hours it disturbs plaque and keeps it from hardening and becoming tartar. Over the counter saliva substitutes can be found in the local pharmacy and are available without a prescription. Drinking lots of water and using a humidifier in the bedroom can also help add moisture to the mouth.

The first year after transplant, patients show a decrease in cavities. However, after the first year of transplant patients actually have an increase in cavities. Again, this enforces the need for good oral hygiene at home and regular check up and cleaning appointments. Concentrated fluoride gels are the preferred treatment for the transplant patient. Flossing after brushing and expectorating the gel will help work the fluoride between the teeth also.

In conclusion, the transplant patient should include good oral hygiene in his or her everyday routine to avoid complications from infection. Since immunosuppressed patients tend to have delayed wound healing, all precautions to avoid surgery should be followed. Brushing twice a day and flossing are very important and will help protect teeth and gums. Routine cleanings and dental exams are essential. Antibiotics should be taken before all dental procedures. Fluoride, anti-fungal agents, anti-microbial agents and sunscreen are of great benefit also. 

About the Author

Cheryl Thomas graduated dental hygiene school at Tarrant County College in 1993. She developed renal insufficiency in 1997. She began peritoneal dialysis, May 1998, and received a living donor transplant, March 18, 1999. Her brother, Robert Webster, was her donor.

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Nutrition and Transplantation: Questions and Answers

By Kathy Hunt, RD

If you have recently had an organ transplant, you are probably wondering if your diet will be different from the one you followed before your transplant.

Q. Do I need to be on a special diet?

A. Yes. After an organ transplant, your diet plays a big role in staying healthy. If you were on dialysis before your kidney transplant, you may find this diet easier to follow than the one you were on for your dialysis.

Q. Will any of my medications affect my diet?

A. Yes. Some common anti-rejection medications that affect your diet include steroids, cyclosporine, tacrolimus, azathioprine and mycophenolate. The most common effects of these drugs are increases in your:

- ✧ appetite
- ✧ level of blood fats (cholesterol or triglyceride)
- ✧ level of blood sugar
- ✧ sodium (salt) and fluid retention
- ✧ breakdown of muscle and bone
- ✧ blood pressure.

Q. Will I gain weight?

A. Many people have a better appetite after they get a transplant, and they gain unwanted weight. Weigh yourself often. Avoid high-calorie foods and foods rich in fat or sugar. You can help control your calories by eating:

- ✧ raw vegetables and fruits
- ✧ lean meat, skinned poultry and fish
- ✧ non-fat dairy products
- ✧ sugar-free beverages like diet soda.

Ask your doctor to refer you to a registered dietitian to plan low-calorie meals and snacks. Establish an exercise and activity plan with your doctor's advice. Regular physical activity helps:

- ✧ strengthen your heart muscle
- ✧ improve your form and appearance

- ✧ build your endurance
- ✧ keep your bones healthy.

Q. What about my cholesterol and triglyceride levels?

A. Fat (cholesterol or triglyceride) levels in your blood may be high and can cause heart disease. The following steps can lower the fat and cholesterol in your blood:

- ✧ Limit egg yolks to three or four a week.
- ✧ Limit all types of fats and oils, especially shortening, butter or stick margarine.
- ✧ Use oils, tub margarine or regular mayonnaise only in small amounts.
- ✧ Use lean meats, skinned poultry or fish.
- ✧ Use non-fat dairy products.
- ✧ Use salad dressing sparingly, or use fat-free salad dressing.
- ✧ Replace high-fat desserts like ice cream, pie, cake or cookies with fruit or other non-fat desserts.

Q. What about foods high in carbohydrates?

A. You may need to have fewer simple carbohydrates in your diet, including sugar, sweets and soda pop. Complex carbohydrates such as pasta, bread, unsweetened cereal and grains should be included in your daily diet.

Q. Do I still need to follow a low-salt diet?

A. Most transplant recipients still need to restrict salt, although it varies with each person. Transplant medications, especially steroids, may cause your body to retain fluid and raise blood pressure.

If you need to limit your sodium or salt intake, here are some foods to watch carefully:

- ✧ table or seasoning salts
- ✧ soy sauce or teriyaki

- ✧ ham, bacon and sausage
- ✧ salami or bologna
- ✧ canned or dehydrated noodle soup.

Q. What about protein?

A. Your protein intake will need to be higher than normal right after your transplant due to the large doses of steroids. Later, you can return to moderate amounts of protein. Protein-rich foods include:

- ✧ meat, poultry and fish
- ✧ milk, yogurt and cheese
- ✧ eggs
- ✧ dried or cooked beans and peas.

Q. Are calcium and phosphorus a problem?

A. You are at risk for bone loss. Include about two servings a day from the dairy group (milk, cheese and yogurt), unless your doctor or transplant dietitian has told you not to use these foods. Do not use calcium and phosphorus supplements unless recommended by your doctor.

Q. What about other minerals?

A. Some transplant medications cause high or low levels of potassium or magnesium. Follow your doctor's instructions carefully if these changes occur.

Q. What if I have diabetes?

A. After a transplant, your new diet may be higher in protein and lower in simple carbohydrates due to the effects of steroids and other medications. Work with your doctor and a registered dietitian to keep your diet and blood sugar in good control. **TC**

About the Author

Kathy Hunt has worked with kidney patients for 16 years and is currently employed at DaVita Union City Dialysis in California. She was a key author on the National Kidney Foundation's Nutrition and Transplantation brochure.

Sign Up for the World Games!

The 14th World Transplant Games will be held July 19 to 27, 2003, in Nancy, France.

The World Transplant Games is a multi-disciplinary sporting event held every two years under the auspices of the World Transplant Games Federation (WTGF) and is open to recipients of a currently functioning life-saving organ or solid tissue transplant—bone marrow recipients are included.

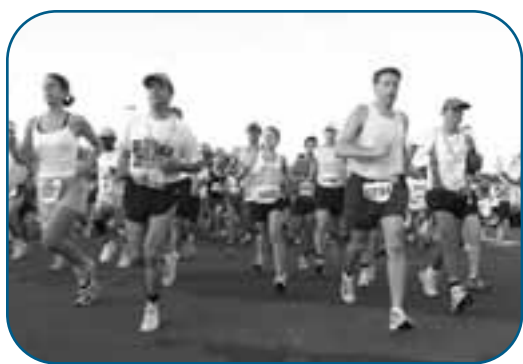


Photo credit Jay LaPrete

Over 40 countries have been invited to compete at these Games, where the very best transplant athletes, representing their respective nations will vie for gold, silver and bronze medals.

All transplant recipients who wish to participate in the World Transplant Games and who reside in the United States will compete


as part of Team USA. Team USA is organized by the National Kidney Foundation. All official World Transplant Games information will be forwarded from and to Team USA, care of the National Kidney Foundation.

The WTGF does not recognize local, state or provincial teams. Event and team specific information will be available from the NKF Web site at

www.kidney.org/recips/athletics/france.cfm

If you are interested in becoming a member of Team USA for the 14th World Transplant Games, please e-mail your full name, mailing address, day and evening phone number and your e-mail address to transplant@kidney.org

Once we receive your e-mail of interest, you will be added to the Team USA listserv to receive registration materials and further details.

All information is preliminary and subject to change by the WTGF and/or local organizing committee. 

There are lots of reasons to donate a vehicle. Funding kidney research and patient care are only a few. Make your car a Kidney Car. Cars that save lives. For more information, call 1-800-488-CARS.




Donor Family Corner

MY NAME is Christian Rivera and I have a small story to tell. I am 31 years old and was on the waiting list for a kidney transplant for the last three years. I had been on peritoneal dialysis. On August 12, 2002, I received a kidney in the most miraculous way possible. My mother Maria Rivera had been insisting since I became ill that she was a perfect match for me. Unfortunately she had lung problems and slight hypertension, and her doctors wouldn't even test her, stating that she wasn't healthy enough to withstand the surgery. She still insisted on being the donor.

For the last year she had been exercising and working out, even becoming a vegetarian to be healthy enough to donate her kidney to me. On August 11, she had a massive stroke and hours later she suffered a brain hemorrhage that ended her life. She was being sustained on a ventilator.

She had wanted to be an organ donor and our family made a decision to recover her organs. At midnight, August 12, the doctors advised us that she was a perfect match for my blood and tissue type. My father, my brother and I were allowed to say our good-byes, and her organs were recovered at 2:15 that morning.

Around 8 o'clock that same morning, I got a call from Shands Hospital in Gainesville, Florida, advising me to come to the hospital for transplantation. I arrived in Gainesville within the next two hours and was in surgery by 2:30 that afternoon. I was released the following Friday and was able to attend my mother's funeral service. I just did my first follow-up lab work with Shands before writing this, and they said that I was doing fine so far. I couldn't ask for a more powerful legacy from my loving mother, who gave me life twice. I miss and love her with all my heart. But I know she will always be with me physically and spiritually. 

Christian Rivera

HHS Awards Grants to Increase Organ Availability

By Suzanne Lane-Conrad RN, MS, CPTC



Suzanne Lane-Conrad, RN, MS, CPTC

Health and Human Services (HHS) Secretary Tommy G. Thompson recently announced the award of 16 grants totaling \$5.2 million dollars to research methods to increase donor organ availability. The grants were available to organ procurement organizations working collaboratively with medical schools, universities and non-profit organizations. Consistent with last year, HHS sought projects broadly defined as “social and behavioral interventions to increase organ and tissue donation.” Additionally, HHS announced that it was seeking projects supporting “clinical interventions to increase organ procurement.”

This latter category of “technical grants” acknowledges the increasing importance of “extended donors” in organ transplantation. An extended donor is a brain-dead organ donor from whom, due to advanced age or health complications, only one organ (usually a liver) may be recovered for transplantation. In the past, whether concerned for expense or family and hospital staff sensitivity, an organ procurement organization (OPO) would not pursue such donors. As the organ shortage worsens, bypassing even one potentially transplantable organ is no longer an option.

Five organizations were awarded \$2 million to examine measures to enhance organ utilization. As a result of an increased willingness to pursue organ recovery in extended donor situations, OPOs have seen their kidney discard rates rise in recent years. When a liver has been placed for transplantation from a brain-dead organ donor, the kidneys are also usually removed and examined to determine suitability for transplantation. When results are marginal and kidney placement is not successful, the organ

is sent to a research center (with appropriate consent) or it is discarded. Two of the technical grants propose using pulsatile perfusion to “rescue” such kidneys and return them to viability for transplantation. Pulsatile perfusion (pumping a preservation solution through a stored kidney) was commonly used 15 to 20 years ago for all kidney storage. The advent of better solutions has allowed for kidneys to be stored passively “on ice” while awaiting implant. Few centers in the country maintain the technology, equipment and personnel required for an effective pulsatile perfusion program.




Another frustration for OPO personnel is the difficulty of regaining and/or maintaining a good airway in brain-dead organ donors. Whether due to injury or time spent on the ventilator prior to OPO involvement, the lungs of non-living organ donors are the most easily compromised organs that are considered for transplantation. In response, two organizations received awards to measure the effectiveness of continuous chest wall oscillation to improve ventilation, and therefore lung placement, from brain-dead organ donors. The premise of oscillation, widely used in management of Cystic Fibrosis

patients, is that improved airway clearance and maintenance will lead to greater lung availability for transplantation.

Also funded is a nationwide proposal to study the effectiveness of thyroid hormone therapy for cardiac stabilization and increased donor heart placement. Similar to the situation with lungs, OPOs have been frustrated by the lack of healthy hearts among non-living donors, even among those who are relatively young and have no medical history of hypertension or heart disease. It is believed that brain death leads to cardiac instability that can be reversed with thyroid hormone therapy. Although used by OPOs, this intervention has not been systematically studied on a large-scale basis.

In the more traditional category, 11 organizations will share in awards totaling \$3.2 million dollars over the next three years to test social and behavioral strategies to increase organ donation. These include proposals to test the effectiveness of campaigns to promote donation after death, such as donor registries, college campus and urban high school interventions and mobile learning centers.

Reflecting the increased role of OPOs, three grants designed to increase living organ donation were awarded. Of these, one will specifically look at increasing living kidney donations from non-relatives in the African-American community. Two awards were given to projects designed to intervene in the deceased donor family consent process. 

Love, Life and Family

Rachel Rhodes has had her share of misfortune. She has buried a husband and a child and was diagnosed with kidney disease at the age of 23. Despite this, her life has been filled with love from her close-knit family of 11. The love of the Rhodes family has transcended generations, allowing Rachel to raise three children with the gift of a kidney from her brother John after he returned from Vietnam in the early 1970s. With her brothers and sisters by her side, Rachel raised three children and has lived and loved fully for nearly three decades.



Rachel and John Rhodes

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Log on to www.recipientvoices.org, *Transplant Chronicles*' new and exciting Web site, to answer this issue's interactive survey question:

What specific challenge are you most proud of accomplishing since your transplant?

Log on, share your thoughts and view other readers' experiences. You might see your response printed in our next issue!

Also, check out *Chronicles Extra...* available on-line only at www.recipientvoices.org

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