

UC San Diego

Winter 2009 - UC San Diego Health Journal of Nursing: Organ Transplantation

Title

Thoracic Organ Transplant at UC San Diego - A Twenty Year Journey

Permalink

<https://escholarship.org/uc/item/341600jc>

Journal

UC San Diego Health Journal of Nursing, 2(1)

Author

Osborne, Stephanie, BSN, RN

Publication Date

2009

Peer reviewed

Thoracic Organ Transplant at UC San Diego A Twenty Year Journey

By Stephanie Osborne, RN, BSN, CCTC
Heart and Lung Transplant Coordinator

In January of 1978 Dr. Stuart Jamieson arrived in the United States from England, where he had been actively involved in transplant research. He came to work with Dr. Norman Shumway at Stanford University. Over the following 6 years Dr. Shumway's team became a leader in the development of surgical techniques and post transplant management of human heart and lung transplantation. The Stanford team performed its first human heart transplant using cyclosporine in December 1980. For technical reasons this patient received a heterotopic transplant where the donor heart was "piggybacked" on to the native heart, the only transplant of this kind ever performed at Stanford. The patient survived with his new heart for 30 years. The first heart-lung block transplant, also using cyclosporine, was performed at Stanford in March of 1981. The patient survived and did well. In addition to developing surgical techniques and immunosuppression protocols, the Stanford team pioneered early preservation solutions for organ allografts, as well as new diagnostic criteria and techniques for diagnosing lung transplant rejection.

In 1986, Dr. Jamieson became the Chief of Cardiothoracic Surgery at the University of Minnesota. He continued to perform and to perfect heart and heart-lung transplantation procedures. It was during this time that his team adopted the sequential double lung transplant technique pioneered by Dr. Joel Cooper, using a clamshell incision.

Solid organ transplant is a phenomenon of the last half of the twentieth century. A long development process was required before surgical techniques, instruments and equipment, and immunosuppressant medications allowed for transplant to become anything more than an experiment.

Transplant Timeline:

1954: First successful transplant performed by Dr. Joseph Murray – a kidney transplant between identical twins (no immunosuppression was necessary in genetically identical individuals).

1963: First successful deceased donor lung transplant by Dr. James Hardy in Jackson, Mississippi – demonstrated that the surgery could be performed and that lung function could resume after transplant, but the patient survived only 18 days and died of renal failure.

1964: Dr. James Hardy attempted the first human heart transplant - early rejection led to retransplant of a chimpanzee heart, which also failed quickly.

1967: First successful human heart transplant performed by Dr. Christiaan Barnard in Capetown, South Africa – patient survived for 18 days.

1968-1969: Over 100 heart transplants performed – nearly all patients died within 60 days.

1972: Discovery of immunosuppressive effects of cyclosporine.

1979: First use of cyclosporine in a transplant recipient.

1983: FDA approval of cyclosporine as an immunosuppressive agent.

By 1984 2/3 of all heart transplant recipients survived for 5 years or more.



The surgery has been modified further in the last few years. Whenever possible, sequential double lung transplants at UC San Diego are being performed through bilateral small thoracotomies, avoiding the transection of the sternum, and leading to a faster patient recovery.

In the late 1980s UC San Diego was growing, both in size and in reputation. It was felt that an in-house cardiothoracic surgery division, which would offer heart and lung transplantation, along with the expansion of the pulmonary thromboarterectomy program, was needed. Dr. Jamieson was recruited as head of this new division, which came into being on July 1, 1989. He knew that for a transplant program to be successful it was necessary to establish a structure that would permit adequate assessment of candidates, management of patients pre-transplant so that they would be optimized for the surgery, an excellent team of surgeons, physicians, skilled pharmacy support, and social work support, with a highly educated, experienced team of nurses to provide coordination of the process, as well as education and support to patients and staff alike. Two experienced nurses came with the Minnesota group to San Diego and they were instrumental in developing the program as it evolved. At UC San Diego, heart and lung transplant nurse coordinators are among the earliest contacts the patients have with the transplant program. They are the ones who interpret the process to the patient and family, from evaluation through testing and listing, during the period of time the patients are on the waitlist, through the transplant process and hospitalization, and afterward, both in clinic and as the first contact if the patient has a problem or concern. They provide education for the patients and families at every step of the transplant process. Transplant nurse coordinators also receive the donor offers and present the pertinent information, present it to the surgeon who makes the decision if the organ is acceptable for a given patient. They also coordinate the process of recovery of

organs from calling the patient, booking the OR, getting orders into the system, and arranging for transportation to the donor hospital. During the first 15 years of the program's existence the coordinators also accompanied the procurement team to provide perfusion for the organs in the donor OR and delivered the organs back to the OR at UC San Diego for transplantation.

Transplant coordination was (and is) a big job! It challenges intellectually, educationally, functionally, physically (those long hours!), and emotionally. That is why we love it! Heart and lung transplant patients, by definition, have endstage disease. They have no options for improving their health or quality of life other than transplant. But transplant is not a "sure thing." The entire process is full of uncertainty for the patients. Those who choose to take the risk, to follow through with the biggest surgery you can have, to swallow all those pills and change their life patterns to allow for transplant considerations, knowing that there is great risk and no guarantees, are among the most courageous people you will ever meet.

Every transplant nurse coordinator has stories that chronicle the interpersonal rewards of the job. But, there are other rewards, as well. As a discipline, transplant has the added bonus of being at "the edge of the envelope." There is so much to know, so much to learn. The field is evolving every day and it is a challenge to keep up with new information and innovations. Nurse coordinators can develop areas of interest in transplant and pursue them with clinical research, either independently or with other team members. They can become clinical educators in the hospital setting for patients and for staff and also participate in community education and outreach.

March 2010 will mark the 20th anniversary of the first thoracic organ transplant at UC San Diego. There is much to celebrate: 180 heart transplants, 197 single lung transplants, 146 double lung transplants and 19 heart lung transplants, to date. But we are not resting on our laurels. We are listing



Stephanie Osborne received her BSN from the University of Connecticut in 1973. She has had experience in both outpatient nursing (in the community, as well as hospital clinics) and inpatient nursing (medical ward, medical and surgical intensive care, cardiac intensive care and stepdown, dialysis and emergency department), in clinical research and in clinical education. She came to UC San Diego as a Heart and Lung transplant coordinator in August of 1996, and achieved certification as a clinical transplant coordinator in February 2006. In April Stephanie was recognized as the UC San Diego 2009 Nurse of the Year.

patients daily and remain ready to add to these numbers. Our success rate has been excellent and we continue to meet or exceed our expected outcomes, as noted in the United Network for Organ Sharing (UNOS) database. The most important successes, however, are individual ones, as expressed by our patients.

20 YEARS!

(Katherine) Renee Bora became the first transplant patient at the new UC San Diego program, receiving a heart lung transplant on March 13, 1990. For Renee it was a leap of faith – in herself and her transplant team. She was 34 years old and had a job she loved as a labor and delivery nurse.



Renee first noticed symptoms when she became short of breath while scuba diving in Hawaii . After the dive she started wheezing. She was treated for asthma, but the only effect she noted was an increase in heart rate. Over the next months Renee continued to have respiratory compromise, but it was not until she was “breaking the bed” for a delivery and suffered a syncopal episode that she began to suspect that her problem might be more serious. When she recovered consciousness, she was cyanotic and had an oxygen saturation of 78%. She finally saw a cardiologist who performed an angiogram. He discovered that she had developed a large patent foramen ovale, due to right ventricular overload, and made the diagnosis of primary pulmonary hypertension (now referred to as idiopathic pulmonary arterial hypertension). IPAH is a disease characterized by elevated pulmonary artery pressure, which over time, leads to right ventricular hypertrophy and eventual failure. (1) Histologically patients with PAH demonstrate a proliferative vasculopathy in the lungs, which is characterized by vasoconstriction, cell proliferation, fibrosis and often thrombosis. (2, 3) The

cause, in Renee’s case, was not known . In 1990, there was no real treatment for the disease. Her cardiologist referred her to UC San Diego for consideration for transplant. She was evaluated and found to be a good candidate. Since she had significant heart damage, as well as PAH, the decision was made for her to receive both heart and lung allografts. Renee was listed for transplant on New Year’s Day in 1990 and waited 3 months for organs to become available.

Renee is a very positive person and says that she is blessed to have had such a great life. She has had many complications through the years related to transplant medication side effects, but when you ask her about her problems, she says “Oh, but everybody has those!”

Her husband, Brian, has been with her for the entire transplant journey. When they talked about how they felt as they waited for the call, they mentioned the contributions of both nurse coordinators. There was no support group for them – she was the first patient. They stated categorically that Becky and Anne were the best support group anyone could have had. They also mentioned that every single nurse in the ICU was wonderful, as were the transplant social worker, the transplant pulmonologist and the surgeons. Renee says she accepted that she had no other choice if she wanted to live. So she stepped out into the unknown, with confidence and faith that the entire UC San Diego transplant team cared about her and would be with her every step of the way. She has continued to receive her care at UC San Diego for the entire 20 years – what could be a better endorsement?! And, although many of the team members have changed, Renee continues to be an inspiration to those who have followed. Happy 20th transplant birthday, Renee! And also to the UC San Diego thoracic transplant program!

BIBLIOGRAPHY:

1. Simonneau, G, Galie, N, Rubin LJ, et al. Clinical classification of pulmonary hypertension. *Cardiol* 2004; 43:5S.
 2. Humbert, M, Morrell, NW, Archer, SL, et al. Cellular and molecular pathobiology of pulmonary hypertension. *J Am Coll Cardiol* 2004; 43:13S.
 3. Pietra, GG, Capron, F, Stewart, S, et al. Pathologic assessment of vasculopathies in pulmonary hypertension. *J Am Coll Cardiol* 2004; 43:25S.
- Additional information was obtained from personal correspondence with Dr. Stewart Jamieson.

