Jonathan I. Ravdin, MD

Dean's Corner

Talent, teamwork give rise to best kidney transplant outcomes in Midwest

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When compassionate care convenes with substantial clinical experience, scientific innovation, and progressive leadership, you achieve the level of success garnered by the Froedtert & The Medical College of Wisconsin's (College) kidney transplant program. The program was identified in 2008 as having the best outcomes in the Midwest by the Scientific Registry of Transplant Recipients (SRTR).

Of the 15 largest renal transplant centers in the 10-state Midwest region, Froedtert & The Medical College of Wisconsin ranks number 1 in both patient and graft survival, according to SRTR, whose reports are published by the US Department of Health and Human Services. The 1-year survival rate for patients receiving a kidney transplant here is 99.2%—about 3% higher than the national average. In addition, the 1-year kidney graft survival rate is 96.4%, compared with a national average of only 92.4%.

Since our first kidney transplant in 1967, College faculty have performed thousands of the procedures, most recently under the direction of Christopher P. Johnson, MD, professor and chief of transplant surgery. Doctor Johnson has been with the College for 20 years, and many nurses, staffers, and surgeons in the program have a comparable service record. The combination of individual and institutional experience is a contributing factor to our impressive outcomes.

We also benefit from performing between 120 and 140 renal transplants annually, which is sufficient volume to perpetuate our expertise, develop newer immunosuppressive methods and techniques, and incorporate those into practice. This is not always possible in a smaller program.

The muscle behind our kidney transplant program is the abundant talent from multiple disciplines coalesced within an academic medical center. The Froedtert & The Medical College of Wisconsin program draws on our expertise in cardiology, since cardiovascular issues abound in the population of patients with renal failure. Interventional radiologists are major contributors due to their skill managing the many complications kidney transplant patients can have. Pre-operative and post-operative support spans many College departments, all important to our efforts.

Most imperative is the synergistic relationship between the College's Division of Transplant Surgery, which houses the transplant program in the Department of Surgery, and the Division of Nephrology, which oversees the management of patients with kidney disease within the Department of Medicine. The teams work together exceedingly well to make good medical decisions both before and after transplant. Sundaram Hariharan, MD, professor and chief of nephrology, has emphasized cooperation since his recruitment to the College 12 years ago. He is a nationally recognized leader in transplant medicine.

Doctor Hariharan and his medical team have initiated a number of measures to improve transplant patient management. For example, his team instituted pre-transplant cardiac screening and developed guidelines for good blood pressure, cholesterol, and diabetes control for patients after transplant. He set strict health standards for living donors, and he expanded the clinical workforce.

Doctor Hariharan also spearheaded a significant translational research effort. In 1996, the College experienced its first case of polyoma BK virus infection in a transplant recipient. This virus causes infection in the transplanted kidney that mimics organ transplant acute rejection when examined by renal biopsy. The therapeutic approach for acute rejection and polyoma BK virus infection are entirely different with acute rejection requiring increased immunosuppression, which can worsen polyoma BK virus infection. Hence, it is critical to differentiate acute rejection and polyoma BK virus infection to optimize kidney transplant graft survival.

The virus was newly recognized in the late 1990s, and there were no tools to support best practices. Doctor Hariharan engaged basic scientists at the College to design a polymerase chain reaction (PCR) assay to test for the virus. The novel test was successfully developed by a multidisciplinary College team and became available for clinical use in September 2001. Utilization of polyoma BK virus PCR has helped clinicians to identify this infection accurately in renal transplant recipients.

In 2005, the transplant program began an aggressive screening protocol, testing all patients at intervals of 1, 3, 6, 12, and 24 months for polyoma BK virus in the blood for early identification prior to the occurrence of transplant kidney damage. Patients with significant polyoma BK virus infection have been subject to reduction in immunosuppression with close monitoring. With the above protocols, the transplant team has prevented and picked up early infection, and this has played an important role in improving kidney transplant survival. The College renal transplant team has effectively prevented graft failure secondary to polyoma BK virus infection. Such innovation—the development of an on-site test using sophisticated molecular techniques to address a specific clinical problem—is only possible at an academic medical center, where clinicians and basic scientists can unite to improve patient care.

Promising research continues at the College. For example, both basic science and clinical faculty in transplant surgery are examining the causes of oxidative stress in organs. Oxidative stress occurs when an organ is removed from the body for transplantation and thereby deprived of oxygen for an extended period of time. Ensuing damage becomes evident upon the reperfusion of the organ with oxygenated blood. College researchers are working to identify mechanisms to minimize oxidative stress and thus keep donor organs healthier for transplantation.

Additionally, many faculty members from transplant surgery and nephrology are members of the College's Kidney Disease Center. Directed by Richard J. Roman, PhD, professor of Physiology, the Kidney Disease Center provides infrastructure for scientists and clinicians to work on various facets of kidney disease research. Adult and pediatric nephrologists, transplant surgeons, physiologists, and endocrinologists are working together under Dr Roman's supervision and have successfully obtained extramural grant support to advance research on kidney disease.

Furthermore, patients transplanted at Froedtert Hospital have access to many national and international multicenter clinical trials on newer, innovative immunosuppressive agents that can further enhance kidney transplant outcomes. Some of these clinical trials are based on scientific study performed by clinical investigators of the College.

The College also serves the greater transplant community through its close affiliation with the Wisconsin Donor Network, the organ procurement organization for eastern Wisconsin. The College historically provides medical directorship for the Network, a role currently held by Dr Johnson. He assumes responsibility for donor management, organ evaluation, and many other procurement questions and challenges faced by the organization.

This is another instance of the College's focus on teamwork, the foundation upon which our transplant program is predicated, and a key reason why we expect to continue our leadership in this field and best serve the patients in our region.

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