



General Information

Renal transplantation is a potential treatment option for patients that are in renal failure. In cats, it was originally pioneered in the 1980s by surgeons at UC Davis School of Veterinary Medicine. It is important to understand that this treatment modality is not considered a cure for renal failure. The ultimate goal is to provide a good quality of life to a cat that would otherwise have succumbed to renal failure.

The surgery is usually performed in cats with chronic renal failure that are no longer responsive to conventional treatment modalities and are beginning to deteriorate in the face of appropriate medical management. Ideal renal transplant patients are stable and in otherwise good body condition at the time of surgery. Patients that are able to maintain a normal body weight and hematocrit (red blood cell count) despite renal disease are not considered candidates for transplantation. A renal transplantation is never performed on an emergency basis or as a “last ditch” effort. Cats with acute or oliguric/anuric renal failure must first be managed medically and may need intravenous fluid diuresis or dialysis to stabilize prior to considering transplantation. Renal transplantation is never considered a prophylactic procedure in patients that are well managed with their chronic renal failure.

Typically there is no age restriction for transplantation as long as the cat is in good condition and all criteria are met; however, exceptions may apply. The most recent literature suggests that 85% of cats that leave the hospital will survive at least six months. Approximately 45% of these cats will still be alive three years after surgery. Older studies report similar results, implying that 1 in 5 cats may pass way within the first year of transplantation. The life expectancy after transplantation is 3-6 years, however there are reports of patients living over 10 years.

Causes of death associated with renal transplantation include:

- 1) Acute rejection of the transplanted kidney
- 2) Systemic Infections
- 3) Owner inability to administer prescribed medications and obtaining the recommended follow-up medical diagnostic tests resulting in inappropriate drug (cyclosporine) levels.
- 4) Other unforeseen problems such as neoplasia (cancer), diabetes, pancreatitis, heart disease, liver failure, and urinary stone formation

Barring complications the cost of performing a renal transplant is approximately \$18,000-\$24,000. This includes diagnostic tests for your pet and the donor prior to surgery,

hospitalization, anesthesia, surgery, and initial post-operative care for the donor and recipient. If a patient requires dialysis prior to transplantation this may increase the estimate. Patients will need to be on immunosuppressive medications for life. Routine blood tests to check drug (cyclosporine) levels will need to be performed initially weekly and ultimately every 3 months. A monthly phone consultation fee will also apply and range from \$50-\$250 to help defray the costs of ongoing support associated with adjusting immunosuppression levels.

Owners can expect their pets to be in the hospital for 10-14 days from the time of admission. Once a donor cat is selected a battery of diagnostics will be performed to ensure compatibility with the recipient cat. Despite all of these pre-operative tests there is still a risk for acute rejection of the transplant.

Some of the complications seen in renal transplantations in cats are similar to those seen in human patients, such as acute rejection and infection. Acute rejection requires immediate and aggressive emergency treatment to prevent the loss of the new kidney. If an acute rejection occurs, it is usually within the first few months after surgery and many times is linked to poor owner compliance with administration of medications and failing to perform regular follow up blood tests as recommended.

Since the patients are immunosuppressed they are predisposed to developing infections. These may include bacterial, viral, fungal, and protozoal infections and may occur at any time after surgery. Cats that have undergone renal transplantation should never be boarded in crowded boarding facilities and their contact with other animals from outside the owner's house should be held to a minimum. Cats that have undergone transplantation are also at a higher risk for developing cancer and diabetes when compared to the average population.

If you are planning on having a renal transplantation performed on our cat it is extremely important for you to have 24-hour access to emergency veterinary care and a family veterinarian who is willing and able to help with the ongoing post-operative care associated with renal transplantations. The logistics of regular visits, routine lab tests, submitting cyclosporine assays (blood drug levels), and the ability to hospitalize your cat for treatment in the event of an emergency should be thought out prior to transplantation.

Aside from having kidney disease that is unresponsive to medical therapy your cat must fulfill certain criteria prior to being considered an acceptable candidate. Although each case will be given individual consideration, all candidates must be free of any systemic disease other than renal failure. Cats that have histories of urinary tract infections must first be treated prior to being acceptable candidates. Candidates that have a history of chronic gastrointestinal disease must first be worked up for that condition (endoscopic biopsies) prior to consideration. Finally, any cat that cannot be handled or administered oral medications safely due to a fractious disposition will automatically be eliminated as a potential candidate. With the amount of intensive care and handling required it has been our experience that these patients do poorly as a result of an inability to administer medications in the hospital or at home. Below is a list of criteria that must be met:

- 1) Ongoing weight loss despite appropriate management (but cannot be in poor body condition)
- 2) FeLV negative
- 3) FIV negative
- 4) Free of any other potentially complicating disease process
- 5) Free of cardiac disease
- 6) Free of inflammatory bowel disease
- 7) Free of urinary tract infection
- 8) Free of hyperthyroidism
- 9) Free of diabetes
- 10) No history of chronic skin disease
- 11) Must have a good temperament
- 12) Free of neoplasia (cancer)

The following tests will be needed to be performed and evaluated in order for consideration into the program:

- 1) CBC
- 2) Chemistry Panel
- 3) Urinalysis
- 4) Urine Culture and Sensitivity
- 5) Urine protein:creatinine ratio
- 6) Free and Total T4
- 7) FeLV and FIV Tests
- 8) Toxoplasmosis Titer
- 9) Blood Typing and Cross Match

- 10) Electrocardiography and Echocardiogram*
- 11) Thoracic Radiographs*
- 12) Abdominal Ultrasound*
- 13) Blood pressure measurements
- 14) Kidney biopsy (optional)
- 15) Intestinal biopsy (optional)
- 16) May need multiple urine cultures if undergoing an immunosuppression trial

** These tests may need to be repeated if they were not performed by a board certified radiologist/cardiologist/internist.*

We are the only renal transplant program in the country that has an “in-house” dialysis center. In appropriate cases, this allows us the flexibility to pre-treat patients that would benefit from dialysis prior to surgery, helping us decrease the incidence of complications. Dialysis can also be life-saving in the event that the patient experiences delayed renal function or acute rejection.

Owners of transplant recipients are also requested to sign consent for a “cosmetic” post-mortem exam and microscopic (histologic) evaluation in the event of death of euthanasia. This consent is crucial so that we can further understand the source of complications and work to prevent them in future cases. Although we ask owners to sign this consent form, ultimately this is not mandatory.

If you think your cat may be a candidate and are interested in transplantation please speak with your family veterinarian who can then proceed with some of the testing listed above. Once this is complete please schedule an appointment with the Renal Transplant Center. Please understand, that having this appointment does not guarantee that your cat will receive a transplant. Some of the tests listed above may be repeated at our hospital if it is necessary to make sure your cat is safe for the procedure.

Surgeons at the Veterinary Specialty Hospital reserve the right to refuse any cat for renal transplantation at any point in the evaluation process. Owners are reminded that renal transplantation can place an enormous financial, emotional, and physical burden and requires extraordinary commitment and devotion to the care for both the recipient and the donor. This cannot be emphasized enough.

For further questions regarding making an appointment please contact the renal transplant coordinator at:

Phone: (858) 875-7500 (Ask to speak with the Renal Transplant Coordinator/Technician)