

# Kidney Transplantation in Cats

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## Purpose of Procedure

Kidney transplantation is a method of treating chronic kidney failure in cats when standard medical management has failed. One half of one kidney can provide enough kidney function to maintain normal blood values. Cats who donate one kidney still have ample kidney function to live a normal life. The family of the transplanted cat adopts the donor cat.

## Description of Technique

Kidney transplantation is available only at a few veterinary hospitals. The kidney donor cat is anesthetized first, and the kidney to be donated is removed. While one team operates on the donor cat, another surgery team prepares the recipient cat. The kidney is attached to the large blood vessels in the abdomen (belly) of the recipient cat. The two poorly functional kidneys are left in place unless there is a medical reason to remove them.

### Preparation of Animal

Several tests are performed to determine whether a cat is a good candidate for kidney transplantation. If diseases other than kidney disease are present, the risk of complications increases. Most feline transplant programs require the following tests on both the recipient and the donor:

- Biochemistry panel, complete blood count, urinalysis, urine culture
- Chest and abdominal radiographs (x-rays), abdominal ultrasound examination, echocardiogram (heart ultrasound)
- Blood typing
- Blood tests for toxoplasmosis, feline leukemia virus, and feline immunodeficiency virus

In the week or so before the scheduled surgery, a blood cross-match test is performed with several potential donor cats. One to three days before surgery, oral cyclosporine (an immune suppressant) is started so that blood levels of the drug will be high enough at the time the new kidney is transplanted to prevent rejection of the donated kidney.

If kidney infection is suspected as the cause of kidney failure, cyclosporine along with prednisone (a steroid drug) may be started 2 weeks before surgery to determine whether the recipient cat develops a urinary infection while on these drugs. If infection develops, transplant surgery is cancelled, because the risk is too high. If an active or latent (inactive) viral upper respiratory infection may be present, cyclosporine and prednisone are also started 1 week before surgery. If severe symptoms (sneezing, discharge from the nose) develop, transplant surgery is cancelled.

## Potential Complications

Of cats that undergo a kidney transplantation, 80% live through the surgery and hospitalization period. Severe hypertension (high blood pressure), seizures, urine leakage, obstruction of the ureter (the tube that carries urine from the kidney to the bladder), and delayed function of the transplanted kidney are some of the most common postoperative complications.

Within the first 6 months of surgery, the most common complications include rejection of the kidney (if the levels of drugs used to suppress the immune system are too low) and infection (if the drug levels are too high). Other complications include obstruction of the kidney with scar tissue, hemolytic uremic syndrome (anemia from destruction of red blood cells), and diabetes mellitus. More than 60% of cats that receive a kidney transplant are still doing well 6 months after surgery.

After the first 6 months, the rate of complications decreases. Long-term complications include diabetes mellitus, cancer, and rare infections. About 40% of cats that receive a kidney transplant are healthy 3 years after surgery.

## Postoperative/Follow-up Care

After discharge from the hospital, many rechecks are necessary to adjust the medications. The rechecks may be performed by the local veterinarian, who then relays the information to the transplant team. Each recheck includes (at a minimum) a physical examination, body weight, laboratory tests of kidney function and to monitor for anemia, blood cyclosporine measurement (usually sent to the transplant center or specialty laboratory), and a urine specific gravity test (measurement of urine concentration) on a urine sample collected at home by the owner (ideally). To decrease the risk of urinary infections, veterinarians caring for transplanted cats usually avoid collecting urine with a needle or catheter.

Recheck visits are scheduled for a few days after discharge, then weekly for 1 month, then every other week for 1 month, and then monthly until all parameters (assessments) are stable. Thereafter, rechecks usually occur at least every 3 months.

Cats with a transplanted kidney require medications every day for the rest of their life to prevent rejection of the kidney. Because they are at risk for infections, they should not be exposed to other cats in boarding facilities and should remain indoors.