LILY TOXICOSIS

Lilium species of plants include the **Asian lily, Easter lily, Japanese show lily, rubrum lily and tiger lily**, as reported by the Handbook of Small Animal Toxicology and Poisonings. **Every part of the lily plant** (flower, stem, leaf, and root) is reportedly **toxic to cats** with ingestion. The **toxin** within the plant is **unknown**. Cats of any age can be affected. Whether or not lilies are toxic to dogs is unknown.

The **main organs affected are the kidneys**, resulting in **acute renal failure** within 1-2 days of ingestion. The tubules of the kidneys, where substances are exchanged between the blood and the urine and the urine is concentrated appropriately, are presumably damaged (tubular necrosis). Many of the clinical signs of acute renal failure are non-specific, including **lethargy, decreased appetite, nausea and vomiting**. One very suggestive sign is **oliguria/anuria** (decreased/absent urine production).

The **diagnosis is based on** known exposure to/ingestion of a lily, appropriate clinical signs and physical exam findings and laboratory data. **On physical examination**, affected cats are often painful in the region of the kidneys on abdominal palpation and the kidneys may palpate large**. Blood work** will reveal **azotemia** or the elevation of two substances, creatinine and blood urea nitrogen/BUN, which are normally excreted by the kidneys. Because azotemia has non-renal causes, confirmation of renal impairment must be documented on a urinalysis. The **specific gravity of urine** in a patient with renal failure will be **low** or more specifically within/near the 1.008 to 1.012 range. This tells us that the kidneys are not concentrating urine appropriately and so are failing. If exposure/ingestion is not known, the cause can only be speculated.

If a cat presents to the veterinary hospital with recent, known (or even suspected) exposure/ingestion, **vomiting** is **induced** immediately. **Gastric lavage** (washing out of the stomach) may be used as an alternative. Gastric clearance is the **best thing we can do to avoid toxicity, if the ingestion is caught early enough**. After 1-2 hours the plant material has already made it out of the stomach and clearance is not likely possible. **Activated charcoal with a cathartic** is then administered orally to bind whatever plant toxin is left in the GI tract and to promote excretion in the feces. Because there **is no specific antidote** for lily toxicity, the remainder of the treatment regimen is as for acute renal failure from any cause. **IV fluids** are given at a high rate for diuresis. Diuretic medications may be effective in "jump-starting" kidneys on the verge of shutting down. **Electrolytes** are closely monitored and treated accordingly. **Medications to control nausea and vomiting** are administered. **Dialysis** may be necessary/recommended in severely affected patients.

Prognosis is variable, depending especially on how early the ingestion was caught and whether or not gastric clearance was possible. **Once acute renal failure develops**, the prognosis is **poor** with high mortality rates. This is **particularly** true of patients that develop **anuria**. Dialysis is likely the only hope of saving anuric patients.

The best way to prevent lily toxicosis is to never bring a lily into the environment with kitties. Unfortunately, lily toxicosis is not common knowledge among cat owners. If lily ingestion is ever suspected, **immediate presentation to the veterinary hospital is essential**. Delay can lead to serious consequences for the pet.