

HYPOPARATHYROIDISM

(INADEQUATE PRODUCTION OF PARATHYROID HORMONE)

BASICS

OVERVIEW

- Absolute or relative deficiency of parathyroid hormone secretion leading to low levels of calcium in the blood (hypocalcemia)
- Parathyroid hormone regulates calcium and phosphorus levels in the blood—it normally increases calcium levels by causing calcium to be reabsorbed from bone
- The “parathyroid glands” are small, hormone-secreting glands that are located on or near the thyroid glands; thus the name, as “para-” refers to “adjacent” or “alongside” and “thyroid” refers to the thyroid gland; the thyroid and parathyroid glands are located in the neck, near the windpipe or trachea

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Dogs and cats

Breed Predispositions

- Toy poodle, miniature schnauzer, German shepherd dog, Labrador retriever, and terrier breeds
- Mixed-breed cats

Mean Age and Range

- Dogs—mean age, 4.8 years; range, 6 weeks to 13 years of age
- Cats—secondary to surgical removal of the thyroid glands (known as “thyroidectomy”) for treatment of excessive levels of thyroid hormone (known as “hyperthyroidism”): mean age, 12 to 13 years; range, 4 to 22 years of age; spontaneous hypoparathyroidism: mean age, 2.25 years; range, 6 months to 7 years of age

Predominant Sex

- Dogs—female (60%)
- Cats—male (64%)

SIGNS/OBSERVED CHANGES in the ANIMAL

Dogs

- Seizures
- Tense, splinted abdomen
- Wobbly, incoordinated or “drunken” appearing gait or movement (known as “ataxia”) or stiff gait
- Fever
- Facial rubbing
- Muscle trembling, twitching, or involuntary contractions of groups of muscle fibers (known as “fasciculations”)
- Growling
- Panting
- Cataracts
- Weakness
- Increased urination (known as “polyuria”) and increased thirst (known as “polydipsia”)
- Vomiting
- Lack of appetite (known as “anorexia”)
- May have normal physical examination results

Cats

- Sluggishness (lethargy), lack of appetite (anorexia), and depression
- Seizures
- Muscle trembling, twitching, or involuntary contractions of groups of muscle fibers (fasciculations)
- Panting
- Cataracts
- Slow heart rate (known as “bradycardia”)
- Fever
- Low body temperature (known as “hypothermia”)

CAUSES

- Dogs—most commonly of unknown cause (so called “idiopathic” disease) or immune-mediated inflammation of the parathyroid gland (known as “parathyroiditis”)
- Cats—most commonly secondary to damaged or removed parathyroid glands during surgical removal of the thyroid glands (thyroidectomy) for treatment of excessive levels of thyroid hormone (hyperthyroidism); decrease in tissue of parathyroid

glands of unknown cause (so called “idiopathic parathyroid gland atrophy”) and immune-mediated inflammation of the parathyroid glands (parathyroiditis) also seen

RISK FACTORS

- Dogs—no risk factors identified
- Cats—surgical removal of the thyroid glands (thyroidectomy) for treatment of excessive levels of thyroid hormone (hyperthyroidism)

TREATMENT

HEALTH CARE

- Hospitalize for medical management of low levels of calcium in the blood (hypocalcemia) until clinical signs of hypocalcemia are controlled and serum calcium concentration is greater than 7.0 mg/dl on blood work
- Inpatient treatment for patients with clinical signs of low levels of calcium in the blood (hypocalcemia), in which underlying disease requires support
- Emergency treatment usually is only needed for certain patients (such as those with primary hypoparathyroidism or hypoparathyroidism secondary to procedures to correct excessive levels of thyroid hormone [hyperthyroidism] or excessive levels of parathyroid hormone [hyperparathyroidism] and parathyroid gland damage)

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

Emergency Treatment

- **Calcium gluconate** 10% solution—administered slowly through a vein
- **Calcium chloride** 10% solution—also effective; administered slowly through a vein; extremely caustic if it gets outside of the vein and into tissues surrounding the vein; more potent than calcium gluconate

Short-term Treatment Immediately After Emergency Treatment

- Following emergency use of calcium gluconate 10% solution, relapse of clinical signs can be prevented by use of one of the following: constant-rate intravenous infusion; administration of calcium gluconate diluted in saline three to four times daily under the skin (subcutaneous administration)

Long-term Treatment of Hypocalcemia

- **Vitamin D** is needed indefinitely; dose as recommended by your pet’s veterinarian
- Calcium supplements given by mouth; type and dose of calcium supplement as directed by your pet’s veterinarian

FOLLOW-UP CARE

PATIENT MONITORING

- Low levels of calcium in the blood (hypocalcemia) and excessive levels of calcium in the blood (hypercalcemia) are both concerns with long-term management
- Once serum calcium is stable and normal, assess serum calcium concentration monthly for the first 6 months then every 2 to 4 months; goal is to maintain serum calcium between 8 and 10 mg/dl on blood work

POSSIBLE COMPLICATIONS

- Low levels of calcium in the blood (hypocalcemia)
- Excessive levels of calcium in the blood (known as “hypercalcemia”), which can lead to kidney failure

EXPECTED COURSE AND PROGNOSIS

- With close monitoring of serum calcium and client dedication, the prognosis for long-term survival is excellent
- Adjustments in vitamin D and oral calcium administration can be expected during the course of management, especially during the initial 2 to 6 months of treatment
- Cats with low levels of parathyroid hormone (hypoparathyroidism) secondary to surgical removal of the thyroid glands (thyroidectomy) for excessive production of thyroid hormone (hyperthyroidism) and subsequent parathyroid gland damage usually require only transient treatment because they typically regain normal parathyroid gland function within 4 to 6 months following surgery and often within 2 to 3 weeks following surgery