

PHARM PROFILE

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NITENPYRAM

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Nitenpyram is a neonicotinoid approved for use in dogs and cats as a flea adulticide.

PHARMACOLOGY

Nitenpyram is a systemic neonicotinoid that binds to specific nicotinic acetylcholine receptors, thereby interfering with normal nerve transmission in the flea and killing it.^{1,2} The neurotransmitter acetylcholine is a key chemical in communication between synapses. In a normally functioning nerve, acetylcholine passes a signal between two neurons or between a nerve and a muscle receptor.³ Nitenpyram blocks this transmission by occupying the nicotinic acetylcholine receptor, preventing acetylcholine from binding at the receptor. This blockage leads to the paralysis and death of adult fleas.

Nitenpyram is rapidly absorbed from the gastrointestinal tract following oral administration. Giving nitenpyram with food does not alter its absorption.² Studies indicate that peak plasma concentrations are achieved within 30 minutes after oral administration in both dogs and cats.^{1,2,4} Nitenpyram is soluble in water and has an exceptionally high bioavailability when administered orally to dogs and cats.¹ Nitenpyram achieves over 90% effectiveness against adult fleas

on dogs within 4 hours and cats within 6 hours of administration.^{1,5}

The reported half-life of nitenpyram is approximately 3 hours in dogs and 8 hours in cats. Nitenpyram is excreted mostly unchanged in the urine.² The drug is also excreted rapidly, which enhances safety and reduces the opportunity for resistance.

INDICATIONS

Nitenpyram is used as a flea adulticide in dogs and cats as well as puppies and kittens 4 weeks of age and older and weighing at least 2 lb.^{2,6} Nitenpyram kills adult fleas that cause flea allergy dermatitis and transmit parasites (e.g., tapeworms).⁶ Nitenpyram does not kill immature fleas, larvae, or eggs on the animal or in the environment. Control of immature stages of the flea can be attained by using an insect growth regulator (e.g., lufenuron).⁵ Studies have shown that nitenpyram can be safely administered with lufenuron.^{1,2} Nitenpyram does not kill ticks.

CAUTIONS

Nitenpyram has demonstrated a wide margin of safety in growing puppies and kittens as young as 4 weeks of age and in reproducing and lactating adult dogs and cats as well as when it is used in conjunction with lufenuron or commonly applied flea adulticides.² There are no serious side effects reported with nitenpyram at indicated doses and at doses greater

than 10 times the indicated dose.^{4,6} Following administration, the treated dog or cat is likely to begin scratching as fleas begin to die. This behavior is a temporary reaction to the fleas, not the drug.⁶ Nitenpyram is highly selective for insect nicotinic receptors and has a much lower affinity for mammalian receptors. Thus it is unlikely to pose any undue risk to humans, dogs, or cats or to the environment when it is used according to the instructions.¹

DRUG INTERACTIONS

There are no reported drug interactions with nitenpyram use in dogs and cats. It can be administered with other drug products, including corticosteroids, antibiotics, and vaccines. It is also safe to use with deworming medications, heartworm preventatives, shampoos, and other flea control products.^{5,6}

DOSAGE AND ADMINISTRATION

Nitenpyram should be administered according to body weight. A dog or cat weighing 2 to 25 lb should be treated with one 11.4-mg tablet. A dog between 25.1 and 125 lb should be treated with one 57.0-mg tablet. Nitenpyram should not be given to puppies and kittens less than 2 lb. Nitenpyram may be used as often as once per day when adult fleas are observed on a dog or cat. It is essential to treat all infested pets in the household because fleas reproduce on untreated pets.^{2,5,6}

Client Counseling

- Nitenpyram, which is used to kill adult fleas, can be administered once daily.
- Nitenpyram does not kill immature fleas, larvae, or eggs; therefore, a product that will kill fleas in these stages may be necessary.
- When hiding the tablet in food, watch closely to make sure your pet swallows the pill. If you are not sure that your pet swallowed the pill, it is safe to give a second pill.
- Treat all infested pets in the household.
- When using this product, your pet may start scratching as fleas begin to die. The scratching behavior is temporary and is a reaction to the fleas, not the drug.

Nitenpyram tablets can be placed directly in the dog's or cat's mouth or hidden in food.⁶

PREPARATIONS

Nitenpyram (Capstar™, Novartis Animal Health,

Greensboro, NC) is available in 11.4- and 57.0-mg tablets for use in dogs and cats. The cost to veterinarians is approximately \$0.85 to \$1.00 per tablet, depending on size.

STORAGE AND HANDLING

Nitenpyram tablets should be stored at room temperature between 59°F and 86°F (15°C to 30°C).⁶ Like all medications, the drug should be kept out of reach of children.

REFERENCES

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