

CLINDADROPS™

Rx

Phoenix

Clindamycin

(Clindamycin Hydrochloride Oral Liquid) Antibiotic

ANADA No.: 200-193

Active Ingredient(s): Each mL of CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) contains clindamycin hydrochloride equivalent to 25 mg clindamycin; and ethyl alcohol, 8.64%.

Indications: Dogs:

Aerobic bacteria: CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is indicated for the treatment of soft tissue infections (wounds and abscesses), dental infections and osteomyelitis caused by susceptible strains of *Staphylococcus aureus*.

Anaerobic bacteria: CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is indicated for the treatment of soft tissue infections (deep wounds and abscesses), dental infections and osteomyelitis caused by or associated with susceptible strains of *Bacteroides fragilis*, *Bacteroides melaninogenicus*, *Fusobacterium necrophorum* and *Clostridium perfringens*. (See Microbiology section for additional information.)

Pharmacology: Description: CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) contains clindamycin hydrochloride which is the hydrated salt of clindamycin. Clindamycin is a semi-synthetic antibiotic produced by a 7(S)-chlorosubstitution of the 7 (R)-hydroxyl group of a naturally produced antibiotic produced by *Streptomyces lincolnensis* var. *lincolnensis*.

CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is a palatable formulation intended for oral administration to dogs.

Site and Mode of Action: Clindamycin is an inhibitor of protein synthesis in the bacterial cell. The site of binding appears to be in the 50S sub-unit of the ribosome. Binding occurs to the soluble RNA fraction of certain ribosomes, thereby inhibiting the binding of amino acids to those ribosomes. Clindamycin differs from cell wall inhibitors in that it causes irreversible modification of the protein-synthesizing subcellular elements at the ribosomal level.

Microbiology: The following clindamycin *in vitro* data are available but their clinical significance is unknown. Clindamycin has been shown to have *in vitro* activity against the following organisms isolated from animals:

Aerobic gram positive cocci, including: *Staphylococcus aureus* (penicillinase and non-penicillinase producing strains), *Staphylococcus intermedius*, *Staphylococcus simulans*, *Staphylococcus epidermidis*, Streptococci (except *Enterococcus faecalis*).

Anaerobic gram negative bacilli, including: *Bacteroides* species, *Fusobacterium* species.

Anaerobic gram positive nonsporeforming bacilli, including: *Propionibacterium*, *Eubacterium*, *Actinomyces* species.

Anaerobic and microaerophilic gram positive cocci, including: *Peptococcus* species, *Peptostreptococcus* species, Microaerophilic streptococci.

Clostridia: Most *C perfringens* are susceptible, but other species may be resistant to clindamycin.

Overall susceptibility to clindamycin of anaerobes isolated from canine lesions. Data obtained from three veterinary diagnostic laboratories.

	Susceptible ≤ 3.2 $\mu\text{g/mL}$	Resistant ≥ 4.0 $\mu\text{g/mL}$
All Isolates	122/137 (89%)	15/137 (11%)
<i>Clostridium</i> spp	41/49 (84%)	8/49 (16%)
<i>Bacteroides</i> spp	42/46 (91%)	4/46 (9%)
<i>Fusobacterium</i> spp	16/16 (100%)	0/16 (0%)
<i>Peptostreptococcus</i> spp	15/16 (94%)	1/16 (6%)
<i>Actinomyces</i> spp	5/6 (83%)	1/6 (17%)
<i>Propionibacterium</i> spp	3/4 (75%)	1/4 (25%)

Mycoplasma species: Most mycoplasma species are susceptible to clindamycin.

Clindamycin and erythromycin show parallel resistance. Partial cross resistance has been demonstrated between clindamycin, erythromycin and macrolide antibiotics.

Absorption: Clindamycin hydrochloride is rapidly absorbed from the canine gastrointestinal tract. Dogs orally dosed with therapeutic amounts of clindamycin hydrochloride demonstrated antibacterial serum levels of the drug within 15 minutes post-dosing.

Canine Serum Levels: Therapeutically effective serum levels of clindamycin hydrochloride can be maintained by oral dosing at the rate of 2.5 mg/lb every 12 hours. Dogs orally dosed with clindamycin hydrochloride at 2.5 mg/lb every 12 hours during a 72 hours dosing regimen continuously maintained antibacterial serum levels of the drug. This same study revealed that average peak serum concentrations occurred 1 hour and 15 minutes after dosing. The biological half-life for clindamycin hydrochloride in dog serum was about 5 hours. There was no bioactivity accumulation after a regimen of multiple oral doses.

Metabolism and Excretion: Extensive studies of the metabolism and excretion of clindamycin hydrochloride administered orally in animals and humans have shown that unchanged drug and bioactive and bioinactive metabolites are excreted in urine and feces. Almost all of the bioactivity detected in serum after clindamycin hydrochloride product administration is due to the parent molecule (clindamycin). Urine bioactivity, however, reflects a mixture of clindamycin and active metabolites, especially N-demethyl clindamycin and clindamycin sulfoxide.

Dosage and Administration:

Canine Infected Wounds, Abscesses and Dental Infections:

Oral: 2.5 mg/lb body weight every 12 hours.

Duration: Treatment with clindamycin hydrochloride products may be continued up to a maximum of 28 days if clinical judgment indicates. Treatment of acute infections should not be continued for more than three or four days if no response to therapy is seen.

Dosage Schedule:

CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid): Administer 1 mL/10 lbs body weight every 12 hours.

Canine Osteomyelitis:

Oral: 5.0 mg/lb body weight every 12 hours.

Duration: Treatment with CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is recommended for a minimum of 28 days. Treatment should not be continued for longer than 28 days if no response to therapy is seen.

Dosage Schedule:

CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid): Administer 2 mL/10 lbs body weight every 12 hours.

Contraindication(s): CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is contraindicated in animals with a history of hypersensitivity to preparations containing clindamycin or lincomycin.

Because of potential adverse gastrointestinal effects, do not administer to rabbits, hamsters, guinea pigs, horses, chinchillas or ruminating animals.

Precaution(s): Store at controlled room temperature 15°-30°C (59°-86°F).

Caution(s): Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) should be prescribed with caution in atopic animals.

During prolonged therapy of one month or greater, periodic liver and kidney function tests and blood counts should be performed.

The use of clindamycin hydrochloride occasionally results in overgrowth of non-susceptible organisms such as clostridia and yeasts. Therefore, the administration of clindamycin hydrochloride should be avoided in those species sensitive to the gastrointestinal effects of clindamycin (see Contraindications). Should superinfections occur, appropriate measures should be taken as indicated by the clinical situation.

Patients with very severe renal disease and/or very severe hepatic disease accompanied by severe metabolic aberrations should be dosed with caution, and serum clindamycin levels monitored during high-dose therapy.

Clindamycin hydrochloride has been shown to have neuromuscular blocking properties that may enhance the action of other neuromuscular blocking agents. Therefore, clindamycin hydrochloride should be used with caution in animals receiving such agents.

Safety in gestating bitches or breeding males has not been established.

Warning(s): Not for human use. For use in animals only.

Toxicology:

Rat and Dog Data: One year oral toxicity studies in rats and dogs at doses of 30, 100 and 300 mg/kg/day (13.6, 45.5 and 136.4 mg/lb/day) have shown clindamycin hydrochloride

to be well tolerated. Differences did not occur in the parameters evaluated to assess toxicity when comparing groups of treated animals with contemporary controls. Rats administered clindamycin hydrochloride at 600 mg/kg/day (272.7 mg/lb/day) for six months tolerated the drug well; however, dogs orally dosed at 600 mg/kg/day (272.7 mg/lb/day) vomited, had anorexia, and subsequently lost weight.

Safety in gestating bitches or breeding males has not been established.

Side Effects: Side effects occasionally observed in either clinical trials or during clinical use were vomiting and diarrhea.

Discussion: Susceptibility tests should be done on samples collected prior to initiation of therapy with CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid). Clindamycin susceptibility testing is performed by using Cleocin® Susceptibility Disks (clindamycin 2 mcg) and Cleocin® Susceptibility Powder 20 mg. A standardized disk testing procedure* is recommended for determining susceptibility of aerobic bacteria to clindamycin. A description is contained in the Cleocin® Susceptibility Disk insert. Using this method, the laboratory can designate isolates as resistant, intermediate, or susceptible. Tube or agar dilution methods may be used for aerobic and anaerobic bacteria. When the directions in the Cleocin® Susceptibility Powder insert are followed, a MIC (minimal inhibitory concentration) of 1.6 mcg/mL may be considered susceptible; MICs of 1.6 to 4.8 mcg/mL may be considered intermediate and MICs greater than 4.8 mcg/mL may be considered resistant.

References: Available upon request.

Presentation: CLINDADROPS™ (Clindamycin Hydrochloride Oral Liquid) is available as 20 mL filled in 30 mL bottles (25 mg/mL) supplied in packers containing 12 cartoned bottles with direction labels and calibrated dosing droppers.

Disclaimer: Every effort has been made to ensure the accuracy of the information published. However, it remains the responsibility of the readers to familiarize themselves with the product information contained on the product label or package insert. Compendium Code No.: 12561014