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CEFA-DROPS®

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Boehringer Ingelheim

Cefadroxil for Oral Suspension, USP

50 mg/mL

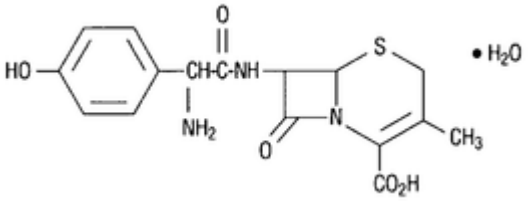
NADA 140-684, Approved by FDA

DESCRIPTION

Cefa-Drops (cefadroxil) contain a semi-synthetic cephalosporin antibiotic intended for oral administration. Cefa-Drops has an orange-pineapple flavor.

Cefadroxil is a member of a group of semi-synthetic derivatives of cephalosporin C, found among the metabolic products of the fungus *Cephalosporium acremonium.* The cephalosporins are structurally related to the penicillins in that both contain a 4-member beta-lactam ring. Cefadroxil is a 7-amino cephalosporanic acid

substituted at the 7 position to form a molecule designated chemically as (6R, 7R)-7- [(R)-2-amino-2-(p-hydroxyphenyl) acetamido]-3-methyl-8-oxo-5-thia-1-azabicyclo [4.2.0] oct-2-ene-2-carboxylic acid monohydrate:



CAUTION

Federal law restricts this drug to use by or on the order of a licensed veterinarian.

CAUTION

The enclosed dose dropper in Cefa Drops contains natural rubber latex which may cause allergic reactions.

INDICATIONS

Cefa-Drops (cefadroxil) are indicated for the treatment of the following conditions:

Dogs: Genitourinary tract infections (cystitis) caused by susceptible strains of *Escherichia coli, Proteus mirabilis* and *Staphylococcus aureus*.

Skin and soft tissue infections including cellulitis, pyoderma, dermatitis, wound infections and abscesses caused by susceptible strains of *Staphylococcus aureus*.

Cats: Skin and soft tissue infections including abscesses, wound infections, cellulitis and dermatitis caused by susceptible strains of *Pasteurella multocida, Staphylococcus aureus, Staphylococcus epidermidis* and *Streptococcus* spp.

DOSAGE

Dogs: Cefa-Drops, 50 mg, should be administered orally at a dosage of 10 mg/lb of body weight twice daily. Dogs with skin or soft tissue infections should be treated for a minimum of three days. Genitourinary tract infections should be treated for a minimum of seven days with cefadroxil. Maximum duration of therapy should not exceed 30 days.

Cats: Cefa-Drops, 50 mg, should be administered orally at a dosage of 10 mg/lb of body weight once daily. Maximum duration of therapy should not exceed 21 days.

In both species, drug treatment should continue for at least 48 hours after the animal is afebrile or asymptomatic. If no response is observed after three days of treatment, therapy should be discontinued and the case should be re-evaluated.

TO PREPARE SUSPENSION

Tap bottle lightly to loosen powder. For 15 mL bottle, add 10.4 mL of water in two portions. For 50 mL bottle, add 34 mL of water in two portions. Shake well after each addition. After mixing, store in refrigerator. Shake well before use. Discard unused portion after 14 days.

Droppers supplied with Cefa-Drops are calibrated in mL increments. When mixed as directed, each mL contains cefadroxil monohydrate equivalent to 50 mg cefadroxil.

CONTRAINDICATIONS

Cefa-Drops should not be administered to dogs or cats with a known allergy to cephalosporins. In penicillin-allergic animals, Cefa-Drops should be used with caution.

WARNINGS

For use in dogs and cats only. Not to be used in animals intended for human consumption. Safety for use in pregnant female dogs and cats or in breeding males has not been determined (see Animal Safety).

ADVERSE REACTIONS

Occasional nausea and vomiting have been reported following cefadroxil therapy. Administration with food appears to decrease nausea. Diarrhea and lethargy have been occasionally reported.

To report suspected adverse reactions, to obtain a Material Safety Data Sheet (MSDS) or for technical assistance, call 1-866-638-2226.

CLINICAL PHARMACOLOGY

ACTION

Cefadroxil, like other beta-lactam antibiotics, is a bactericidal agent that causes death of bacterial cells through a diversity of biological and biochemical effects on the cell wall. The spectrum of antibacterial activity includes many gram-negative organisms since cefadroxil, like other cephalosporins, has the ability to penetrate the outer envelope of gram-negative bacilli, thereby gaining access to cell wall target sites. Cefadroxil is generally not broken down by penicillinases such as those produced by penicillin-resistant staphylococci, although cephalosporinases have been identified that can inactivate the molecule.

MICROBIOLOGY

The effectiveness of Cefa-Drops in skin and soft tissue infections caused by *Staphylococcus aureus*, (including penicillin-resistant strains) and in urinary tract infections caused by *Staphylococcus aureus, Escherichia coli* and *Proteus mirabilis*, has been demonstrated clinically in the dog. In cats, the effectiveness of cefadroxil in skin and soft tissue infections caused by susceptible pathogens such as *Pasteurella multocida, Staphylococcus aureus, Staphylococcus epidermidis* and *Streptococcus* spp. has also been demonstrated. In addition, cefadroxil has a broad spectrum of activity against both gram-positive and gram-negative human isolates. Although the clinical significance of *in vitro* data is unknown in the target species, the following human isolates are generally susceptible to cefadroxil at the indicated concentrations[1].

		Minimum Inhibitory Concentration (mcg/mL)	
Organism	**No. of Isolates**	**Range**	**MIC*90****

Streptococcus pyogenes	(24)	0.063-0.125	0.11
Streptococcus agalactiae	(27)	0.25-1	0.92
Streptococcus pneumoniae	(29)	0.5-2	1.2
Staphylococcus aureus, penicillin sensitive	(16)	2-16	3.2
Staphylococcus aureus, penicillin resistant	(63)	1-32	6.2
Staphylococcus epidermidis	(28)	0.125-4	2.13
Escherichia coli	(59)	4->125	16.0
Proteus mirabilis	(62)	4->125	15.6
Klebsiella pneumoniae	(61)	4-16	7.85
Salmonella spp.	(22)	4-8	7.19
Shigella spp.	(12)	2-8	6.98
Pasteurella multocida	(2)		1.4

*Concentration at which 90% of the isolates are susceptible.

The susceptibility of organisms to cefadroxil should be determined using the cephalosporin class disc, 30mcg. Specimens for susceptibility testing should be collected prior to the initiation of antibiotic therapy.

PHARMACOKINETICS

Cefadroxil is stable in gastric acid and only moderately bound to serum proteins (approximately 20%). Cefadroxil is well absorbed from the gastrointestinal tract even when administered with food. The drug is excreted largely unchanged by the kidney. In humans, high concentrations of cefadroxil activity are found in urine within three hours after oral dosage[2]. The concurrent administration of probenecid retards the elimination rate.

In dogs, oral administration of cefadroxil at a dosage of 10 mg/lb results in mean peak serum concentrations averaging 18.6 mcg/mL within 1 to 2 hours after treatment[3]. The serum half-life (T1/2) following oral administration is approximately 2 hours. Over 50% of an orally administered dose is excreted unchanged in the urine of dogs within 24 hours. Serum concentration time profiles in dogs following oral administration are illustrated graphically in Figure 1.

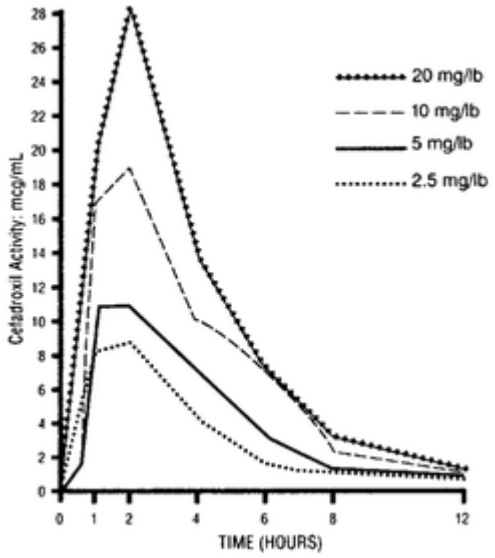


Figure 1: Cefadroxil Serum Concentration Curves in Dogs[3]

In cats, oral administration of cefadroxil at a dosage of 10 mg/lb results in mean peak serum concentrations of 17.4 mcg/mL within 1 to 2 hours after treatment. The serum half-life (T1/2) following oral administration to cats is 2 1/2 to 3 hours. Serum concentration time profiles in cats following oral administration are illustrated graphically in Figure 2.

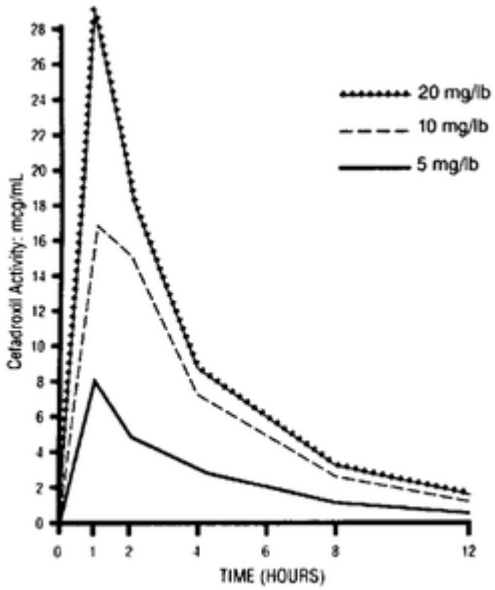


Figure 2: Cefadroxil Serum Concentration Curves in Cats

ANIMAL SAFETY

In subacute studies, dogs administered 100, 200 or 400 mg/kg/day for 13 weeks showed no consistent or distinct treatment-related histopathologic changes. In chronic toxicity studies, dogs receiving doses as high as 600 mg/kg/day for six months showed no discernible treatment-related effects, with the exception of emesis in dogs receiving a 400 mg/kg/day dose at one time. No distinct or consistent meaningful drug-related changes in the hematologic, coagulation or urinalysis test results or in histologic examination of tissues were observed when compared to controls.

No teratogenic or antifertility effects were seen in reproductive studies done in mice and rats receiving dosages as high as nine times the maximum recommended canine dosage.

In cats, oral administration of cefadroxil at a dosage of 240 mg/kg/day divided into two equal doses (ten times the recommended daily dosage) for 21 consecutive days produced no clinical chemistry, pathological or other signs of toxicity other than reduced food consumption, vomiting and diarrhea.

STORAGE

Store at 20 - 25°C (68 - 77°F), excursions permitted between 15 - 30°C (59 - 86°F).

HOW SUPPLIED

Cefa-Drops (Cefadroxil for Oral Suspension, USP) equivalent to:

NDC 0010-4700-01 - 750 mg cefadroxil per 15 mL dropper bottle

NDC 0010-4700-02 - 2500 mg cefadroxil per 50 mL dropper bottle

REFERENCES

1. Leitner, F., et al: "Comparative antibacterial spectrum of cefadroxil." *J. Antimicrob. Chemother.* 10, Suppl. B, 1 (1982).

2. Harstein, A.L., et al: "Comparison of pharmacological and antimicrobial properties of cefadroxil and cephalexin." *Antimicrob. Agents Chemother.* 12, 93 (1977).

3. Gingerich, D. A.: "Clinical pharmacology of the cephalosporins and their present use in veterinary medicine." *College of Veterinary Medicine Review*, Mississippi State University, 2, 93 (1982).

Made in India

Manufactured for: **Boehringer Ingelheim Vetmedica, Inc.**, St. Joseph, MO 64506 U.S.A.

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