



For the use of a Registered Medical Practitioner or a Hospital of a Laboratory only.

Doxycycline For Injection USP

D-CYCLINE[®] 100 mg

Each combipack contains:

(A) Doxycycline For Injection USP 100 mg/vial

Each vial contains:

Doxycycline Hyclate USP

Equivalent to Doxycycline 100 mg

(B) Sterile water for injection IP 10 ml

Each Plastic bottle contains:

Sterile Water for Injections IP q.s.

DESCRIPTION

Doxycycline Hydrochloride is (4S,4aR,5S,5aR,6R,12aS)-4- dimethylamino-1,4,4a,5,5a,6,11,12a-octahydro-3,5,10,12,12a- pentahydroxy-6-methyl-1, 1 1-dioxonaphthacene-2- carboxamide hydrochloride hemimethanolate hemihydrate, an antimicrobial substance obtained from oxy tetracycline or methacycline or by any other means, having molecular formula $C_{22}H_{24}N_2O_8 \cdot HCl$, $\frac{1}{2}C_2H_6O$, $\frac{1}{2}H_2O$ and its molecular weight is 513 g/mol. For Intravenous use only after reconstitution.

CLINICAL PHARMACOLOGY

THERAPEUTIC INDICATIONS:

To reduce the development of drug-resistant bacteria and maintain the effectiveness of Doxycycline for Injection and other antibacterial drugs. Doxycycline for Injection should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy. Doxycycline for Injection is indicated in infections caused by the following microorganisms:

- Rickettsia, Mycoplasma pneumonia, Borrelia recurrentis, Haemophilus ducreyi (chancroid), Yersinia pestis and Francisella tularensis, Bartonella bacilliformis. Bacteroides species, Vibrio cholera, Campylobacter fetus, Brucella species (in conjunction with streptomycin). Doxycycline is indicated for treatment of infections caused by the following gram-negative microorganisms when bacteriologic testing indicates appropriate susceptibility to the drug: Escherichia coli., Enterobacter aerogenes Shigella species, Acinetobacter species, Haemophilus influenza (respiratory infections), Klebsiella species (respiratory and urinary infections).
- Gram-positive microorganisms when bacteriologic testing indicates appropriate susceptibility to the drug: Streptococcus species: Anthrax due to Bacillus anthracis, including inhalational anthrax (post-exposure). Doxycycline is an alternative drug in the treatment of infections due to: Neisseria gonorrhoea and N. meningitidis., Treponema pallidum and Treponema pertenue (syphilis and yaws), Listeria monocytogenes, Clostridium species, Fusobacterium fusiforme (Vincent's infection), Actinomyces species. In acute intestinal amebiasis or trachoma.

POSOLOGY AND METHOD OF ADMINISTRATION

Posology

Adults: The usual dosage of doxycycline for injection is 200 mg on the first day of treatment administered in one or two infusions. Subsequent daily dosage is 100 to 200 mg depending upon the severity of infection, with 200 mg administered in one or two infusions.

Pediatric Patients: For all pediatric patients weighing less than 45 kg with severe or life-threatening infections (e.g., anthrax, Rocky Mountain spotted fever), the recommended dosage is 2.2 mg/kg of body weight administered every 12 hours. Children weighing 45 kg or more should receive the adult dose.

General: The duration of infusion may vary with the dose (100 to 200 mg/day), but is usually one to four hours. A recommended minimum infusion time for 100 mg of a 0.5 mg/mL solution is one hour. Therapy to be continued for at least 24 to 48 hours after symptoms and fever have subsided. The therapeutic antibacterial serum activity will usually persist for 24 hours following recommended dosage. IV solutions not to be injected intramuscularly or subcutaneously. Avoid the inadvertent introduction of the intravenous solution into the adjacent soft tissue.

NOTE: Rapid administration is to be avoided. Parenteral therapy is indicated only when oral therapy is not indicated. Oral therapy should be instituted as soon as possible. If intravenous therapy is given over prolonged periods, thrombophlebitis may result.

Method of Administration

To Prepare a solution containing 10mg/ml, the contents of the vial should be reconstituted with 10ml of Sterile Water for Injection or any of the intravenous infusion solutions listed below:

Each 100 mg of Doxycycline (i.e. withdraw entire solution from the 100mg vial) is further diluted with 100 to 1000 ml of the intravenous solution listed below:

- 0.9% Sodium Chloride Injection
- 5% Dextrose Injection

This will result in desired concentrations of 0.1 to 1 mg/ml. Concentrations lower than 0.1 mg/ml or higher than 1 mg/ml are not recommended.

CONTRAINDICATIONS

This drug is contraindicated in persons who have shown hypersensitivity to any of the tetracycline.

SPECIAL WARNINGS AND PRECAUTIONS FOR USE

The use of drugs of the tetracycline class during tooth development (last half of pregnancy, infancy and childhood to the age of 8 years) may cause permanent discoloration of the teeth (yellow-gray brown). Enamel hypoplasia has also been reported. Use doxycycline in pediatric patients when the potential benefits outweigh the risks in severe or life-threatening conditions (e.g., anthrax, Rocky Mountain spotted fever), particularly when there are no alternative therapies.

DRUG INTERACTION WITH OTHER MEDICINAL PRODUCTS

Adjustment of anticoagulant dosage when on Doxycycline. Avoid with penicillin. Barbiturates, carbamazepine, and phenytoin decrease the half-life of doxycycline. The concurrent use of tetracycline and methoxyflurane has been reported to result in fatal renal toxicity. Concurrent use of drug may render oral contraceptives less effective.

PREGNANCY, LACTATION AND FERTILITY

Pregnancy: Doxycycline for Injection has not been studied in pregnant patients.

Lactation: Tetracyclines are present in the milk of lactating women who are taking a drug in this class.

Fertility: Not known

EFFECTS ON ABILITY TO DRIVE AND USE MACHINES: Not Known.

UNDESIRABLE EFFECTS

Anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis and inflammatory lesions (with monilial overgrowth) in the anogenital region, and pancreatitis. Hepatotoxicity, Superficial discoloration of the adult permanent

dentition. Maculopapular and erythematous rashes, Exfoliative dermatitis, Photosensitivity. Renal Toxicity [Rise in BUN]. Hypersensitivity reactions including urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis and exacerbation of systemic lupus erythematosus, drug reaction with eosinophilia and systemic symptoms (DRESS). Bulging fontanels in infants and intracranial hypertension in adults, Hemolytic anemia, thrombocytopenia, neutropenia and eosinophilia. Discoloration of thyroid glands. No abnormalities of thyroid function studies are known to occur.

OVERDOSE

In case of overdose, discontinue medication, treat symptomatically and institute supportive measures. Dialysis does not alter serum half-life and thus would not be of benefit in treating cases of overdose.

PHARMACOLOGICAL PROPERTIES:

Pharmacotherapeutic Group: Antibacterials for systemic use

ATC Code: J01AA02

Mechanism of Action: Doxycycline inhibits bacterial protein synthesis by binding to the 30S ribosomal subunit. Doxycycline has bacteriostatic activity against a broad range of Gram-positive and Gram-negative bacteria.

Resistance: Cross resistance with other tetracycline is common.

Antimicrobial Activity: Doxycycline has been shown to be active against most isolates of the following microorganisms, both in vitro and in clinical infections.

Gram-Negative Bacteria

- Acinetobacter species
- Bartonella bacilliformis
- Brucella species
- Enterobacter aerogenes
- Escherichia coli
- Francisella tularensis
- Haemophilus ducreyi
- Haemophilus influenzae
- Klebsiella granulomatis
- Klebsiella species
- Neisseria gonorrhoea
- Shigella species
- Vibrio cholerae
- Campylobacter fetus
- Yersinia pestis

Gram-Positive Bacteria

- Bacillus anthracis
- Listeria monocytogenes
- Streptococcus pneumoniae

Anaerobic Bacteria

- Clostridium species
- Fusobacterium fusiforme
- Propionibacterium acnes

Other Bacteria

- Nocardiae and other aerobic Actinomyces species
- Chlamydia trachomatis
- Treponema pallidum
- Borrelia recurrentis
- Mycoplasma pneumoniae
- Treponema pallidum subspecies pertenue
- Chlamydia psittaci
- Rickettsiae
- Urea plasma urealyticum

Parasites

- Balantidium coli
- Plasmodium falciparum*
- Entamoeba species

*Doxycycline has been found to be active against the asexual erythrocytic forms of Plasmodium falciparum but not against the gametocytes of P. falciparum. The precise mechanism of action of the drug is not known.

Pharmacokinetic Properties: Tetracycline are readily absorbed and are bound to plasma proteins in varying degree. They are concentrated by the liver in the bile, and excreted in the urine and feces at high concentrations and in a biologically active form. Following a single 100 mg dose administered in a concentration of 0.4 mg/mL in a one-hour infusion, normal adult volunteers averaged a peak of 2.5 mcg/mL, while 200 mg of a concentration of 0.4 mg/mL administered over two hours averaged a peak of 3.6 mcg/mL.

Excretion of doxycycline by the kidney is about 40 percent/72 hours in individuals with normal function (creatinine clearance about 75 mL/min). This percentage of excretion may fall as low as 1 to 5 percent/72 hours in individuals with severe renal insufficiency (creatinine clearance below 10 mL/min).

STORAGE:

Store below 25°C. Protect from light.

Don't use Doxycycline Injection after the expiry date printed on label and carton.

Keep out of reach of children

Don't use in case any foreign particulate, leakage or breakage found

PRESENTATION:

Primary Packing: 10 ml amber glass vial USP Type-I.

Secondary Packing: Such vial and 10 ml SWFI ampoule is packed in a printed mono carton along with package insert.

Marketed by:



VARENYAM[®]

Varenyam Healthcare Pvt. Ltd.
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