

ALTIPOD 200

(Cefpodoxime Proxetil Tablets I.P.)

COMPOSITION

ALTIPOD 200

Each film coated tablet contains :

Cefpodoxime Proxetil I.P.
equivalent to Cefpodoxime 200 mg
Colours : Red Oxide of Iron, Yellow Oxide of Iron & Titanium Dioxide I.P.

DESCRIPTION

Cefpodoxime proxetil is an orally administered, extended spectrum, semi-synthetic antibiotic of the cephalosporin class. Cefpodoxime proxetil is a prodrug; its active metabolite is cefpodoxime. All doses of cefpodoxime proxetil in this insert are expressed in terms of the active cefpodoxime moiety.

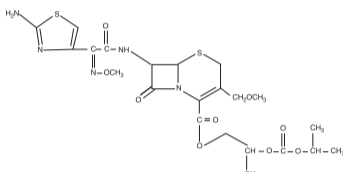
Chemical Name:

1-(isopropoxycarbonyloxy)ethyl(6R,7R)-7-[2-(2-amino-4-thiazoly)- (Z)-2-(methoxyimino)acetamido]-3-methoxymethyl-3-cephem-4-carboxylate.

Molecular Weight : 557.6

Molecular Formula: C₂₁H₂₇N₅O₉S₂

Structural formula :



PHARMACODYNAMIC AND PHARMACOKINETIC PROPERTIES

Cefpodoxime proxetil is a beta-lactam antibiotic, a 3rd generation oral cephalosporin. It is the prodrug of cefpodoxime. Following oral administration, Cefpodoxime is taken up by the gastro-intestinal wall where it is rapidly hydrolysed to cefpodoxime, a bactericidal antibiotic, which is then absorbed systemically.

BACTERIOLOGY

The mechanism of action of cefpodoxime is based on inhibition of bacterial cell wall synthesis. It is stable to numerous beta-lactamases. Cefpodoxime has been shown to possess in vitro bactericidal activity against numerous Gram-positive and Gram-negative bacteria.

It is highly active against the Gram-positive organisms :

- *Streptococcus pneumoniae*
 - Streptococci of Groups A (*S.pyogenes*), B (*S. agalactiae*), C, F and G
 - Other streptococci
(*S. mitis*, *S. sanguis* and *S. salivarius*)
 - *Corynebacterium diphtheriae*
- It is highly active against the Gram-negative organisms :
- *Haemophilus influenzae* (beta-lactamase and non beta-lactamase producing strains)
 - *Haemophilus para-influenzae* (beta-lactamase and non beta-lactamase producing strains)
 - *Branhamella catarrhalis* (beta-lactamase and non beta-lactamase producing strains)
 - *Neisseria meningitidis*
 - *Neisseria gonorrhoeae*
 - *Escherichia coli*
 - *Klebsiella Spp.* (*K. pneumoniae*; *K. oxytoca*)
 - *Proteus mirabilis*

It is moderately active against methicillin-sensitive staphylococci, penicillinase and non-penicillinase producing strains (*S. aureus* and *S. epidermidis*).

In addition, as with many cephalosporins, the following are resistant to cefpodoxime: enterococci, methicillin-resistant staphylococci (*S. aureus* and *S. epidermidis*), *Staphylococcus saprophyticus*, *Pseudomonas aeruginosa* and *Pseudomonas Spp.*, *Clostridium difficile*, *Bacteroides fragilis* and related species. As with all antibiotics, whenever possible, sensitivity should be confirmed by in vitro testing.

Pharmacokinetics

Cefpodoxime proxetil is de-esterified in the intestinal epithelium after oral doses, to release active cefpodoxime in the bloodstream. Bioavailability is about 50% in fasting subjects and may be increased in the presence of food. Absorption is decreased in conditions of low gastric acidity.

Peak plasma concentrations of about 1.5, 2.5, and 4.0 micrograms/mL have been achieved 2 to 3 hours after oral doses of 100, 200, and 400 mg cefpodoxime respectively. About 20 to 30% of cefpodoxime is bound to plasma proteins. The plasma half-life is about 2 to 3 hours and is prolonged in patients with renal impairment. Cefpodoxime reaches therapeutic concentrations in the respiratory and genito-urinary tracts and bile. It has been detected in low concentrations in breast milk. Cefpodoxime is excreted unchanged in the urine. Some is removed by dialysis.

INDICATIONS

Cefpodoxime is a bactericidal cephalosporin antibiotic active against a wide range of Gram-negative and Gram-positive organisms. It is indicated for the treatment of the following infections either before the infecting organism has been identified or when caused by bacteria of established sensitivity. Upper respiratory tract infections caused by organisms sensitive to cefpodoxime, including sinusitis. In tonsillitis and pharyngitis, Cefpodoxime should be reserved for recurrent or chronic infections, or for infections where the causative organism is known or suspected to be resistant to commonly used antibiotics.

Lower respiratory tract infections caused by organisms sensitive to cefpodoxime, including acute bronchitis, relapses or exacerbations of chronic bronchitis and bacterial pneumonia.

Upper and lower urinary tract infections caused by organisms sensitive to cefpodoxime including cystitis and acute pyelonephritis.

Skin and soft tissue infections caused by organisms sensitive to cefpodoxime such as abscesses, cellulitis, infected wounds, furuncles, folliculitis, paronychia, carbuncles and ulcers.

Gonorrhoea - uncomplicated gonococcal urethritis.

DOSE AND METHOD OF ADMINISTRATION

Adults:

Adults with normal renal function:

Upper respiratory tract infections: For upper respiratory tract infections caused by organisms sensitive to cefpodoxime, including sinusitis. In tonsillitis and pharyngitis, Cefpodoxime should be reserved for recurrent or chronic infections, or for infections where the causative organism is known or suspected to be resistant to commonly used antibiotics.

Sinusitis: 200mg twice daily.

Other upper respiratory tract infections: 100mg twice daily.

Lower respiratory tract infections: For lower respiratory tract infections caused by organisms sensitive to cefpodoxime, including acute bronchitis, relapses or exacerbations of chronic bronchitis and bacterial pneumonia: 100-200 mg twice daily, dependent on the severity of the infection.

Urinary tract infections:

Uncomplicated lower urinary tract infections:

100 mg should be taken twice daily.

Uncomplicated upper urinary tract infections:

200 mg should be taken twice daily.

Uncomplicated gonococcal urethritis:

200 mg should be taken as a single dose.

Skin and soft tissue infections :

200mg should be taken twice daily. Tablets should be taken during meals for optimum absorption.

Elderly:

It is not necessary to modify the dose in elderly patients with normal renal function.

Hepatic impairment:

The dosage does not require modification in cases of hepatic impairment.

Renal impairment:

The dosage of Cefpodoxime does not require modification if creatinine clearance exceeds 40 ml/min. Below this value, pharmacokinetic studies indicate an increase in plasma elimination half-life and the maximum plasma concentrations, and hence the dosage should be adjusted appropriately.

CREATININE CLEARANCE (ml/min)	
39-10	Unit dose administered as a single dose every 24 hours (i.e half of the usual adult dose).
< 10	Unit dose administered as a single dose every 48 hours (i.e quarter of the usual adult dose).
Haemodialysis Patients	Unit dose administered after each dialysis session.

CONTRAINDICATIONS

Hypersensitivity to cephalosporin antibiotics.

WARNINGS AND PRECAUTIONS

Preliminary enquiry about allergy to penicillin is

necessary before prescribing cephalosporins since cross allergy to penicillins occurs in 5-10% of cases. Particular care will be needed in patients sensitive to penicillin: strict medical surveillance is necessary from the very first administration. Where there is doubt, medical assistance should be available at the initial administration, in order to treat any anaphylactic episode.

In patients who are allergic to other cephalosporins, the possibility of cross allergy to Cefpodoxime should be borne in mind. Cefpodoxime should not be given to those patients with a previous history of immediate type hypersensitivity to cephalosporins. Hypersensitivity reactions (anaphylaxis) observed with beta-lactam antibiotics can be serious and occasionally fatal. The onset of any manifestation of hypersensitivity indicates that treatment should be stopped. Cefpodoxime is not the preferred antibiotic for the treatment of staphylococcal pneumonia and should not be used in the treatment of atypical pneumonia caused by organisms such as Legionella, Mycoplasma and Chlamydia.

In cases of severe renal insufficiency it may be necessary to reduce the dosage regimen dependent on the creatinine clearance.

Possible side effects include gastrointestinal disorders such as nausea, vomiting and abdominal pain. Antibiotics should always be prescribed with caution in patients with a history of gastrointestinal disease, particularly colitis. Cefpodoxime may induce diarrhoea, antibiotic associated colitis and pseudomembranous colitis. These side-effects, which may occur more frequently in patients receiving higher doses for prolonged periods, should be considered as potentially serious. The presence of C. difficile should be investigated. In all potential cases of colitis, the treatment should be stopped immediately. The diagnosis should be confirmed by sigmoidoscopy and specific antibiotic therapy (vancomycin) substituted if considered clinically necessary. The administration of products which cause faecal stasis must be avoided. Although any antibiotic may cause pseudomembranous colitis, the risk may be higher with broad-spectrum drugs, such as the cephalosporins.

As with all beta-lactam antibiotics, neutropenia, and more rarely agranulocytosis may develop, particularly during extended treatment. For cases of treatment lasting longer than 10 days, blood count should therefore be monitored, and treatment discontinued if neutropenia is found. Cephalosporins may be absorbed onto the surface of red cell membranes and react with antibodies directed against the drug. This can produce a positive Coombs' test and very rarely, haemolytic anaemia. Cross-reactivity may occur with penicillin for this reaction.

Changes in renal function have been observed with antibiotics of the same class, particularly when given concurrently with potentially nephrotoxic drugs such as aminoglycosides and/or potent diuretics. In such cases, renal function should be monitored.

As with other antibiotics, the prolonged use of cefpodoxime proxetil may result in the overgrowth of non-susceptible organisms. With oral antibiotics the normal colonic flora may be altered, allowing overgrowth by clostridia with consequent pseudomembranous colitis. Repeated evaluation of the patient is essential and if superinfection occurs during therapy, appropriate measures should be taken.

DRUG INTERACTIONS

No clinically significant drug interactions have been reported during the course of clinical studies. Histamine H2-antagonists and antacids reduce the bioavailability of cefpodoxime. Probenecid reduces the excretion of cephalosporins. Cephalosporins potentially enhance the anticoagulant effect of coumarins and reduce the contraceptive effect of oestrogens. As with other cephalosporins, isolated cases showing development of a positive Coombs' test have been reported.

Studies have shown that bioavailability is decreased by approximately 30% when Cefpodoxime is administered with drugs which neutralise gastric pH or inhibit acid secretions. Therefore, such drugs as antacids of the mineral type and H2 blockers such as ranitidine, which can cause an increase in gastric pH, should be taken 2 to 3 hours after Cefpodoxime administration.

The bioavailability increases if the product is administered during meals.

A false positive reaction for glucose in the urine may occur with Benedict's or Fehling's solutions or with copper sulphate test tablets, but not with tests based on enzymatic glucose oxidase reactions.

UNDESIRABLE EFFECTS

Possible side effects include gastrointestinal disorders such as diarrhoea and rarely antibiotic associated colitis, including pseudo membranous colitis (see Warnings and Precautions), nausea, vomiting and abdominal pain and rash, urticaria and itching. Changes in renal function have been observed with antibiotics from the same group as Cefpodoxime, particularly when co-prescribed with aminoglycosides and/or potent diuretics.

Occasional cases have been reported of headaches, dizziness, tinnitus, paresthesia, asthenia and malaise. Rare cases of allergic reactions include hypersensitivity mucocutaneous reactions, skin rashes and pruritus. Occasional cases of bullous reactions such as Stevens-Johnson syndrome, toxic epidermal necrolysis and erythema multiforme have also been reported. Transient moderate elevations of ASAT, ALAT and alkaline phosphatases and/or bilirubin have been reported. These laboratory abnormalities which may be explained by the infection, may rarely exceed twice the upper limit of the named range and elicit a pattern of liver injury, usually cholestatic and most often asymptomatic. Slight increases in blood urea and creatinine have also been reported. Exceptionally rare are the occurrence of liver damage and of haematological disorders such as reduction in haemoglobin, thrombocytosis, thrombocytopenia, leucopenia and eosinophilia. Haemolytic anaemia has extremely rarely been reported.

As with other β-lactam antibiotics, neutropenia and, more rarely, agranulocytosis may develop during treatment with Cefpodoxime, particularly if given over long periods.

As with other cephalosporins, there have been rare reports of anaphylactic reactions, bronchospasm, purpura and angioedema, serum-sickness-like reactions with rashes, fever and arthralgia.

OVERDOSAGE

In the event of overdose with Cefpodoxime, supportive and symptomatic therapy is indicated.

In cases of overdose, particularly in patients with renal insufficiency, encephalopathy may occur.

The encephalopathy is usually reversible once cefpodoxime plasma levels have fallen.

EXPIRY DATE

Do not use later than the date of expiry.

STORAGE

Store protected from moisture, at a temperature not exceeding 30°C.
Keep out of reach of children

PRESENTATION

ALTIPOD 200 is available in strips of 10's tablets



Manufactured by :
TORRENT PHARMACEUTICALS LTD.
Indrad-382 721, Dist. Mehsana, INDIA.
at : Vill. Manakpur, PO Lohimajra,
Nalagarh, Distt. Solan (HP) - 174 101.