

SCHEDULING STATUS:

[54]

PROPRIETARY NAME AND DOSAGE FORM:

KLARIZON 250 TABLETS

KLARIZON 500 TABLETS

COMPOSITION:

KLARIZON 250: Each film coated tablet contains clarithromycin 250 mg.

KLARIZON 500: Each film coated tablet contains clarithromycin 500 mg.

Preservative: Sorbic acid, 0.06% w/m.

The following inactive ingredients are included in the uncoated tablets: colloidal anhydrous silica, microcrystalline cellulose, croscarmellose sodium, povidone K25, stearic acid, talc, magnesium stearate. *The film coating contains the following inactive ingredients:* hydroxypropylmethyl cellulose, propylene glycol, sorbitan mono-oleate, vanilla dry flavour, quinoline yellow lake, titanium dioxide, hydroxypropyl cellulose, sorbic acid, Sugar free.

PHARMACOLOGICAL CLASSIFICATION:

A 20.1.1: Medium and broad spectrum antibiotics

PHARMACOLOGICAL ACTION:

Pharmacodynamic properties

Clarithromycin is a macrolide antibiotic. It exerts its antibacterial action by binding reversibly to the 50S ribosomal subunit of the 70S ribosome of sensitive microorganisms, thereby inhibiting bacterial RNA-dependent protein synthesis. The *in vitro* antibacterial spectrum of pathogens sensitive to clarithromycin includes:

(*in vitro* sensitivity does not necessarily imply *in vivo* efficacy)

Streptococcus agalactiae, *Streptococcus pyogenes*, *Streptococcus pneumoniae*

Legionella pneumophila

Mycoplasma pneumoniae

Chlamydia trachomatis

Moraxella (Branhamella) catarrhalis

Haemophilus influenzae

Staphylococcus aureus (methicillin sensitive)

Helicobacter (Campylobacter) pylori

Mycobacterium avium, *Mycobacterium kansasii*, *Mycobacterium chelonae*, *Mycobacterium intracellulare*

Clarithromycin is bactericidal to *Helicobacter pylori*, this activity is greater at neutral pH than at acidic pH.

The incidence of bacterial resistance to clarithromycin is higher in penicillin-resistant strains than among penicillin-sensitive strains. Therefore methicillin-resistant and oxacillin-resistant *Staphylococcus* and *Streptococcus* are also resistant to clarithromycin and cross-resistant to other macrolide antibiotics. Isolated cases of *Helicobacter pylori* and *Mycobacterium avium* with clarithromycin resistance caused by genetic mutations have been reported.

Pharmacokinetic properties

Clarithromycin is absorbed rapidly from the gastrointestinal tract after oral administration, but its bioavailability is reduced to 50 – 55 % because of rapid first-pass metabolism. Peak plasma concentration occurs approximately 2 hours after administration. Clarithromycin may be given with or without food. Clarithromycin is metabolised by the liver to the active metabolite, 14-hydroxyclarithromycin, as well as to several other metabolites. Both clarithromycin and 14-hydroxyclarithromycin distribute widely throughout the body and achieve high intracellular concentrations. Tissue concentrations generally exceed serum concentrations. Clarithromycin does not achieve significant levels in the cerebrospinal fluid. Protein binding of clarithromycin ranges from 40 to 70 % and is concentration dependent. The elimination half-lives of clarithromycin and 14-hydroxyclarithromycin are approximately 3 to 7 and 5 to 9 hours respectively. Longer half-lives are observed after larger doses. Clarithromycin is eliminated by renal and nonrenal routes. The amount of clarithromycin excreted unchanged in the urine ranges from 20 to 40 %, depending on the dose administered and the formulation. Between 10 and 15 % of the dose is excreted in the urine as the 14-hydroxy metabolite. Although the pharmacokinetics of clarithromycin is altered in patients with hepatic or renal dysfunction, dosage adjustment is not necessary unless a patient has severe renal dysfunction (creatinine clearance of < 30 ml/minute). At higher doses in HIV-infected patients clarithromycin and 14-hydroxyclarithromycin concentrations are much higher when compared with usual doses in non-infected patients. The elimination half-lives also appear to be lengthened.

INDICATIONS:

KLARIZON is indicated for the treatment of the following mild to moderate severe infections caused by susceptible organisms:

- Lower respiratory tract infections such as bronchitis and pneumonia.
- Upper respiratory tract infections such as pharyngitis and sinusitis.
- Mild to moderately severe acute otitis media due to *S. pneumoniae*, *M. catarrhalis* and *H. influenzae*.
- Skin and soft tissue infections such as folliculitis, cellulitis or erysipelas.
- Eradication of *Helicobacter pylori* when used in combination with a proton pump inhibitor and another antibiotic to decrease recurrence of duodenal ulcer.

CONTRAINDICATIONS:

- Hypersensitivity to macrolide antibiotics or to any of the components of KLARIZON.
- Concomitant administration of KLARIZON with astemizole, cisapride, pimozide, and ergotamine or dihydroergotamine (See INTERACTIONS).
- Patients receiving astemizole, cisapride or pimozide therapy, who have pre-existing cardiac abnormalities (dysrhythmia, bradycardia, QT-interval prolongation, ischaemic heart disease, congestive heart failure, etc.) or electrolyte disturbance (See INTERACTIONS AND WARNINGS AND SPECIAL PRECAUTIONS).
- Safety and efficacy in infants less than 6 months of age have not been established.

WARNINGS AND SPECIAL PRECAUTIONS:

KLARIZON should be used with caution in:

- Liver function impairment - The pharmacokinetics are altered. No dosage adjustment is required in patients with hepatic function impairment, unless there is also concurrent severe renal function impairment. Treatment with KLARIZON should be discontinued if any signs of hepatic dysfunction develop. Hepatic dysfunction is usually reversible but may be severe. In rare instances, hepatic failure with fatal outcome has been reported, usually associated with other serious underlying diseases and/or concomitant medicines. Cases of increased serum creatinine have been reported but an association with KLARIZON has not been established.
 - Renal function impairment (severe) - The elimination of KLARIZON is reduced in patients with renal function impairment, especially those with a creatinine clearance of < 30 ml/min. The dose of KLARIZON should be halved or the dosing interval doubled in patients with a creatinine clearance of < 30 ml/min.
 - Rhabdomyolysis has been reported with concomitant use of KLARIZON and the HMGCoA reductase inhibitors e.g. simvastatin and lovastatin (See INTERACTIONS).
 - Rifabutin and rifampicin - May decrease serum concentration of KLARIZON by > 50 %.
 - Co-administration has been reported to cause a higher incidence of uveitis compared to rifabutin alone (See INTERACTIONS).
 - Theophylline - The area under the plasma concentration-time curve is increased. Monitoring of theophylline serum concentrations is recommended (See INTERACTIONS).
 - Cross-resistance between KLARIZON and other macrolides, lincosycin and clindamycin have been reported.
 - Porphyria.
 - Pseudomembranous colitis has been reported with KLARIZON and it may range in severity from mild to life-threatening. Therefore it is important to consider this diagnosis in patients who present with diarrhoea subsequent to the administration of KLARIZON.
 - Colchicine toxicity with concomitant use of KLARIZON and colchicine have been reported during post-marketing experience, especially in the elderly, some of which occurred in patients with renal insufficiency. Fatalities have been reported in such patients (See INTERACTIONS).
 - There have been less frequent reports of hypoglycaemia, some of which occurred in patients on concomitant oral hypoglycaemics or insulin.
 - Adverse effects in immunocompromised patients treated with higher doses of KLARIZON over long periods include nausea, vomiting, taste perversion, abdominal pain, diarrhoea, rash, flatulence, headache, hearing disturbance, AST and ALT elevations, elevated blood urea levels and abnormally low white blood cell and platelet counts. Additional events included dyspnoea, insomnia and dry mouth.
 - Long-term use may result in colonisation with increased numbers of non-susceptible bacteria and fungi. If super-infections occur, appropriate therapy should be instituted.
- Effects on ability to drive and use machines*
KLARIZON could have a minor influence on the patient's ability to drive and use machines and the effect on the individual should be established before driving or using machinery.

INTERACTIONS:

Concomitant use of KLARIZON with:

- Astemizole, cisapride and pimozide – Have resulted in cardiac dysrhythmias, including QTc-interval prolongation, ventricular dysrhythmia, ventricular tachycardia, ventricular fibrillation and torsades de pointes. Fatalities have occurred. The most likely cause is the inhibition of metabolism of these medicines by KLARIZON. Concurrent use is contraindicated. See CONTRAINDICATIONS.
- Anticoagulants such as warfarin - KLARIZON may result in the potentiation of the effects of warfarin. Prothrombin time/INR should be monitored closely.

- Digoxin - KLARIZON has been shown to increase serum digoxin concentrations. Monitoring of digoxin serum concentrations is recommended.
- Carbamazepine or other medicines metabolised by the cytochrome P450 enzyme system CYP3A isoenzyme for example [alprazolam, astemizole, cyclosporine, disopyramide, cizapride, ergot alkaloids, methylprednisolone, midazolam, omeprazole, warfarin, pimozide, rifabutin, quinidine, sildenafil, tadalafil, vardenafil, simvastatin, tacrolimus, triazolam, vinblastine, phenytoin, theophylline and valproate) - KLARIZON may be associated with increased levels of these medicines. Serum concentrations of these medicines may require monitoring. Rhabdomyolysis has been reported with concomitant use of KLARIZON and the HMGCoA reductase inhibitors e.g. simvastatin and lovastatin (See WARNINGS AND SPECIAL PRECAUTIONS).
- Rifabutin and rifampicin – May decrease serum concentration of KLARIZON by > 50 %.
- Co-administration has been reported to cause a higher incidence of uveitis compared to rifabutin alone (See WARNINGS AND SPECIAL PRECAUTIONS).
- Theophylline – The area under the plasma concentration-time curve is increased. Monitoring of theophylline serum concentrations is recommended (See WARNINGS AND SPECIAL PRECAUTIONS).
- Zidovudine – A decrease in the steady-state concentration of zidovudine may occur. Doses of zidovudine and KLARIZON should be taken at least 4 hours apart.
- Ritonavir – The metabolism of KLARIZON is inhibited. No dosage reduction of KLARIZON is needed in patients with normal renal function. Patients with renal function impairment require a reduction in the dose of KLARIZON as follows:
Creatinine clearance 30 to 60 ml/min – Reduce dose by 50 %
Creatinine clearance of < 30 ml/min – Reduce dose by 75 %
Do not exceed a dose of 1 g/day during concurrent administration of KLARIZON with ritonavir. It has been suggested that other HIV-protease inhibitors and non-nucleoside reverse transcriptase inhibitors may have a similar effect on KLARIZON.
- Colchicine – is a substrate for both CYP3A and the efflux transporter, P-glycoprotein (Pgp). KLARIZON and other macrolides are known to inhibit CYP3A and Pgp. When colchicine and KLARIZON are co-administered, inhibition of Pgp and/or CYP3A by KLARIZON may lead to increased exposure to colchicine. Patients should be monitored for clinical symptoms of colchicine toxicity (see WARNINGS AND SPECIAL PRECAUTIONS). Fatalities have been reported in elderly patients with renal insufficiency that have been receiving concomitant colchicine.
- Ergotamine/dihydroergotamine – Post-marketing reports indicate that concomitant use of KLARIZON with ergotamine or dihydroergotamine has been associated with acute ergot toxicity characterised by vasospasm, and ischaemia of the extremities and other tissues including the central nervous system. Permanent tissue damage may result.

PREGNANCY AND LACTATION:

Safety and efficacy in pregnancy and lactation have not been established.

KLARIZON is excreted in the breast milk.

DOSAGE AND DIRECTIONS FOR USE:

Adults: 250 mg twice daily.

In more severe infections, the dosage may be increased to 500 mg twice daily.

Renal impairment:

Creatinine clearance (< 30 ml/min): Reduce dose by half i.e. 250 mg once daily or 250 twice daily for severe infections. Limit the duration of treatment to 14 days.

Eradication of H.pylori:

Adults: 500 mg twice daily, in combination with an appropriate antibiotic and an acid lowering agent, for 7 to 10 days.

The safety and efficacy of KLARIZON in combination with proton-pump inhibitors other than omeprazole has not been established.

Atypical mycobacterial infections (MAC) in HIV patients:

Adults: 500 mg twice daily

Treatment of disseminated MAC infections in AIDS patients should continue as long as clinical and microbiological benefit is demonstrated. A decrease in efficacy has been noted in patients taking KLARIZON for more than 12 weeks. KLARIZON should be used in conjunction with other antimycobacterial agents.

KLARIZON may be taken with or without meals.

SIDE EFFECTS:

Blood and lymphatic system disorders

Less frequent: Thrombocytopenia.

The following were reported but the frequency is unknown: Leucopenia, neutropenia.

Infections and infestations

Less frequent: Infection (fever and chills, cough or hoarseness, lower back or side pain, painful or difficult urination).

Cardiac disorders

The following were reported but the frequency is unknown: QT prolongation, torsades de pointes, ventricular tachycardia and dysrhythmias.

Nervous system disorders

Less frequent: Headache.

The following were reported but the frequency is unknown: Anxiety, dizziness, insomnia, hallucinations, nightmares, vertigo, tinnitus, disorientation, depersonalisation, confusion, hearing loss, convulsions.

Endocrine disorders

The following was reported but the frequency is unknown: Hypoglycaemia.

Gastrointestinal disorders

Less frequent: Abnormal taste sensation, dyspepsia, flatulence, gastrointestinal disturbances.

The following were reported but the frequency is unknown: Anorexia, nausea, vomiting, diarrhoea, glossitis, stomatitis, oral candidiasis, pseudomembranous colitis (abdominal cramps or pain, tenderness, severe, watery diarrhoea which may also be bloody, fever).

Hepato-biliary disorders

Less frequent: Hepatotoxicity.

The following were reported but the frequency is unknown: Increase in liver enzymes, hepatocellular and/or cholestatic hepatitis (with or without jaundice), pancreatitis, hepatic dysfunction.

Skin disorders

The following were reported but the frequency is unknown: Mild skin eruptions, urticaria, Stevens-Johnson syndrome, toxic epidermal necrolysis.

Immune system disorders

Less frequent: Hypersensitivity reactions, anaphylaxis.

General disorders

The following were reported but the frequency is unknown: Tongue and tooth discolouration.

KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT:

(See WARNINGS AND SPECIAL PRECAUTIONS)

Symptoms of overdose:

Ingestion of large amounts of KLARIZON can be expected to produce gastrointestinal symptoms.

Allergic reactions accompanying overdose should be treated by the prompt elimination of unabsorbed medicine and supportive measures.

Treatment of overdose:

Treatment is symptomatic and supportive. KLARIZON serum levels are not expected to be appreciably affected by haemodialysis or dialysis.

IDENTIFICATION:

KLARIZON 250: Yellow, film coated, oval-shaped, biconvex tablets, scored on one side (14,5 mm).

KLARIZON 500: Yellow, film coated, oval-shaped, biconvex tablets, scored on one side (19,0 mm).

PRESENTATION:

KLARIZON 250: PVC/PVDC blister packs containing 10 tablets, packed into an outer carton together with a package insert.

KLARIZON 500: PVC/PVDC blister packs containing 10 or 14 tablets, packed into an outer carton together with a package insert.

STORAGE INSTRUCTIONS:

Store at or below 25 °C and protect from light.

Keep the blisters in the carton until required for use.

KEEP OUT OF REACH OF CHILDREN.

REGISTRATION NUMBERS:

KLARIZON 250: A38/20.1.1/0724

KLARIZON 500: A38/20.1.1/0725

NAME AND BUSINESS ADDRESS OF THE HOLDER OF THE CERTIFICATE OF REGISTRATION:

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