

SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Cetirizine Dihydrochloride 10 mg Film-Coated Tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

One film-coated tablet contains 10 mg cetirizine dihydrochloride.

Excipient(s) with known effect: one film-coated tablet contains 100.20 mg lactose-monohydrate. For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Film-coated tablets

White coloured, circular, biconvex film coated tablet. Marked with 'A' on one side and a break-line on the other.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Adults and adolescents over 12 years of age:

Symptomatic treatment of allergic rhinitis (seasonal and perennial) associated allergic conjunctivitis, and chronic idiopathic urticaria.

Children 6-12 years:

Symptomatic treatment of allergic rhinitis (seasonal and perennial), and chronic idiopathic urticaria.

4.2 Posology and method of administration

Posology

Adults and adolescents over 12 years of age: 1 tablet (10 mg) once daily

If drowsiness occurs, the tablet can be administered in the evening.

Special population

Elderly

Data do not suggest that the dose needs to be reduced in elderly subjects provided that the renal function is normal. The duration of the treatment may vary depending on the symptoms.

Renal impairment

There are no data to document the efficacy/safety ratio in patients with renal impairment. Since cetirizine is mainly excreted via renal route (see section 5.2), in cases no alternative treatment can be used, the dosing intervals must be individualized according to renal function. Refer to the following table and adjust the dose as indicated. To use this dosing table, an estimate of the patient's creatinine clearance (CL_{cr}) in ml/min is needed. The CL_{cr} (ml/min) may be estimated from serum creatinine (mg/dl) determination using the following formula:

$$CL_{cr} = \frac{[140 - \text{age}(\text{years})] \times \text{weight}(\text{kg})}{72 \times \text{serum creatinine}(\text{mg} / \text{dl})} (\times 0.85 \text{ for women})$$

Dosing adjustments for adult patients with impaired renal function

Group	Creatinine clearance (ml/min)	Dosage and frequency
Normal	≥80	10 mg once daily
Mild	50 – 79	10 mg once daily
Moderate	30 – 49	5 mg once daily
Severe	<30	5 mg once every 2 days
End-stage renal disease – Patients undergoing dialysis	<10	Contra-indicated

Hepatic impairment

No dose adjustment is needed in patients with solely hepatic impairment. In patients with hepatic impairment and renal impairment, adjustment of the

dose is recommended (see Renal impairment above)

Paediatric population

The tablet formulation should not be used in children under 6 years of age as it does not allow the necessary dose adjustments.

Children aged 6 to 12 years: 5 mg twice daily (a half tablet twice daily).

Adolescents above 12 years: 10 mg once daily (1 tablet).

In paediatric patients suffering from renal impairment, the dose will have to be adjusted on an individual basis taking into account the renal clearance, age and body weight of the patient.

Method of administration For oral use

4.3 Contraindications

- Hypersensitivity to the active substance, to any of the excipients listed in section 6.1, to hydroxyzine or to any piperazine derivatives.
- Patients with severe renal impairment with a creatinine clearance below 10mL/min.

4.4 Special warnings and precautions for use

In some patients, long term treatment with cetirizine tablets may lead to an increased risk of caries due to mouth dryness. The patients should therefore be informed about the importance of oral hygiene.

At therapeutic doses, no clinically significant interactions have been demonstrated with alcohol (for a blood alcohol level of 0.5 g/L). Nevertheless, precaution is recommended if alcohol is taken concomitantly.

Caution should be taken in patients with predisposition factors of urinary retention (e.g. spinal cord lesion, prostatic hyperplasia) as cetirizine may increase the risk of urinary retention.

Caution is recommended in epileptic patients and patients at risk of convulsions.

Response to allergy skin tests are inhibited by antihistamines and a wash-

out period (of 3 days) is required before performing them.

Patients with rare hereditary problems of galactose intolerance, total lactase deficiency or glucose-galactose malabsorption should not take cetirizine film-coated tablets.

Pruritus and/ or urticaria may occur when cetirizine is stopped even if these symptoms were not present before. In some cases, symptoms may be intense and may require restarting the treatment, to which symptoms should resolve.

Paediatric Population

The use of the film-coated tablet formulation is not recommended in children aged less than 6 years since the formulation does not allow for appropriate dose adaptation.

It is recommended to use a paediatric formulation of cetirizine.

4.5 Interaction with other medicinal products and other forms of interaction

Due to the pharmacokinetic, pharmacodynamic and tolerance profile of cetirizine, no interactions are expected with this antihistamine. Actually, neither pharmacodynamic nor significant pharmacokinetic interaction was reported in drug-drug interactions studies performed, notably with pseudoephedrine or theophylline (400 mg/day).

The extent of absorption of cetirizine is not reduced with food, although the rate of absorption is decreased.

In sensitive patients, the concurrent use of alcohol or other CNS depressants may cause additional reductions in alertness and impairment of performance although cetirizine does not potentiate the effect of alcohol (0.5 g/l blood levels).

4.6 Fertility, Pregnancy and lactation

Pregnancy

For cetirizine, prospectively collected data on pregnancy outcomes do not suggest potential for maternal or foetal/embryonic toxicity above background rates.

Animal studies do not indicate direct or indirect harmful effects with respect to pregnancy, embryonal/fetal development, parturition or postnatal development.

Caution should be exercised when prescribing to pregnant women.

Breast-feeding

Cetirizine passes into breast milk. A risk of side effects in breastfed infants cannot be excluded. Cetirizine is excreted in human milk at concentrations representing 25% to 90% of those measured in plasma, depending on sampling time after administration. Therefore, caution should be exercised when prescribing cetirizine to lactating women.

Fertility

Limited data is available on human fertility but no safety concern has been identified. Animal data shows no safety concern for human reproduction.

4.7 Effects on ability to drive and use machines

Objective measurements of driving ability, sleep latency and assembly line performance have not demonstrated any clinically relevant effects at the recommended dose of 10 mg. However, patients who experience somnolence should refrain from driving, engaging in potentially hazardous activities or operating machinery. They should not exceed the recommended dose and should take their response to the medicinal product into account.

In these sensitive patients, concurrent use with alcohol or other CNS depressants may cause additional reductions in alertness and impairment of performance.

4.8 Undesirable effects

Overview

Clinical studies have shown that cetirizine at the recommended dosage has minor undesirable effects on the CNS, including somnolence, fatigue, dizziness and headache. In some cases, paradoxical CNS stimulation has been reported.

Although cetirizine is a selective antagonist of peripheral H₁-receptors and is relatively free of anticholinergic activity, isolated cases of micturition difficulty, eye accommodation disorders and dry mouth have been reported.

Instances of abnormal hepatic function with elevated hepatic enzymes accompanied by elevated bilirubin have been reported. Mostly this resolves upon discontinuation of the treatment with cetirizine dihydrochloride.

Listing of ADRs

Double blind controlled clinical trials comparing cetirizine to placebo or other antihistamines at the recommended dosage (10 mg daily for cetirizine), of which quantified safety data are available, included more than 3200 subjects exposed to cetirizine.

From this pooling, the following adverse events were reported for cetirizine 10 mg in the placebo-controlled trials at rates of 1.0 % or greater:

Adverse event (WHO-ART)	Cetirizine 10 mg (n= 3260)	Placebo (n = 3061)
General disorders and administration site conditions Fatigue	1.63 %	0.95 %
Nervous system disorders Dizziness	1.10 %	0.98 %
Headache	7.42 %	8.07 %
Gastro-intestinal system disorders Abdominal pain	0.98 %	1.08 %
Dry mouth Nausea	2.09 % 1.07 %	0.82 % 1.14 %
Psychiatric disorders Somnolence	9.63 %	5.00 %
Respiratory system disorders Pharyngitis	1.29 %	1.34 %

Although statistically more common than under placebo, somnolence was mild to moderate in the majority of cases. Objective tests as demonstrated by other studies have demonstrated that usual daily activities are unaffected at the recommended daily dose in healthy young volunteers.

Paediatric Populations

Adverse drug reactions at rates of 1 % or greater in children aged from 6 months to 12 years, included in placebo-controlled clinical trials are:

Adverse drug reactions (WHO-ART)	Cetirizine (n=1656)	Placebo (n =1294)
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Gastro-intestinal system disorders Diarrhoea	1.0 %	0.6 %
Psychiatric disorders Somnolence	1.8 %	1.4 %
Respiratory system disorders Rhinitis	1.4 %	1.1 %
General disorders and administration site conditions Fatigue	1.0 %	0.3 %

Post-marketing experience

In addition to the adverse effects reported during clinical studies and listed above, isolated cases of the following adverse drug reactions have been reported in post- marketing experience.

Undesirable effects are described according to MedDRA System Organ Class and by estimated frequency based on post-marketing experience.

Frequencies are defined as follows: Very common ($\geq 1/10$); common ($\geq 1/100$ to

$< 1/10$); uncommon ($\geq 1/1,000$ to $< 1/100$); rare ($\geq 1/10,000$ to $< 1/1,000$); very rare ($< 1/10,000$), not known (cannot be estimated from the available data)

Blood and lymphatic disorders:

Very rare: thrombocytopenia

Immune system disorders:

Rare: hypersensitivity, allergic reactions (see Skin and subcutaneous disorders)

Very rare: anaphylactic shock

Metabolism and nutrition disorders:

Not known: increased appetite

Psychiatric disorders:

Uncommon: agitation

Rare: aggression, confusion, depression, hallucination, insomnia Very rare: tics, suicidal ideation.

Not known: Nightmares

Nervous system disorders:

Uncommon: paraesthesia Rare: convulsions

Very rare: dysgeusia, syncope, tremor, dystonia, dyskinesia Not known: amnesia, memory impairment

Eye disorders:

Rare: abnormal involuntary eye movements.

Very rare: accommodation disorder, blurred vision, oculogyration

Ear and labyrinth disorders:

Not known: vertigo

Cardiac disorders:

Rare: tachycardia

Gastro-intestinal disorders:

Uncommon: diarrhoea

Hepatobiliary disorders:

Rare: abnormal hepatic function (increased transaminases, alkaline phosphatase, γ -GT and bilirubin)

Not known: hepatitis

Skin and subcutaneous tissue disorders:

Uncommon: skin rash, pruritus, Rare: urticaria

Very rare: fixed drug eruption, erythema multiforme, angioneurotic oedema

Not known: acute generalised exanthematous pustulosis

Musculoskeletal and connective tissue disorders:

Not known: arthralgia

Renal and urinary disorders:

Very rare: dysuria, enuresis, micturition difficulties Not known: urinary retention

General disorders and administration site conditions:

Uncommon: asthenia, malaise Rare: oedema

Investigations:

Rare: weight increased

Description of selected adverse reactions

After discontinuation of cetirizine, pruritus (intense itching) and/ or urticaria have been reported

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme at: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card on the Google Play or Apple App Store.

4.9 Overdose

There is limited experience of overdosing, 20 mg to a 2-year-old, 30 mg to a 3-year-old and 40 mg to an 11-year-old did not give any symptoms. 60 mg to a 4-year-old gave mild intoxication, 400 mg to a 14-year-old gave mild symptoms, while 400 to 500 mg to an adult gave no symptoms at all

Symptoms

Symptoms observed after an overdose of cetirizine are mainly associated with CNS effects or with effects that could suggest an anticholinergic effect.

Adverse events reported after an intake of at least 5 times the recommended daily dose are: confusion, diarrhoea, dizziness, fatigue, headache, malaise, mydriasis, pruritus, restlessness, sedation, somnolence, stupor, tachycardia, tremor, and urinary retention.

Management

There is no known specific antidote to cetirizine.

Should overdose occur, symptomatic or supportive treatment is recommended. Gastric lavage may be considered shortly after the ingestion of the drug.

The patient should be kept under clinical observation for at least four hours after ingestion, and the blood pressure, heart rate and vital signs monitored until stable. In symptomatic cases, ECG should be performed.

Oral activated charcoal (50 g for an adult, 10-15 g for a child) should be considered if more than 2.5 mg/kg cetirizine has been ingested within one hour

Cetirizine is not effectively removed by dialysis.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antihistamine for systemic use, piperazine derivative, ATC code: R06A E07

Mechanism of action

Cetirizine, a human metabolite of hydroxyzine, is a potent and selective antagonist of peripheral H₁-receptors. In vitro receptor binding studies have shown no measurable affinity for other than H₁-receptors.

Pharmacodynamic effects

In addition to its anti-H₁ effect, cetirizine was shown to display anti-allergic activities: at a dose of 10 mg once or twice daily, it inhibits the late phase recruitment of eosinophils, in the skin and conjunctiva of atopic subjects submitted to allergen challenge. Cetirizine inhibits cutaneous reactions in allergic individuals by VIP (Vasoactive Intestinal Polypeptide) and the P substance, neuropeptides that are considered involved in the allergic reaction. Effect is reached within 2 hours with a maximum effect after 4 hours, and remains for at least 24 hours.

Clinical efficacy and safety

Studies in healthy volunteers show that cetirizine, at doses of 5 and 10mg strongly inhibits the wheal and flare reactions induced by very high concentrations of histamine into the skin, but the correlation with efficacy is not established.

In a six-week, placebo-controlled study of 186 patients with allergic rhinitis and concomitant mild to moderate asthma, cetirizine 10 mg once daily improved rhinitis symptoms and did not alter pulmonary function. This study supports the safety of administering cetirizine to allergic patients with mild to moderate asthma.

In a placebo-controlled study, cetirizine given at the high daily dose of 60 mg for seven days did not cause statistically significant prolongation of QT interval.

At the recommended dosage, cetirizine has demonstrated that it improves the quality of life of patients with perennial and seasonal allergic rhinitis.

Paediatric population

In a 35-day study in children aged 5 to 12, no tolerance to the antihistaminic effect (suppression of wheal and flare) of cetirizine was found. When a treatment with cetirizine is topped after repeated administration, the skin recovers its normal reactivity to histamine within 3 days.

5.2 Pharmacokinetic properties

Absorption

The steady - state peak plasma concentrations is approximately 300 ng/ml and is achieved within 1.0 ± 0.5 h. The distribution of pharmacokinetic parameters such as peak plasma concentration (C_{max}) and area under curve (AUC), is unimodal.

The extent of absorption of cetirizine is not reduced with food, although the rate of absorption is decreased. The extent of bioavailability is similar when cetirizine is given as solutions, capsules or tablets.

Distribution

Cetirizine has not been given intravenously, therefore the bioavailability, and clearance is unknown.

The apparent volume of distribution is 0.50 l/kg. Plasma protein binding of cetirizine is 93 ± 0.3 %. Maximum plasma concentration is achieved within 1 hour. Cetirizine does not modify the protein binding of warfarin.

Biotransformation

Cetirizine does not undergo extensive first pass metabolism. Cetirizine is metabolised to a small extent with a known inactive main metabolite.

Elimination

Cetirizine is eliminated to 60% in unchanged form via the kidneys within 96 hours. The terminal half-life is approximately 10 hours in adults and 6 hours in children between ages of 6-12 years and no accumulation is observed for cetirizine following daily doses of 10 mg for 10 days. About two third of the dose are excreted unchanged in urine.

Linearity

Cetirizine exhibits linear kinetics over the range of 5 to 60mg.

Renal impairment: The pharmacokinetics of the drug was similar in patients with mild impairment (creatinine clearance higher than 40 ml/min) and healthy volunteers. Patients with moderate renal impairment had a 3-fold increase in half-life and 70 % decrease in clearance compared to healthy volunteers.

Patients on hemodialysis (creatinine clearance less than 7 ml/min) given a single oral 10 mg dose of cetirizine had a 3-fold increase in half-life and a 70 % decrease in clearance compared to normals. Cetirizine was poorly cleared by haemodialysis. Dosing adjustment is necessary in patients with moderate or severe renal impairment (see section 4.2).

Hepatic impairment: Patients with chronic liver diseases (hepatocellular, cholestatic, and biliary cirrhosis) given 10 or 20 mg of cetirizine as a single dose had a 50 % increase in half-life along with a 40 % decrease in clearance compared to healthy subjects.

Dosing adjustment is only necessary in patients with hepatic impairment if concomitant renal impairment is present.

Elderly: Following a single 10 mg oral dose, half-life increased by about 50 % and clearance decreased by 40 % in 16 elderly subjects compared to the younger subjects. The decrease in cetirizine clearance in these elderly volunteers appeared to be related to their decreased renal function.

Paediatric population: The half-life of cetirizine was about 6 hours in children of 6-12 years and 5 hours in children 2-6 years. In infants and toddlers aged 6 to 24 months, it is reduced to 3.1 hours

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on

conventional studies of safety pharmacology, repeated dose toxicity, toxicity to reproduction, genotoxicity or carcinogenicity.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Tablet core

Lactose monohydrate

Microcrystalline cellulose

Colloidal anhydrous silica

Maize starch

Talc

Magnesium stearate

Coating

Titanium dioxide (E171) Hypromellose

Lactose monohydrate Macrogol

Sodium citrate

6.2 Incompatibilities

Not applicable

6.3 Shelf life

3 years

6.4 Special precautions for storage

This medicinal product does not require any special storage conditions.

6.5 Nature and contents of container

Blister comprising of PVC/Aluminium foil with 7, 14 and 30 tablets.
Not all packs may be marketed.

6.6 Special precautions for disposal

No special requirements.

7 MARKETING AUTHORISATION HOLDER

Flamingo Pharma UK Ltd.
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8 MARKETING AUTHORISATION NUMBER(S)

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