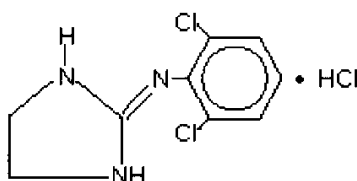


CATAPRES® 150 Tablets
CATAPRES® Ampoules
(clonidine hydrochloride)

NAME OF THE MEDICINE

Active ingredient: clonidine hydrochloride
Chemical name: 2,6-dichloro-N-2-imidazolidinylidene-benzenamine hydrochloride
Molecular formula: $C_9H_9N_3Cl_2.HCl$
Molecular weight: 266.56
CAS number: 4205-91-8
Laboratory designation: ST 155
Structural formula:



DESCRIPTION

Clonidine hydrochloride is a white or almost white, crystalline powder. It is soluble in ethanol, slightly soluble in chloroform and practically insoluble in ether. One gram is soluble in 13 mL of water (20°C).

CATAPRES 150 tablets contain 150 micrograms of clonidine hydrochloride.

CATAPRES 150 tablets contain the excipients maize starch, lactose monohydrate, calcium hydrogen phosphate, colloidal anhydrous silica, povidone and stearic acid.

CATAPRES ampoules contain 150 micrograms of clonidine hydrochloride/1 mL.

CATAPRES ampoules contain the excipients sodium chloride, hydrochloric acid and water for injections.

PHARMACOLOGY

Mode of action

The hypotensive effect of CATAPRES is produced mostly by its central effect or reducing sympathetic drive. In this respect CATAPRES differs from previously used anti-hypertensives.

CATAPRES neither depletes major catecholamine stores, nor acts as a ganglion blocking agent. The specific and different mode of action of CATAPRES leads to benefits such as reduced incidence of postural hypotension and only rarely an effect on libido.

The central action of CATAPRES is ascribed mainly to an action on the bulbar structures of the central nervous system, particularly the sympathetic cardio-accelerator and constrictor mechanisms. This central action leads to decreased sympathetic outflow. Peripheral effects of CATAPRES include both vasodilatation and vasoconstriction in various vascular beds, and alpha- and possible beta-adrenomimetic effects. A transient rise in blood sugar occurs following large doses of CATAPRES. In addition a small transient pressor effect (5-10 mm Hg systolic blood pressure) lasting approximately five minutes may occur following intravenous use. These effects reflect the alpha-adrenomimetic action of CATAPRES. The peripheral effects of CATAPRES generally require isolated organ type preparations for their demonstration, as in the intact animal or man, the central action predominates.

Pharmacokinetic Studies

Absorption and distribution

The pharmacokinetics of clonidine is dose-proportional in the range of 75-300 micrograms. Clonidine, the active ingredient of CATAPRES is well absorbed from the gastrointestinal tract and undergoes a minor first pass effect. Peak plasma concentrations are reached within 1-3 hours after oral administration. The duration of action varies from 6-12 hours, the duration of action being longer in the milder hypertensives. The plasma protein binding is 30-40%.

Metabolism and excretion

The terminal elimination half-life of clonidine has been found to range from 9-26 hours in patients with normal renal function. With impaired renal function it has been reported to increase to 18-48 hours.

The metabolic pathway of clonidine involves cleavage of the imidazolidine ring and the hydroxylation of the phenyl ring. Five metabolites have been identified in man and include para-hydroxy-clonidine and dichlorophenylguanidine.

Two thirds of an administered dose is excreted in the urine (about half of which is unchanged CATAPRES) and the remainder is excreted in the faeces.

The antihypertensive effect is reached at plasma concentrations between about 0.2 and 2.0 ng/mL in patients with normal renal function. The hypotensive effect is attenuated or decreases with plasma concentrations above 2.0 ng/mL.

Given intravenously CATAPRES is effective within five minutes, has a maximum hypotensive action within 20 to 30 minutes, and the effect lasts for several hours. Following intramuscular administration, CATAPRES is effective within 5 to 10 minutes. The maximum hypotensive effect is reached after 75 minutes and the duration of action is approximately 5 hours.

In a study designed to evaluate the pharmacokinetics of clonidine following administration of CATAPRES controlled release tablets (formulation not registered in Australia) in 30 patients (13 white patients, 6 black patients and 11 Hispanic patients), the pharmacokinetics was found to be similar between subjects from different racial groups.

The pharmacokinetics of clonidine is not influenced by food.

INDICATIONS

Oral: All grades of essential hypertension.
Renal hypertension.

Parenteral: Acute hypertensive crisis.
As an alternative to oral therapy where the oral route of administration is inappropriate.

CONTRAINDICATIONS

CATAPRES should not be used in patients with known hypersensitivity to the active ingredient, clonidine hydrochloride, and in patients with severe bradyarrhythmia resulting from either sick sinus syndrome or AV block of second or third degree.

In case of rare hereditary conditions that may be incompatible with an excipient of the product (please refer to Precautions) the use of the product is contraindicated.

PRECAUTIONS

Special care should be exercised in treating patients who have a history of depression or who have advanced cerebrovascular disease. Reduction of blood pressure in the latter circumstances may itself cause mental changes. Concurrent administration of tricyclic antidepressants may require adjustment of CATAPRES dosage.

Although a transient rise in blood sugar has been noted occasionally in humans treated with CATAPRES, which may be due to a pharmacologic alpha-adrenomimetic effect of the drug, no case of induced diabetes mellitus due to CATAPRES has been reported. Patients with clinical diabetes mellitus should be watched for a possible increase in their requirements of anti-diabetic therapy.

CATAPRES should be used with caution in patients with mild to moderate bradyarrhythmia such as low sinus rhythm, with disorders of cerebral or peripheral perfusion, polyneuropathy, and constipation.

No therapeutic effect of CATAPRES can be expected in the treatment of hypertension caused by pheochromocytoma.

Since CATAPRES, and its metabolites are extensively excreted in the urine, careful adjustment of dosage is required in patients with renal insufficiency (see Dosage and Administration, Renal insufficiency).

As with other anti-hypertensives, treatment with CATAPRES should be monitored particularly carefully in patients with heart failure or severe coronary heart disease.

Termination of oral therapy should be gradual (e.g. over more than 7 days).

Sudden cessation of antihypertensive therapy is known to be associated in some instances with rebound hypertension which in some cases may be severe. This may occur with CATAPRES particularly in patients receiving more than the maximum recommended dose of 900 micrograms per day.

Following sudden discontinuation of CATAPRES after prolonged treatment with high doses, restlessness, palpitations, rapid rise in blood pressure, nervousness, tremor, headache or nausea have been reported.

An excessive rise in blood pressure following discontinuation of CATAPRES therapy can be reversed by intravenous phentolamine (see Interactions with other medicines).

If long-term treatment with a β -blocker needs to be interrupted, the β -blocker should be gradually phased out first, then clonidine.

Patients who wear contact lenses should be warned that treatment with CATAPRES may cause decreased lacrimation.

CATAPRES 150 tablets contain 205.5 mg of lactose monohydrate per maximum recommended daily dose.

Patients with the rare hereditary conditions of galactose intolerance e.g. galactosaemia should not take this medicine.

Use in children and adolescents

The use and the safety of clonidine in children and adolescents has little supporting evidence in randomised controlled trials and therefore cannot be recommended for use in this population.

In particular, when clonidine is used off-label concomitantly with methylphenidate in children with ADHD, serious adverse reactions, including death, have been observed. Therefore, clonidine in this combination is not recommended.

Anaesthesia

Abrupt withdrawal of CATAPRES is undesirable. Limited evidence suggests that it is unnecessary to withdraw CATAPRES before anaesthesia and that maintenance of therapy is preferable to abrupt withdrawal. In the peri-operative period CATAPRES can, where necessary, be administered parenterally until oral therapy is resumed.

Where therapy with CATAPRES is to be suspended before operation, withdrawal should be gradual (i.e. over more than 7 days) and monitored by regular observation of blood pressure.

Carcinogenicity

The carcinogenic potential of clonidine has not been assessed in an adequate range of studies. In rats, dietary administration of clonidine at doses up to 1.2 mg/kg/day (males) or 1.5 mg/kg/day (females) did not cause carcinogenic effects. These doses are 10-14 times the maximum recommended human daily dose of clonidine, based on body surface area.

Genotoxicity

Comprehensive investigations have not been performed to assess the potential genotoxic effects of clonidine. Clonidine showed no activity in the Ames test for mutagenicity or mouse micronucleus test for clastogenicity.

Effects on Fertility

Clinical studies on the effect of clonidine on human fertility have not been conducted.

Clonidine had no effect on fertility in male or female rats when administered orally at doses up to 0.15 mg/kg/day (35% higher than the maximum recommended total daily dose of clonidine in humans, based on body surface area).

Use in Pregnancy (Category B3)

Clonidine hydrochloride has not shown teratogenic potential when tested in rats, but in some circumstances the incidence of embryonic and perinatal deaths was increased with doses comparable to those used clinically for antihypertensive therapy.

There are limited data from the use of clonidine in pregnant women, but the experience with clonidine hydrochloride since marketing does not include any positive evidence of adverse effect on the foetus. Since this experience cannot exclude such an effect, clonidine hydrochloride should be used during pregnancy only when the benefit clearly justifies the possible risk to the foetus.

Clonidine passes the placental barrier, and may lower the heart rate of the foetus. There is no adequate experience regarding the long-term effects of prenatal exposure.

Clonidine hydrochloride may also induce transitory elevation of blood glucose and impairment of glucose tolerance. Children born to mothers treated with clonidine hydrochloride during pregnancy should be specifically examined for changes in glucose metabolism.

During pregnancy the oral forms of clonidine are preferred. Intravenous injection of clonidine should be avoided.

Non-clinical studies in rats do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see Effects on Fertility).

Postpartum a transient rise in blood pressure in the newborn cannot be excluded.

Use in Lactation

Clonidine is excreted in human milk. As the effect on the new-born is not known, infants born to mothers being treated with CATAPRES should not be breast fed.

Effects On Ability to Drive and Use Machines

No studies on the effects on the ability to drive and use machines have been performed.

However, patients should be advised that they may experience undesirable effects such as dizziness, sedation and accommodation disorder during treatment with CATAPRES. Therefore, caution should be recommended when driving a car or operating machinery. If patients experience the above mentioned side effects they should avoid potentially hazardous tasks such as driving or operating machinery.

INTERACTIONS WITH OTHER MEDICINES

If the patient is on antihypertensive therapy, care should be taken as even a small dose of clonidine may further lower blood pressure and necessitate adjustment of the antihypertensive regime.

When CATAPRES is used as an antihypertensive agent additional clonidine for the prophylaxis of migraine or the alleviation of symptoms in menopausal flushing should not be

prescribed. CATAPRES may potentiate the effects of alcohol, sedatives, hypnotics or other centrally active substances.

Although retinal, lens or corneal damage have not been detected with clonidine therapy, follow up procedures, such as ophthalmoscopy, are recommended.

Substances which raise blood pressure or induce a sodium and water retaining effect such as nonsteroidal anti-inflammatory drugs can reduce the therapeutic effect of clonidine.

Substances with α_2 -adrenergic receptor blocking properties, such as phentolamine, may abolish the α_2 -adrenergic receptor mediated effects of clonidine in a dose-dependent way.

Concomitant administration of drugs with a negative chronotropic or dromotropic effect such as β -blockers or digitalis glycosides can cause or potentiate bradycardic rhythm disturbances.

It cannot be ruled out that concomitant administration of a β -blocker will cause or potentiate peripheral vascular disorders.

The antihypertensive effect of clonidine may be reduced or abolished and orthostatic regulation disturbances may be provoked or aggravated by concomitant administration of tricyclic antidepressants or neuroleptics with α -receptor blocking effects.

Based on observations in patients in a state of delirium alcoholicum, it has been suggested that high intravenous doses of clonidine may increase the arrhythmogenic potential (QT-prolongation, ventricular fibrillation) of high intravenous doses of haloperidol.

ADVERSE EFFECTS

The following adverse events (regardless of causality) and incidences are based on a review of 22 clinical studies comprising 640 patients treated with clonidine hydrochloride.

Endocrine disorders:

$\geq 0.01\%$ and $< 0.1\%$ gynaecomastia

Psychiatric disorders:

$\geq 1\%$ and $< 10\%$ depression, sleep disorder

$\geq 0.1\%$ and $< 1\%$ delusional perception, hallucination, nightmare

Not known confusional state, libido decreased

Nervous system disorders:

$\geq 10\%$ dizziness, sedation

$\geq 1\%$ and $< 10\%$ headache

$\geq 0.1\%$ and $< 1\%$ paraesthesia

Eye disorder:

$\geq 0.01\%$ and $< 0.1\%$ lacrimation decreased

Not known accommodation disorder

<i>Cardiac disorders:</i>	
≥0.1% and <1%	sinus bradycardia
≥0.01% and <0.1%	atrioventricular block
Not known	bradyarrhythmia
<i>Vascular disorders:</i>	
≥10%	orthostatic hypotension
≥0.1% and <1%	Raynaud's phenomenon
<i>Respiratory, thoracic and mediastinal disorders:</i>	
≥0.01% and <0.1%	nasal dryness
<i>Gastrointestinal disorders:</i>	
≥10%	dry mouth
≥1% and <10%	constipation, nausea, salivary gland pain, vomiting
≥0.01% and <0.1%	colonic pseudo-obstruction
<i>Skin and subcutaneous tissue disorders:</i>	
≥0.1% and <1%	pruritus, rash, urticaria
≥0.01% and <0.1%	alopecia
<i>Reproductive system and breast disorders:</i>	
≥1% and <10%	erectile dysfunction
<i>General disorders and administration site conditions:</i>	
≥1% and <10%	fatigue
≥0.1% and <1%	malaise
<i>Investigations:</i>	
≥0.01% and <0.1%	blood glucose increased

Most adverse effects are mild and tend to diminish with continued therapy.

Occasional reports of abnormal liver function tests and cases of hepatitis have also been reported.

DOSAGE AND ADMINISTRATION

The dosage recommendations are as follows:

Tablets: 75 micrograms (half a tablet) two or three times a day. Increase the daily dosage by half-tablet (75 micrograms) increments until desired control of blood pressure is achieved. In those patients to whom CATAPRES is given as sole therapy, there may be in the early months of treatment a need to gradually increase dosage to achieve optimal control. Dosage adjustment by small increments is desirable up to a maximum recommended dose of 900 micrograms per day. In the early stages of treatment, some associated fluid retention may be minimised by the concomitant use of a thiazide diuretic.

Maintenance: 150 micrograms (one tablet) to 300 micrograms (two tablets) three times a day.

In impaired renal and hepatic function the half-life is prolonged and the dosage regimen should be monitored carefully.

The hypotensive effect of CATAPRES is dose dependent. It is usual to titrate the dose of oral CATAPRES to satisfy the requirements of each patient.

CATAPRES alone may provide full control of blood pressure. The concomitant use of a thiazide diuretic is a valuable adjunct in all but mild cases of hypertension.

Ampoules: Subcutaneous or intramuscular injection of CATAPRES should only be administered to patients in a lying position.

One to two ampoules (150-300 micrograms) by intramuscular injection undiluted, or given intravenously in 10 mL of normal saline over five minutes. May be repeated at intervals of 3 to 6 hours as necessary. Following intravenous injection, an initial pressor phase of 5-10 mm Hg lasting approximately 5 minutes may occur. This effect can be lessened by slow administration. As clonidine is metabolised in the liver and excreted mainly by the kidneys, any hepatic or renal impairment may require a reduction in dosage. CATAPRES may be given in combination with guanethidine, alpha methyl dopa or other antihypertensives to provide effective control of blood pressure in refractory cases. In this way the dose of each individual drug may be reduced and side effects minimised.

CATAPRES ampoules contain 0.145 mmol sodium (3.3 mg) per ampoule.

Renal insufficiency

Dosage must be adjusted:

- according to the individual antihypertensive response which can show high variability in patients with renal insufficiency
- according to the degree of renal impairment.

Careful monitoring is required. Since only a minimal amount of clonidine is removed during routine haemodialysis, there is no need to give supplemental clonidine following dialysis.

OVERDOSAGE

For information on the management of overdose, contact the Poisons Information Centre on 13 11 26 (Australia).

Symptoms

The most important features of clonidine overdose are likely to be bradycardia, sedation, respiratory depression including apnoea and somnolence including coma. Blood pressure response may be variable and may vary from severe hypotension (due to central sympathetic inhibition and vagal stimulation) to severe hypertension (due to direct alpha agonist activity). Treatment must therefore be appropriate to the clinical features (i.v. atropine followed by a pressor amine if necessary in patients with hypotension or an alpha blocker such as phentolamine for patients with hypertension). Other features which may be seen include weakness, vomiting, diminished or absent reflexes, skin pallor, hypothermia, cardiac arrhythmias and constricted pupils with poor reaction to light.

Management

General supportive measures with regular checks of pulse, B.P., ECG, blood sugar and body temperature should be undertaken. The blood pressure should be monitored carefully for 48 hours following the overdosage, as a later hypertensive phase may be associated with declining blood levels of clonidine.

PRESENTATION AND STORAGE CONDITIONS

CATAPRES 150 Tablets are scored, white, compressed tablets, impressed with the symbol 15C/15C on one side and with the company symbol on the reverse side. Each tablet contains 150 micrograms of clonidine hydrochloride.

CATAPRES 150 tablets are available in blister packs of 100 tablets.

CATAPRES 150 tablets should be stored below 25°C.

CATAPRES ampoules 1 mL contains 150 micrograms of clonidine hydrochloride.

CATAPRES ampoules are available in boxes of 5 ampoules.

CATAPRES ampoules should be stored below 30°C.

NAME AND ADDRESS OF THE SPONSOR

Boehringer Ingelheim Pty Limited
ABN 52 000 452 308
78 Waterloo Road
NORTH RYDE NSW 2113

POISON SCHEDULE OF THE MEDICINE

S4 – Prescription Only Medicine

DATE OF FIRST INCLUSION IN THE AUSTRALIAN REGISTER OF THERAPEUTIC GOODS (THE ARTG)

CATAPRES 150 tablets: 9 August 1968
CATAPRES ampoules: 4 February 1972

DATE OF MOST RECENT AMENDMENT

7 November 2016