

Cardiolite

(Atenolol U.S.P.)

کارڈیولائٹ
(اٹینولول یو.ایس.پی.)

COMPOSITION

Each **Cardiolite** 25 mg film coated tablet contains 25 mg of Atenolol.
Each **Cardiolite** 50 mg film coated tablet contains 50 mg of Atenolol.
Each **Cardiolite** 100 mg film coated tablet contains 100 mg of Atenolol.

CLINICAL PHARMACOLOGY

Cardiolite is a beta1-selective (cardioselective) beta-adrenergic receptor blocking agent without membrane stabilizing or intrinsic sympathomimetic (partial agonist) activities. This preferential effect is not absolute, however, and at higher doses, **Cardiolite** inhibits beta2-adrenoreceptors, chiefly located in the bronchial and vascular musculature.

MECHANISM OF ACTION

The mode of action of Atenolol in the moderation of hypertension is still not fully understood although its effects on plasma renin and cardiac output are probably of primary importance. Atenolol reduces cardiac output, alters baroreceptor reflex sensitivity and blocks peripheral adrenoreceptors. Atenolol has been found to reduce systolic and diastolic blood pressures by about 15% in patients with mild to moderate hypertension. Its beta-adrenoceptor antagonist properties reduce cardiac work. This property improves exercise tolerance in anginal patients.

PHARMACOKINETICS

Absorption

Atenolol is not completely absorbed from the gastrointestinal tract, its oral bioavailability being of the order 50-60%.

Distribution

It is approximately 5% bound to plasma proteins. The plasma half-life of Atenolol is about 6-9 hours. However, the duration of therapeutic effect is much longer than this, allowing once daily dosing.

Excretion

Atenolol is excreted largely unchanged in the urine and its dosage should be adjusted in renal failure.

INDICATIONS

Hypertension

Cardiolite may be used alone or concomitantly with other antihypertensive agents, particularly with a thiazide-type diuretic.

Angina Pectoris Due to Coronary Atherosclerosis

Cardiolite is indicated for the long-term management of patients with angina pectoris.

Acute Myocardial Infarction

Cardiolite is indicated in the management of hemodynamically stable patients with definite or suspected acute myocardial infarction to reduce cardiovascular mortality. Treatment can be initiated as soon as the patient's clinical condition allows.

DOSAGE AND ADMINISTRATION

Hypertension

The initial dose of **Cardiolite** is 50 mg given as one tablet a day either alone or added to diuretic therapy. The full effect of this dose will usually be seen within one to two weeks. If an optimal response is not achieved, the dosage should be increased to **Cardiolite** 100 mg given as one tablet a day. Increasing the dosage beyond 100 mg a day is unlikely to produce any further benefit.

Angina Pectoris

The initial dose of **Cardiolite** is 25-50 mg given as one tablet a day. If an optimal response is not achieved within one week, the dosage should be increased to **Cardiolite** 100 mg given as one tablet a day. Some patients may require a dosage of 200 mg once a day for optimal effect.

Acute Myocardial Infarction

Following treatment with intravenous Atenolol, **Cardiolite** Tablets 50 mg should be initiated 10 minutes after the last intravenous dose followed by another 50 mg oral dose 12 hours later. Thereafter, **Cardiolite** can be given orally either 100 mg once daily or 50 mg twice a day for a further 6-9 days or until discharge from the hospital. If bradycardia or hypotension requiring treatment or any other untoward effects occur, **Cardiolite** should be discontinued.

Elderly Patients or Patients with Renal Impairment

In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range. Atenolol excretion would be expected to decrease with advancing age. Evaluation of patients with hypertension or myocardial infarction should always include assessment of renal function.

The following maximum oral dosages are recommended for elderly, renally-impaired patients and for patients with renal impairment due to other causes:

Creatinine Clearance (mL/min/1.73m2)	Atenolol Elimination Half-Life (h)	Maximum Dosage
15-35	16-27	50 mg daily
<15	>27	25 mg daily

Patients on hemodialysis should be given 25 mg or 50 mg after each dialysis; this should be done under hospital supervision as marked falls in blood pressure can occur.

Cessation of Therapy in Patients with Angina Pectoris

If withdrawal of **Cardiolite** therapy is planned, it should be achieved gradually and patients should be carefully observed and advised to limit physical activity to a minimum.

UNDESIRABLE EFFECTS

Cardiovascular: Heart failure, heart block, bradycardia, hypotension, dizziness, peripheral vasoconstriction with coldness of the extremities (including exacerbation of intermittent claudication and Raynaud's phenomenon).

Eye: Visual disturbances including blurred vision, sore eyes, dry eyes (reversible on withdrawal; discontinuance of the drug should be considered if any such reaction is not otherwise explicable), conjunctivitis.

Gastrointestinal: Nausea, vomiting, diarrhoea, constipation and abdominal cramps, sclerosing peritonitis and retroperitoneal fibrosis.

General: Fatigue, headache, dry mouth, sleep disturbances of the type noted with other beta-blockers have been reported rarely. An increase in Anti Nuclear Antibodies has been seen: its clinical relevance is not clear.

Haemopoietic: Thrombocytopenia, eosinophilia and leucopenia including agranulocytosis.

Hepatic: Elevated liver enzymes and/or bilirubin

Metabolic: Lupus-like syndrome. Hyperglycaemia or hypoglycaemia. Non-diabetic patients susceptible to hypoglycaemia include those on regular dialysis, and long term patients who are nutritionally compromised or have liver disease. Atenolol may increase serum triglyceride levels.

Musculoskeletal: Myopathies including muscle cramps, arthralgia.

Nervous system: Paraesthesia, peripheral neuritis.

Psychiatric: Depression, psychosis, hallucinations, confusion, anxiety and nervousness.

Respiratory: Bronchospasm, pneumonitis, pulmonary fibrosis and pleurisy.

Reproductive: Impotence, Peyronie's disease;

Skin: Purpura, pruritus, reversible alopecia, skin rashes (reversible on withdrawal; discontinuance of the drug should be considered if any such reaction is not otherwise explicable), psoriasiform rash or exacerbation of psoriasis
Withdrawal: Sudden cessation of therapy with a beta-blocker can cause angina, myocardial infarction, ventricular arrhythmias and sudden cardiac death.

DRUG INTERACTIONS

- Calcium channel blockers may also have an additive effect when given with **Cardiolite**.
- Disopyramide has been associated with severe bradycardia, asystole and heart failure when administered with beta blockers.
- Amiodarone is an antiarrhythmic agent with negative chronotropic properties that may be additive to those seen with beta blockers.
- Beta blockers may exacerbate the rebound hypertension which can follow the withdrawal of clonidine. If the two drugs are co-administered, the beta blocker should be withdrawn several days before the gradual withdrawal of clonidine. If replacing clonidine by beta-blocker therapy, the introduction of beta blockers should be delayed for several days after clonidine administration has stopped.
- Concomitant use of prostaglandin synthase inhibiting drugs, eg, indomethacin, may decrease the hypotensive effects of beta blockers.
- While taking beta blockers, patients with a history of anaphylactic reaction to a variety of allergens may have a more severe reaction on repeated challenge, either accidental, diagnostic or therapeutic. Such patients may be unresponsive to the usual doses of epinephrine used to treat the allergic reaction.
- Both digitalis glycosides and beta-blockers slow atrioventricular conduction and decrease heart rate. Concomitant use can increase the risk of bradycardia.

SPECIAL WARNINGS AND PRECAUTIONS FOR USE

- Care should be taken when using beta-blockers in patients with poor cardiac reserve. Myocardial contractility must be maintained and signs of failure controlled with digitalis and diuretics.
- Treatment should not be discontinued abruptly in patients on long-term therapy, but should be discontinued over one to two weeks.
- If a beta-blocker is withdrawn prior to surgery it should be discontinued for at least 24 hours, if the patient is being anaesthetised. If beta blockers are not discontinued before anaesthesia, the anaesthetist should be made aware of the beta-blocker therapy. A drug such as atropine may be given to counter increases in vagal tone. Anaesthetics causing myocardial depression such as ether, halothane and enflurane should be avoided.
- Atenolol reduces heart rate. In instances when symptoms may be attributable to the slow heart rate, the dose should be reduced. Beta-blockers should be used with caution in first degree AV block.
- Beta-blockers may increase both the sensitivity towards allergens and seriousness of anaphylactic reactions and may also reduce the response to adrenaline. They may unmask myasthenia gravis or potentiate a myasthenic condition.
- Patients with psoriasis should only be given beta-blockers after careful consideration, as psoriasis may be aggravated.
- Atenolol should be used with caution in diabetics subject to frequent episodes of hypoglycaemia. Symptoms of hypoglycaemia and of hyperthyroidism may be masked.
- If the use of Atenolol in patients with asthma or a history of obstructive airways disease is unavoidable, the risk of inducing bronchospasm should be appreciated and appropriate precautions taken. If bronchospasm occurs, this will usually be reversed by commonly used bronchodilators such as salbutamol or isoprenaline.
- In patients with renal impairment or hepatic dysfunction, Atenolol should be used with caution and reduction of dosage should be considered.

PEDIATRIC USE

Safety and effectiveness in pediatric patients have not been established.

PREGNANCY & LACTATION

Pregnancy Category D.

Beta-blockers reduce placental perfusion, which may result in intrauterine foetal death, immature and premature deliveries. In addition, adverse effects (especially hypoglycaemia and bradycardia) may occur in foetus and neonate in the postnatal period.

Atenolol is excreted in breast milk. Breast-feeding can be undertaken but infants should be monitored for bradycardia, respiratory depression, hypotension and hypoglycaemia.

Caution should be exercised when **Cardiolite** is administered during pregnancy or to a woman who is breast-feeding.

CONTRAINDICATIONS

Cardiolite is contraindicated in sinus bradycardia, heart block greater than first degree, cardiogenic shock, and overt cardiac failure.

Cardiolite is contraindicated in those patients with a history of hypersensitivity to the Atenolol or any of the drug product's components.

PRESENTATION

Cardiolite tablet 25mg:	10 x 10's / pack
Cardiolite tablet 25mg:	3 x 10's / pack
Cardiolite tablet 50mg:	10 x 10's / pack
Cardiolite tablet 50mg:	3 x 10's / pack
Cardiolite tablet 100mg:	10 x 10's / pack
Cardiolite tablet 100mg:	3 x 10's / pack

DOSAGE

As directed by the physician.

INSTRUCTIONS

Store below 30°C.
Protect from sunlight and moisture.
Keep out of reach of children.

Detailed prescribing information is available on request.

Manufactured by:
AsianContinental (Pvt.) Ltd.
D-32, S.I.T.E. II, Super Highway,
Karachi-Pakistan.

Under license from:
YUNG SHIN PHARMACEUTICAL IND. CO. LTD.
Tachia, Taiwan, R.O.C.



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