

Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Atenolol 100 mg Tablets.

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains atenolol 100 mg.

Excipients with known effect:

Each tablet contains lactose monohydrate 61.8mg.

For the full list of excipients, see section 6.1

3 PHARMACEUTICAL FORM

Tablet

White, round biconvex tablet with a breakline and marked "C25".

The breakline is only to facilitate breaking for ease of swallowing and not to divide into equal doses.

4 CLINICAL PARTICULARS

4.1 Therapeutic Indications

As a beta-adrenoceptor blocker for the treatment of essential hypertension.

Management of angina pectoris.

Control of cardiac arrhythmias.

In early intervention in the acute phase of myocardial infarction and for long-term prophylaxis after recovery from myocardial infarction.

4.2 Posology and method of administration

Adults

Control of hypertension:

Most patients respond to 50 mg daily given orally as a single dose. If necessary, the dose may be increased to 100 mg daily. The effect will be fully established after one to two weeks. A further reduction in blood pressure may be achieved by combining Atenolol 25 mg with other antihypertensive agents.

Management of angina pectoris:

Most patients with angina pectoris will respond to 100 mg daily given orally as a single dose or as 50 mg given twice a day. It is unlikely that additional benefit will be gained by increasing the dose.

Control of cardiac arrhythmias:

An oral maintenance dose of atenolol is 50 – 100 mg, given once daily.

Early and late intervention after myocardial infarction:

Oral treatment with atenolol can be initiated in haemodynamically stable patients with 50 mg twice daily, and then 100 mg once daily. During the early phase of acute myocardial infarction, treatment with atenolol should be initiated in hospital under close monitoring. If bradycardia and/or hypotension requiring treatment, or any other untoward effects occur, atenolol should be discontinued.

Atenolol 100 mg daily is recommended for long-term prophylaxis of myocardial infarction.

Children:

There is no paediatric experience with atenolol and for this reason it is not recommended for use in children.

Older people:

Dosage requirement may be reduced, especially in patients with impaired renal function.

Renal Failure:

Since atenolol is excreted via the kidneys dosage should be adjusted in cases of severe impairment of renal function.

No significant accumulation of atenolol occurs in patients who have a creatinine clearance greater than 35 ml/min/1.73 m² (normal range is 100-150 ml/min/1.73m²).

For patients with a creatinine clearance of 15-35 ml/min/1.73m² (equivalent to serum creatinine of 300-600 micromol/litre), the dose should be 50 mg daily.

For patients with a creatinine clearance of less than 15 ml/min/1.73 m² (equivalent to serum creatinine of greater than 600 micromol/litre), the dose should be 25 mg daily or 50 mg on alternative days.

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

Administration

Route of administration: Oral

4.3 Contraindications

Atenolol as well as other beta-blockers should not be used in patients with any of the following: known hypersensitivity to the active substance or any of the excipients listed in section 6.1; bradycardia, cardiogenic shock, hypotension, metabolic acidosis, severe peripheral arterial circulatory disturbances, 2nd and 3rd degree heart block, sick sinus syndrome, untreated pheochromocytoma, uncontrolled heart failure.

4.4 Special warnings and precautions for use

Atenolol as with other beta-blockers:

- Should not be withdrawn abruptly. The dosage should be withdrawn gradually over a period of 7-14 days, to facilitate a reduction in beta-blocker dosage. Patients should be followed during withdrawal, especially those with ischaemic heart disease.
- When a patient is scheduled for surgery, and a decision is made to discontinue beta-blocker therapy, this should be done at least 24 hours prior to the procedure. The risk-benefit assessment of stopping beta-blockade should be made for each patient. If treatment is continued, an anaesthetic with little negative inotropic activity should be selected to minimise the risk of myocardial depression. The patient may be protected against vagal reactions by intravenous administration of atropine.
- Although contraindicated in uncontrolled heart failure (see Section 4.3), may be used in patients whose signs of heart failure have been controlled. Caution must be exercised in patients whose cardiac reserve is poor.
- May increase the number and duration of angina attacks in patients with Prinzmetal's angina due to unopposed alpha-receptor mediated coronary artery vasoconstriction. Atenolol is a beta₁-selective beta-blocker; consequently, its use may be considered although utmost caution must be exercised.
- Although contraindicated in severe peripheral arterial circulatory disturbances (see section 4.3), may also aggravate less severe peripheral arterial circulatory disturbances.
- Due to its negative effect on conduction time, caution must be exercised if it is given to patients with first-degree heart block.
- May mask the symptoms of hypoglycaemia, in particular, tachycardia.
- May mask the signs of thyrotoxicosis.

- Will reduce heart rate as a result of its pharmacological action. In the rare instances when a treated patient develops symptoms which may be attributable to a slow heart rate and the pulse rate drops to less than 50-55 bpm at rest, the dose may be reduced.
- May cause a more severe reaction to a variety of allergens when given to patients with a history of anaphylactic reaction to such allergens. Such patients may be unresponsive to the usual doses of adrenaline (epinephrine) used to treat the allergic reactions.
- May cause a hypersensitivity reaction including angioedema and urticaria.
- May cause an increase in airways resistance in asthmatic patients. Atenolol is a beta₁-selective beta-blocker; consequently its use may be considered although utmost caution must be exercised. If increased airways resistance does occur, atenolol should be discontinued and bronchodilator therapy (e.g. salbutamol) administered if necessary.
- Should only be given to patients with psoriasis after careful consideration, as psoriasis may be aggravated.
- Since Atenolol is excreted via the kidneys, dosage should be reduced in patients with a creatine clearance of below 35 ml/min/1.73 m².
- As with other beta-blockers, in patients with a pheochromocytoma, an alpha-blocker should be given concomitantly.

4.5 Interaction with other medicinal products and other forms of interaction

Adrenergic neurone-blocking agents

Adrenergic-neurone blocking agents such as guanethidine, reserpine, diuretics and anti-hypertensive agents, including the vasodilator group, will have an additive effect on the hypotensive action of the drug.

Anaesthetic agents

Caution must be exercised when using anaesthetic agents with atenolol. The anaesthetist should be informed and the choice of anaesthetic should be an agent with as little negative inotropic activity as possible. Use of beta-blockers with anaesthetic drugs may result in attenuation of the reflex tachycardia and increase the risk of hypotension. Anaesthetic agents causing myocardial depression are best avoided.

Antiarrhythmic agents (Class I)

Class I anti-arrhythmic drugs (e.g. disopyramide) and amiodarone may have a potentiating effect on atrial-conduction time and induce negative inotropic effect.

Calcium channel blockers

Combined use of beta-blockers and calcium channel blockers with negative inotropic effects e.g. verapamil, diltiazem can lead to an exaggeration of these effects particularly in patients with impaired ventricular function and/or sino-atrial or atrio-ventricular conduction abnormalities. This may result in severe hypotension, bradycardia and cardiac failure. Neither the beta-blocker nor the calcium channel blocker should be administered intravenously within 48 hours of discontinuing the other.

Clonidine

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 discontinuing clonidine. If replacing clonidine by beta-blocker therapy, the introduction of beta-blockers should be delayed for several days after clonidine administration has stopped. (See also prescribing information for clonidine).

Digitalis glycosides

Digitalis glycosides, in association with beta-blockers, may increase atrioventricular conduction time.

Dihydropyridines

Concomitant therapy with dihydropyridines e.g. nifedipine, may increase the risk of hypotension, and cardiac failure may occur in patients with latent cardiac insufficiency.

Insulin and oral antidiabetic drugs

Concomitant use with insulin and oral antidiabetic drugs may lead to the intensification of the blood sugar lowering effects of these drugs. Symptoms of hypoglycaemia, particularly tachycardia, may be masked (*see section 4.4*).

Myocardial depressants

The beta-blocker should only be used with caution in patients who are receiving concomitant myocardial depressants such as halogenated anaesthetics, lidocaine, procainamide and beta-adrenoceptor stimulants such as noradrenaline (norepinephrine).

Prostaglandin synthetase-inhibiting drugs

Concomitant use of prostaglandin synthetase inhibiting drugs, e.g. ibuprofen, indometacin, may decrease the hypotensive effects of beta-blockers.

Sympathomimetic agents

Concomitant use of sympathomimetic agents, e.g. adrenaline (epinephrine), may counteract the effect of beta-blockers.

4.6 Fertility, pregnancy and lactation

Pregnancy: Atenolol crosses the placental barrier and appears in the cord blood. No studies have been performed on the use of atenolol in the first trimester and the possibility of foetal injury cannot be excluded. Atenolol has been used under close supervision for the treatment of hypertension in the third trimester. Administration of atenolol to pregnant women in the management of mild to moderate hypertension has been associated with intra-uterine growth retardation. The use of atenolol in women who are, or may become, pregnant requires that the anticipated benefit be weighed against the possible risks, particularly in the first and second trimesters.

Breastfeeding: There is significant accumulation of atenolol in breast milk.

Neonates born to mothers who are receiving atenolol at parturition or breast-feeding may be at risk for hypoglycaemia and bradcardia. Caution should be exercised when Atenolol is administered during pregnancy or to a woman who is breast feeding.

4.7 Effects on ability to drive and use machines

Use is unlikely to result in any impairment of the ability of patients to drive or operate machinery. However it should be taken into account that occasionally dizziness or fatigue may occur.

4.8 Undesirable effects

Atenolol is well tolerated. In clinical studies, the undesired events reported are usually attributable to the pharmacological actions of atenolol.

The following undesired events, listed by body system, have been reported with the following frequencies: very common ($\geq 10\%$), common (1-9.9%), uncommon (0.1-0.9%), rare (0.01-0.09%), very rare ($< 0.01\%$) including isolated reports, not known (cannot be estimated from the available data).

Cardiac disorders

Common: Bradycardia, atrioventricular conduction disturbances or exacerbation of cardiac insufficiency

Rare: Heart failure deterioration, precipitation of heart block.

In patients with angina pectoris, worsening of angina attacks cannot be ruled out to occur in isolated instances. There have been reports of worsening complaints in patients with peripheral arterial occlusive disease (including those with Raynaud's syndrome).

Vascular disorders:

Common: Cold extremities.

Rare: Postural hypotension which may be associated with syncope, intermittent claudication may be increased if already present, in susceptible patients Raynaud's phenomenon.

Nervous system disorders:

Common: disturbances of the central nervous system such as fatigue, sweating, drowsiness, or increased dream activity (especially at the start of therapy)

Rare: Dizziness, headache, paraesthesia.

Psychiatric disorders:

Uncommon: Sleep disturbances of the type noted with other beta-blockers.
 Rare: Mood changes, nightmares, confusion, psychoses and hallucinations.
 Very rare (incl. isolated reports): Reduced libido, impotence.

Gastrointestinal disorders:

Common: Gastrointestinal disturbances.
 Rare: Dry mouth.

Investigations:

Uncommon: Elevations of transaminase levels.
 Very rare: An increase in ANA (Antinuclear Antibodies) has been observed, however the clinical relevance of this is not clear.

Hepato-biliary disorders:

Rare: Hepatic toxicity including intrahepatic cholestasis.

Blood and lymphatic system disorders:

Rare: Purpura, thrombocytopenia.

Skin and subcutaneous tissue disorders:

Common: Allergic skin reactions (erythema, pruritis, exanthema).
 Rare: Alopecia, psoriasiform skin reactions, exacerbation of psoriasis, skin rashes.
 Not known: Hypersensitivity reactions, including angioedema and urticaria.

Eye disorders:

Common: Conjunctivitis
 Rare: Dry eyes, visual disturbances.

Reproductive system and breast disorders:

Rare: Impotence.

Respiratory, thoracic and mediastinal disorders:

Rare: Bronchospasm may occur in patients with bronchial asthma or a history of asthmatic complaints.

General disorders and administration site conditions:

Common: Fatigue.

Musculoskeletal and connective tissue disorder

Uncommon: Muscle weakness, muscle cramps.
 Not known: Lupus-like syndrome

Endocrine disorders

In patients with hyperthyroidism, the clinical signs of thyrotoxicosis (e.g., tachycardia, tremor) may be masked during atenolol therapy.

Metabolism and nutrition disorders:

Uncommon: Latent diabetes mellitus becoming manifest or manifest diabetes mellitus becoming worse. Patients following an absolute diet for prolonged periods of time and those subject to great physical exertion may experience hypoglycaemic episodes when using atenolol at the same time. The warning signs of hypoglycaemia (tachycardia and tremor in particular) may be masked.

Atenolol therapy may be associated with lipid metabolism disruptions. While total cholesterol was usually normal, HDL cholesterol was reduced and plasma triglycerides were elevated.

Precautionary notes:

As patients with pre-existing severe renal insufficiency have, in isolated instances, experienced deterioration of kidney function during treatment with other beta-receptor blocking drugs, atenolol therapy should be accompanied by appropriate kidney function monitoring.

Reports of elevated liver enzymes have been noted with the use of atenolol but they are rare. Other beta-blocking drugs have been associated with severe liver damage.

As other beta-receptor blocking drugs have been associated with thrombocytopenic or non-thrombocytopenic purpura, patients on atenolol therapy should be watched for signs of purpura.

Discontinuance of the drug should be considered if, according to clinical judgement, the well-being of the patient is adversely affected by any of the above reactions.

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 HPRA Pharmacovigilance, Earlsfort Terrace, IRL - Dublin 2; Tel: +353 1 6764971; Fax: +353 1 6762517. Website: www.hpra.ie; E-mail: medsafety@hpra.ie.

4.9 Overdose

The symptoms of overdosage may include bradycardia, hypotension, acute cardiac insufficiency and bronchospasm.

General treatment should include: close supervision, treatment in an intensive care ward, the use of gastric lavage, activated charcoal and a laxative to prevent absorption of any drug still present in the gastrointestinal tract, the use of plasma or plasma substitutes to treat hypotension and shock. The possible uses of haemodialysis or haemoperfusion may be considered.

Excessive bradycardia can be countered with atropine 1-2 mg intravenously and/or a cardiac pacemaker. If necessary this may be followed by a bolus dose of glucagon 10 mg intravenously. If required this may be repeated or followed by an intravenous infusion of glucagon 1-10 mg/hr depending on response. If no response to glucagon occurs, or if glucagon is unavailable, a beta-adrenoceptor stimulant such as dobutamine 2.5 to 10 micrograms/kg/minute by intravenous infusion may be given. Dobutamine, because of its positive inotropic effect could also be used to treat hypotension and acute cardiac insufficiency. It is likely that these doses would be inadequate to reverse the cardiac effects of beta-blockade if a large overdose has been taken. The dose of dobutamine should therefore be increased if necessary to achieve the required response according to the clinical condition of the patient.

Bronchospasm can usually be reversed by bronchodilators

5 PHARMACOLOGICAL PROPERTIES**5.1 Pharmacodynamic properties**

Beta-blocking agents, selective.

CO7A BO3

Atenolol is a beta-blocker which is beta₁-selective (i.e. acts preferentially on beta₁-adrenergic receptors in the heart). Selectivity decreases with increasing dose.

Atenolol is without intrinsic sympathomimetic and membrane-stabilising activities and as with other beta-blockers, has negative inotropic effects (and is therefore contraindicated in uncontrolled heart failure).

As with other beta-blockers, the mode of action of atenolol in the treatment of hypertension is unclear.

It is probably the action of atenolol in reducing cardiac rate and contractility which makes it effective in eliminating or reducing the symptoms of patients with angina.

It is unlikely that any additional ancillary properties possessed by S(-) atenolol, in comparison with the racemic mixture, will give rise to different therapeutic effects.

Atenolol is effective and well tolerated in most ethnic populations although the response may be less in black patients.

Atenolol is compatible with diuretics, other antihypertensive agents and antianginal agents (*see section 4.5*).

5.2 Pharmacokinetic properties

Absorption of atenolol following oral dosing is consistent but incomplete (approximately 40-50%) with peak plasma concentrations occurring 2-4 hours after dosing. The atenolol blood levels are consistent and subject to little variability. There is no significant hepatic metabolism of atenolol and more than 90% of that absorbed reached the systemic circulation unaltered. The plasma half-life is about 6 hours but this may rise in severe renal impairment since the kidney is the major route of elimination. Atenolol penetrates tissues poorly due to its low lipid solubility and its concentration in brain tissue is low. Plasma protein binding is low (approximately 3%).

Atenolol is effective for at least 24 hours after a single oral daily dose. This simplicity of dosing facilitates compliance by its acceptability to patients.

5.3 Preclinical safety data

Atenolol is a drug on which extensive clinical experience has been obtained. Relevant information for the prescriber is provided elsewhere in the Summary of Product Characteristics.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Maize starch
Pregelatinised maize starch
Lactose monohydrate
Povidone
Sodium laurilsulfate
Colloidal silicon dioxide
Magnesium stearate

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

5 years.

6.4 Special precautions for storage

Do not store above 25°C.
Store in the original package.
Keep blister in the outer carton.

6.5 Nature and contents of container

Blister packs consisting of aluminium foil and PVC/PvDC film. The blisters are packed in a folded cardboard box.
Pack sizes: 14, 15, 28, 30, 56, 60 and 100 tablets.
Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

No special requirements

7 MARKETING AUTHORISATION HOLDER

Clonmel Healthcare Limited,
Waterford Road,
Clonmel,
Co. Tipperary,
Ireland.

8 MARKETING AUTHORISATION NUMBER

PA0126/069/002

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 25 July 1988

Date of last renewal: 25 July 2008

10 DATE OF REVISION OF THE TEXT

September 2015