Brand Promise

ZAFA

Pakistan's Largest Brands

Selling more than **4 million packs** per annum enjoying the confidence of medical professionals since last **Two Decades**

HISTORY OF BETA BLOCKERS

ß-blockers, beta-adrenergic blocking agents, beta antagonists, beta-adrenergic antagonists, beta-adrenoreceptor antagonists, or beta adrenergic receptor antagonists are a class of drugs. Beta blockers target the beta receptor. Beta receptors are found on cells of the heart muscles, smooth muscles, airways, arteries, kidneys, and other tissues that are part of the sympathetic nervous system and lead to stress responses, especially when they are stimulated by epinephrine (adrenaline). Beta blockers interfere with the binding to the receptor of epinephrine and other stress hormones, and weaken the effects of stress hormones. Beta blockers are particularly used for the management of cardiac arrhythmias, protecting the heart from a second heart attack (myocardial infarction) after a first heart attack (secondary prevention) and hypertension. In 1962, Sir James W. Black (Nobel Prize laureate for medicine in 1988) found the first clinically significant beta blockers -propranolol and pronethalol; it revolutionized the medical management of angina pectoris and is considered by many to be one of the most important contributions to clinical medicine and pharmacology of the 20th century.

Beta blockers block the action of endogenous catecholamines epinephrine (adrenaline) and norepinephrine (noradrenaline) in particular, on ß-adrenergic receptors, part of the sympathetic nervous system which mediates the fight-or-flight response. Three types of beta receptors are known, designated B_1, B_2 and B_3 receptors.

B_1-adrenergic receptors are located mainly in the heart and in the kidneys.

B_2-adrenergic receptors are located mainly in the lungs, gastrointestinal tract, liver, uterus, vascular smooth muscle, and skeletal muscle.

B_3-adrenergic receptors are located in fat cells.

ATENOLOL & ZAFNOL

Atenolol 100mg

Atenolol 50mg

Promise

MEDICINES FOR ALL

EFFICACY

[Reliable, Crediable, Time Tested]

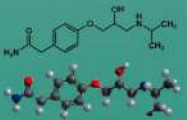
COST

[For all Class of Patients Privileged and Underprivileged]

ACCESS

[Ensured Availability Through out Pakistan]

ATENOLOL



Systematic (IUPAC) name
(RS)-2-[4-(2-hydroxy-3-(propan-2-ylamino) propoxy)phenyl]acetamide

Chemical Formula $C_{14}H_{22}N_2O_3$
Mol. mass 266.335 g/mol

Pharmacokinetic data

Bioavailability	40-50%
Protein binding	6-16%
Metabolism	Hepatic <10%
Half-life	6-7hours
Excretion	Renal Lactic (In lactiferous females)

Atenolol is a selective B1 receptor antagonist, a drug belonging to the group of beta blockers a class of drugs used primarily in cardiovascular diseases. Introduced in 1976, atenolol was developed as a replacement for propranolol in the treatment of hypertension. It works by slowing down the heart rate and reducing its workload. Unlike propranolol, atenolol does not pass through the blood-brain barrier thus avoiding various central nervous system side effects.

Medical uses: Atenolol is used for hypertension, angina, acute myocardial infarction, supraventricular tachycardia, ventricular tachycardia, and the symptoms of alcohol withdrawal.
It is also used to treat the symptoms of Graves' disease until antithyroid medication can take effect.
Due to its hydrophilic properties, the drug is less suitable in migraine prophylaxis compared to propranolol, because, for this indication, atenolol would have to reach the brain in high concentrations, which is not the case.

Contraindications:

- bradycardia (pulse less than 50 bpm)
- cardiogenic shock
- asthma (may cause bronchoconstriction)
- Symptomatic hypotension (blood pressure of less than 90/60 mm Hg with dizziness, vertigo etc.)
- Prinzmetal angina (vasospastic angina)
- metabolic acidosis (a severe condition with a more acidic blood than normal)
- severe disorders in peripheral arterial circulation
- AV-Blockage of second & third degree
- acutely decompensated congestive heart failure (symptoms may be fluid retention with peripheral edema and/or abdominal fluid retention (ascites), and/or lung edema)
- Sick sinus syndrome
- hypersensitivity and/or allergy to atenolol
- Pheochromocytoma (a rare type of tumor of the adrenal glands)

Atenolol should not be taken by patients with preexisting bronchial asthma and only if clearly needed during pregnancy, as atenolol may retard fetal growth and possibly cause other abnormalities.

The Novel Beta Blocking Agents

ATENOLOL

Atenolol 100mg

ZAFNOL

Atenolol 50mg

Time tested molecule Selective Beta-1 receptor antagonist

A Reliable Choice to Treat

Hypertension

Angina Pectoris

Cardiac Arrhythmias

Post M.I Syndrome

Chief Benefits

- Globally Acknowledged Molecule
- Works for 24 hours
- Simple Dosage
- Easy on the Pocket
- Easy Accessibility

*ZAFA's **ATENOLOL** has been tested & declared as a **standard Drug** by World Renowned Laboratories including **MHRA* (UK), Intertec (Switzerland)** and the **Drug Testing Laboratory Pakistan.***

** The **Medicines and Healthcare products Regulatory Agency (MHRA)** is the UK government agency which is responsible for ensuring that medicines and medical devices work and are acceptably safe.*

Brief Prescribing Information: **ACTIONS:** Atenolol is a beta-blocker which is cardioselective (i.e acts preferentially on beta-adrenergic receptors in the heart). **INDICATIONS:** Atenolol is indicated in the treatment of Hypertension, Angina Pectoris, Cardiac Arrhythmias and treatment of Post-Myocardial Infarction. **DOSAGE:** (Adults) Hypertension: The standard oral dose is 50mg to 100mg daily as a single dose. Angina: 100mg daily as single or divided doses. Myocardial Infarction: Late intervention after AMI, an oral dose of Atenolol 100mg daily for long term prophylaxis of Myocardial infarction. Arrhythmias: A suitable oral maintenance dosage is 50 - 100 mg daily given as a single dose. **CONTRAINDICATIONS:** Second or third degree heart block, cardiogenic shock, pronounced bradycardia (Pulse 50), sick sinus syndrome and known hypersensitivity. **PRECAUTIONS:** Overt heart failure if uncontrolled; cases of slow heart rate, the dose may be reduced; In patients of chronic obstructive airways diseases, Atenolol can be given with caution; Ischaemic heart disease, Beta Blocker should be withdrawn gradually when discontinued; Pregnancy and Lactation; Co-administration with calcium channel blockers such as verapamil or diltiazem or nifedipine, class-1 antiarrhythmatic agents, sympathomimetic agents, digitalis glycoside, prostaglandin synthetase inhibitor (e.g. ibuprofen), anaesthetic agents. **SIDE EFFECTS:** Coldness of extremities, fatigue, gastro-intestinal disturbances, bradycardia, headache, mood changes, dizziness, heart failure deterioration. **PRESENTATION: ZAFNOL** is available as 50 mg tablets in pack of 20 tablets M.R.P. Rs. 41.14 and **ATENOLOL** as 100mg tablets in pack of 20 tablets M.R.P. Rs. 65.93.

"Medicines For All"

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