



The fixed dose **combination** of two APIs  
needs to be **bi-layered**

*for*

- *Better release of each ingredient*
- *Physical & Chemical Stability*
- *Retaining Potency & ensuring Dose Accuracy*

**Amlodipine & Atenolol** are the two Active Pharmaceutical Ingredients (APIs) used to control blood pressure of hypertensive patients. But Amlodipine & Atenolol are different in nature, their release patterns & site of actions are also different.

Therefore, if the combination of Amlodipine & Atenolol is manufactured in bi-layer form, it will ensure the better release of both the ingredients as well as better outcome.



offers

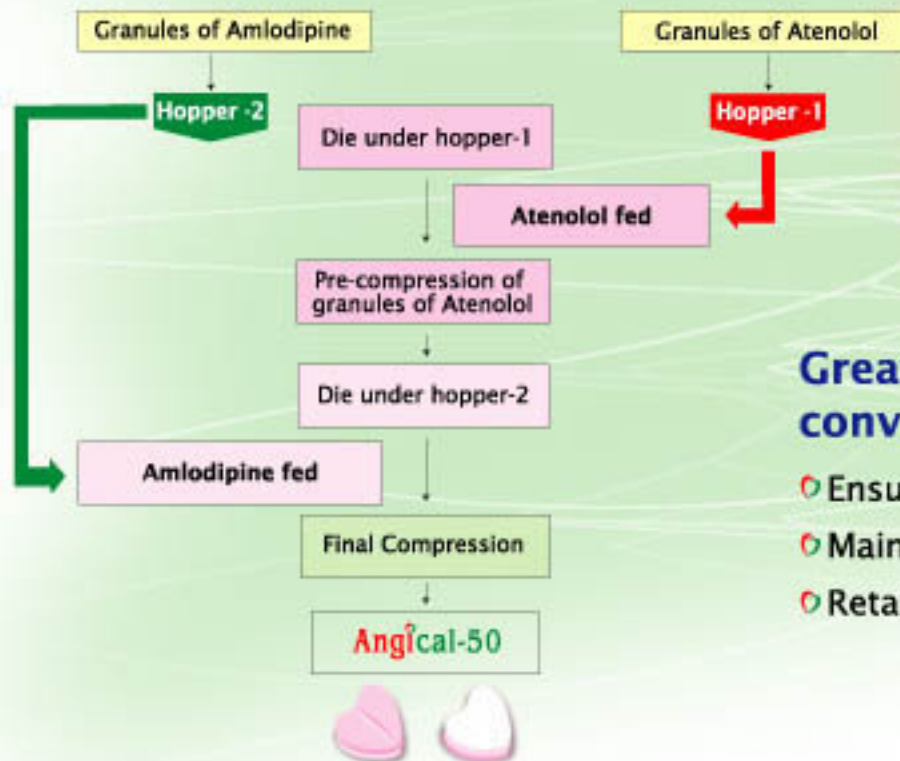
# Angical-50

**Most widely used combination antihypertensive**

Amlodipine BP 5 mg & Atenolol BP 50 mg Tablet



in  
**bi-layer**  
tablet form



## Greater advantages *over* conventional formulation

- Ensures better release of each ingredient
- Maintains Physical & Chemical stability
- Retains Potency & ensures Dose Accuracy

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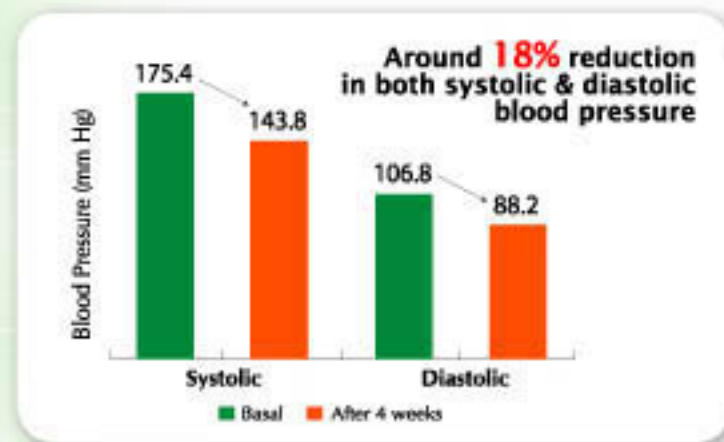
- **Effective in patients with moderate hypertension or hypertension not controlled by either Amlodipine or Atenolol alone**

No. of patients : 370

Drugs Used : Amlodipine 5 mg+Atenolol 50 mg

The combination resulted in a significant reduction of blood pressure

✓ **Angical-50** provides excellent clinical success



- **Highly tolerable in maximum number of patients**

No. of patients : 370

Drugs Used : Amlodipine 5 mg+Atenolol 50 mg

Amlodipine and Atenolol combination reduced BP to satisfactory level and 92.1% patients were well tolerated

✓ **Angical-50** ensures better patients' compliance



# Angical-50

Amlodipine BP 5 mg & Atenolol BP 50 mg Tablet

Most widely used combination antihypertensive



in  
bi-layer  
tablet form

## Available in bi-layer tablets

for

- Better release of each ingredient,
- Physical & Chemical Stability,
- Retaining Potency & ensuring Dose Accuracy

## Provides excellent clinical success than monotherapy

## Ensures better patients' compliance



### Abridged Prescribing Information

**COMPOSITION** Each tablet contains Amlodipine Besilate BP 6.94 mg equivalent to Amlodipine BP 5 mg and Atenolol BP 50 mg. **PHARMACOLOGY** Amlodipine is a dihydropyridine calcium antagonist that inhibits the transmembrane influx of calcium ions into vascular smooth muscle and cardiac muscle; it has a greater effect on vascular smooth muscle than on cardiac muscle. Amlodipine is a peripheral vasodilator that acts directly on vascular smooth muscle to cause a reduction in peripheral vascular resistance and reduction in blood pressure. Atenolol is a cardio selective beta-blocker. The cardio-selectivity is dose-related. Atenolol causes a reduction in blood pressure by lowering cardiac output, decreasing the plasma renin activity and sympathetic outflow from CNS. Atenolol also causes a reduction in myocardial oxygen demand by virtue of its negative inotropic and negative chronotropic effects.

**INDICATION** Patients with essential hypertension, patients with angina pectoris & hypertension, as co-existing diseases in post MI patients, in patients with refractory angina pectoris where nitrate therapy has failed. **DOSAGE AND ADMINISTRATION** The recommended dosage of Atenolol and Amlodipine is one tablet daily. If necessary, the dosage may be increased to two tablets daily or as advised by the Physicians. The dosage however should be individualized. **CONTRAINDICATION** Hypersensitivity to any of the component. **PRECAUTION**

Bronchospasm: The combination should be used with caution in patients with airway obstruction. Renal impairment: In renal impairment, caution may be necessary if the creatinine clearance is less than 30 ml/min because of possible reduction in the excretion of unchanged Atenolol. Hepatic impairment: Caution may be necessary in the use of the combination in patients with severe liver damage because of prolongation of the elimination half-life of Amlodipine. Drug withdrawal: Since coronary heart disease may exist without being recognized, patients should be warned against stopping the drug suddenly. Any discontinuation should be gradual and under observation. **SIDE EFFECT** The combination of Amlodipine and Atenolol is well tolerated. Overall side-effects include fatigue, headache, edema, nausea, drowsiness, anxiety and depression. **DRUG INTERACTION** Disopyramide: Atenolol reduces the clearance of disopyramide by 20%. Additive inotropic effects on the heart may be produced. Ampicillin: Ampicillin at doses of 1g and above may reduce Atenolol levels. Oral antidiabetic and insulin: Beta-blockers may decrease tissue sensitivity to insulin and inhibit insulin secretion in response to oral antidiabetics. Atenolol has less potential for these actions. The heart rate may not be reliable as an early warning of hypoglycaemia. **USE IN PREGNANCY AND LACTATION** Pregnancy: The combination should be used during pregnancy only if the expected benefit outweighs the potential foetal risk. Lactation: Nursing mothers should not use the combination. If its use is considered necessary, breast feeding should be stopped. **STORAGE**

**CONDITION** Store at a cool & dry place, protect from light & moisture. Keep out of reach of children. **HOW SUPPLIED** Each commercial pack contains 3x10's tablet in blister pack.



www.apexpharmabd.com

Ref.: Acta Pharm. 2008 Sep; 58(3): 299-308, www.who.int, International Journal of Clinical Practice 2006;60:265-274, British Journal of Clinical Pharmacology 1990;29:455-463, Indian Practitioner 1997;50:683-688