nebivolol (ne-bi-vo-lol)

**Syntax:**

**Classification:** Antihypertensives

**Pharmacologic:** Beta blockers (selective)

**Pregnancy Category:** C

### Indications

Hypertension (alone and with other antihypertensives).

### Action

Blocks stimulation of beta adrenergic receptor sites; selective for beta1 (myocardial) receptors in most patients. In some patients (poor metabolizers) higher blood levels may result in some beta2 (pulmonary, vascular, uterine) adrenergic blockade.

### Therapeutic Effects:

Lowering of BP.

### Pharmacokinetics

**Absorption:** Well absorbed following oral administration.

**Distribution:** Unknown.

**Protein Binding:** 98%.

**Metabolism and Excretion:** Mostly metabolized by the liver, including the CYP2D6 enzyme system; some have antihypertensive action; minimal excretion of unchanged drug.

**Half-life:** Extensive metabolizers—12 hr; poor metabolizers—19 hr.

### Contraindications/Precautions

- Hypersensitivity; Severe bradycardia, heart block greater than first degree, cardiogenic shock, decompensated heart failure or sick sinus syndrome (without pacemaker); Severe hepatic impairment; Child-Pugh class B; Enzyme activities; DOB: Lactation.

### Adverse Reactions/Side Effects

**CNS:** Dizziness, fatigue, headache.

### Drug Interactions

**Drug-Drug:** Drugs that affect the CYP2D6 enzyme system are expected to alter levels and possibly effects of nebivolol; dose alterations may be required. Fluoxetine, a known inhibitor of CYP2D6, is expected to increase levels and effects; similar effects may be expected from quinidine, propafenone, and paroxetine. Blood levels are also decreased by cimetidine. Anesthetic agents including ether, trichloroethylene, and cyclopropane as well as other myocardial depressants or inhibitors of AV conduction, such as disopyramide and verapamil may risk of myocardial depression and bradycardia. Avoid concurrent use with beta blockers. Concurrent use with reserpine may excessively reduce sympathetic activity. Avoid concurrent use with diltiazem and verapamil. Concurrent use with reserpine or related drugs is not recommended due to the increased risk of adverse effects. If used concurrently with clonidine, nebivolol should be tapered and discontinued several days prior to gradual withdrawal of clonidine.

### Route/Dosage

**PO (Adults):** 5 mg once daily initially, may increase at 2 wk intervals up to 40 mg/day.

### Hepatic/Renal Impairment

**PO (Adults):** 2.5 mg once daily initially; titrate upward cautiously.

### Nursing Implications

**Assessment:**

- Monitor BP, HR, and pulse prior to and periodically during therapy.
- Monitor intake and output ratios and daily weight. Assess routinely for signs and symptoms of HF (dyspnea, rales/crackles, weight gain, peripheral edema, jugular venous distention).

**Nursing considerations:**

- **Indications:**
  - Cardiac drugs.
  - Genetic Implication.

- **Use Cautiously in:**
  - Coronary artery disease (rapid cessation should be avoided); Complicated HF; Major surgery (anesthesia may augment myocardial depression);
  - Diabetic mellitus (may mask signs of hypoglycemia); Thyrotoxicosis (may mask symptoms of moderate hepatic impairment); Severe renal impairment (initial dose of 5 mg at mouth); History of severe allergic reactions (5 patients of reactions).

- **Other:**
  - Hematuria (alpha blockers required prior to beta blockers); Geri: Consider increased sensitivity, concurrent chronic diseases, medications and presence of age related decrease in clearance; OB: Use in pregnancy only if maternal benefit outweighs fetal risk; Pedi: Safe use in children < 18 yr not established.
Lab Test Considerations: May cause ↑ BUN, serum uric acid, triglycerides and ↓ HDL cholesterol and platelet count.

Potential Nursing Diagnoses
Decreased cardiac output (Side Effects)

Implementation
- PO: May be administered without regard to food.
- When discontinuation is planned, observe patient carefully and advise to minimize physical activity. Since over 1–2 wk, when possible. If angina increases or acute coronary insufficiency develops, transition method of promptly, at least temporarily.

Patient/Family Teaching
- Instruct patient to take nebivolol as directed, at the same time each day, even if feeling well. If a dose is missed, skip missed dose and take next scheduled dose; do not double doses. Do not discontinue without consulting health care professional. Abrupt withdrawal may precipitate life-threatening arrhythmias, hypertension, or myocardial ischemia.
- Advise patient to ensure that enough medication is available for weekends, holidays, and vacations. A written prescription may be kept in the wallet for emergencies.
- Teach patient and family how to check pulse and BP. Instruct them to check pulse daily and BP biweekly and to report significant changes to health care professional.
- Instruct patient to consult health care professional before taking any Rx, OTC, or herbal products, especially cold preparations, concurrently with this medication. Patients on antihypertensive therapy should also avoid excessive amounts of coffee, tea, and cola.
- May mask some signs of hypoglycemia, especially tachycardia. Diabetics should closely monitor blood sugars, especially if weakness, irritability, or fatigue occurs. Medication should be discontinued on resuming signs of hypoglycemia.

Evaluation/Desired Outcomes
- Decrease in BP.

Why was this drug prescribed for your patient?