**Indications**

Altering management of primary hypercholesterolemia and mixed dyslipidemia. Primary prevention of coronary heart disease (myocardial infarction, stroke, angina, and coronary revascularization) in asymptomatic patients with increased total and low-density lipoprotein (LDL) cholesterol and decreased high-density lipoprotein (HDL) cholesterol.

**Action**

Atorvastatin (3-hydroxy-3-methylglutaryl-coenzyme A [HMG-CoA] reductase, an enzyme which is responsible for catalyzing an early step in the synthesis of cholesterol. Inhibits 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase, an enzyme that converts HMG-CoA to mevalonate, the first committed step in cholesterol synthesis. This results in decreased cholesterol production and increased cholesterol catabolism. Reduction of lipids/cholesterol reduces the risk of myocardial infarction and stroke sequelae. Slows the progression of coronary atherosclerosis and reduces cardiovascular–related events.

**Pharmacokinetics**

Absorption: Rapidly absorbed but undergoes extensive gastrointestinal and hepatic metabolism resulting in 14% bioavailability (30% for lipid-lowering activity).

Distribution: Probable entry into breast milk.

Protein Binding: >90%.

Metabolism and Excretion: Extensively metabolized by the liver, most during first pass, excreted in bile and feces. ~2% excreted unchanged by the kidneys. 2 metabolites have lipid-lowering activity.

Half-life: 1 to 3 hr (lipid-lowering activity due to atorvastatin and its metabolites—20–30 hr)

Use Cautionally in: History of liver disease; Alcoholism; Renal impairment; Concurrent use of gemfibrozil, azole antifungals, erythromycin, clarithromycin, protease inhibitors, niacin, or cyclosporine (higher risk of myopathy/rhabdomyolysis); OR: Women of childbearing age; Pediatric: Children <10 yr (safety not established).

**Adverse Reactions/Side Effects**

- CV: Abnormalities in lipid profile, abdominal pain, diarrhea, edema, peripheral edema, palpitations, rales, tachycardia, heartburn, palpitations, rash, edema, flushing, chest pain, peripheral edema.
- GU: Edema, incontinence, hematuria, hypokalemia.
- CNS: Confusion, fatigue, anxiety, depression, dizziness, headache, insomnia, memory loss, weakness.
- EENT: Photophobia, conjunctivitis, tearing.
- Derm: Pruritus, rash, dermatitis, alopecia, seborrhea.
- Endo: Hyperglycemia, HDL increases, insulin resistance, hypoglycemia.

**Interactions**

**Drug-Diet:**Metabolized by the hepatic CYP3A4 enzyme system (cholesterol-lowering effect may be additive with bile acid sequestrants [cholestyramine, colestipol]). Bioavailability may be ↓ by bile acid sequestrants. ↓ lipid levels may be seen with concurrent use of cholestyramine, gemfibrozil, niacin, ezetimibe, fibrates, clofibrate, erythromycin, clarithromycin, rifamycin, rifabutin, rifaximin, rifabutin, azithromycin, itraconazole, dapsone, telithromycin, telavancin, vancomycin, rifampin, or vancomycin. May slightly ↓ serum digoxin levels. May ↑ levels of oral contraceptives. May ↓ effects of warfarin.

**Drug-Food:** Grapefruit juice may increase levels and risk of rhabdomyolysis.

**Contraindications/Precautions**

Contraindicated in: Hypersensitivity. Active liver disease or unexplained persistent elevation of AST and ALT; OR: Potential for fetal abnormalities. **Lactation:** May appear in breast milk.
Route/Dosage

PO (Adults): 10–20 mg once daily initially. (May start with 40 mg/day if LDL-C needs to be reduced by >40%). May be increased by 20 mg q2–4 wk up to 80 mg/day; Concurrent nelfinavir—Dose should not exceed 40 mg/day; Concurrent clarithromycin, itraconazole, saquinavir/ritonavir, or fosamprenavir—Dose should not exceed 20 mg/day.

PO (Children 10–17 yr): 10 mg/day initially, may be increased by 20 mg q4 wk up to 20 mg/day; Concurrent nelfinavir—Dose should not exceed 40 mg/day; Concurrent clarithromycin, itraconazole, saquinavir/ritonavir, or fosamprenavir—Dose should not exceed 20 mg/day.

NURSING IMPLICATIONS
Assessment
- Obtain a diet history, especially with regard to fat consumption.
- Lab Test Considerations: Evaluate serum cholesterol and triglyceride levels before starting, after 2–4 wk of therapy, and periodically thereafter.
- Monitor liver function tests prior to initiation of therapy and as clinically indicated. If symptoms of serious liver injury, hyperbilirubinemia, or jaundice occur discontinue atorvastatin and do not restart. May also cause alkaline phosphatase and bilirubin levels.
- If patient develops muscle tenderness during therapy, CPK levels should be monitored. If CPK levels are >10 times the upper limit of normal or myopathy occurs, therapy should be discontinued. Monitor for signs and symptoms of immune-mediated necrotizing myopathy (IMNM) (proximal muscle weakness and serum creatine kinase), persisting despite discontinuation of statin therapy. Perform muscle biopsy to diagnose; shows necrotizing myopathy without significant inflammation. Treat with immunosuppressive agents.

Potential Nursing Diagnoses
Noncompliance (Patient/Family Teaching)

Implementation
- Do not confuse Lipitor with Leoton or Zyrtec.
- PO: May be administered without regard to food.
- Avoid grapefruit and grapefruit juice during therapy; may increase risk of toxicity.

Patient/Family Teaching
- Instruct patient to take medication as directed. Take missed doses as soon as remembered more than 12 hrs since missed dose; omit and take next scheduled dose. Do not double up on missed doses. Advise patient to avoid drinking more than one quart of grapefruit juice per day during therapy. Medication helps control but does not cure elevated serum cholesterol levels.
- Advise patient that this medication should be used in conjunction with diet restrictions (fat, cholesterol, carbohydrates, alcohol), exercise, and cessation of smoking.
- Instruct patient to notify health care professional of unexplained muscle pain, tenderness, or weakness occur, especially if accompanied by fever or malaise.
- Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult health care professional before taking any new medications.
- Advise patient to notify health care professional promptly if pregnancy is planned or suspected, or if breast feeding.
- Emphasize the importance of follow-up exams to determine effectiveness and to monitor for side effects.

Evaluation/Desired Outcomes
- Decrease in LDL and total cholesterol levels.
- Increase in HDL cholesterol levels.
- Decrease in triglyceride levels.
- Slowing of the progression of coronary artery disease.

Why was this drug prescribed for your patient?