atorvastatin (a-**tore**-va-stat-in)

Lipitor

Classification

Therapeutic: lipid-lowering agents
Pharmacologic: HMG-CoA reductase inhibitors

Pregnancy Category X

Indications

Adjunctive 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

Inhibits 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase, an enzyme which is responsible for catalyzing an early step in the synthesis of cholesterol. **Therapeutic Effects:** Lowering of total and LDL cholesterol and triglycerides. Slightly increases HDL cholesterol. Reduction of lipids/cholesterol reduces the risk of myocardial infarction and stroke sequelae. Slows the progression of coronary atherosclerosis with resultant decrease in coronary heart disease–related events.

Pharmacokinetics

Absorption: Rapidly absorbed but undergoes extensive gastrointestinal and hepatic metabolism resulting in 14% bioavailability (30% for lipid-lowering activity).
Distribution: Probably enters breast milk.
Protein Binding: ≥98%.
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: 14 hr (lipid-lowering activity due to atorvastatin and its metabolites—20–30 hr).

TIME/ACTION PROFILE (cholesterol-lowering effect)

ROUTE	ONSET	PEAK	DURATION
PO	unknown	unknown	20–30 hr†

†Following discontinuation

Contraindications/Precautions

Contraindicated in: Hypersensitivity; Active liver disease or unexplained persistent elevations in AST and ALT; ***OB:*** Potential for fetal anomalies; ***Lactation:*** May appear in breast milk.
Use Cautiously 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); ***OB:*** Women of childbearing age; ***Pedi:*** Children <10 yr (safety not established).

Adverse Reactions/Side Effects

CNS: amnesia, confusion, dizziness, headache, insomnia, memory loss, weakness. **EENT:** rhinitis. **Resp:** bronchitis. **CV:** chest pain, peripheral edema. **GI:** abdominal cramps, constipation, diarrhea, flatus, heartburn, altered taste, drug-induced hepatitis, dyspepsia, ↑ liver enzymes, nausea, pancreatitis. **Endo:** hyperglycemia. **GU:** erectile dysfunction. **Derm:** rashes, pruritus. **MS:** RHABDOMYOLYSIS, arthralgia, arthritis, immune-mediated necrotizing myopathy, myalgia, myositis. **Misc:** hypersensitivity reactions including ANGIONEUROTIC EDEMA.

Interactions

Drug-Drug: 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**. ↑ risk of myopathy with concurrent use of **cyclosporine**, **gemfibrozil**, **itraconazole**, **colchicine**, **erythromycin**, **clarithromycin**, **nelfinavir**, **ritonavir/saquinavir**, **lopinavir/ritonavir**, **tipranavir/ritonavir**, **saquinavir/ritonavir**, **darunavir/ritonavir**, **fosamprenavir**, **fosamprenavir/ritonavir**, **telaprevir**, and large doses of **niacin** (concurrent use with **gemfibrozil**, **cyclosporine**, **tipranavir/ritonavir**, or **telaprevir** should be avoided; use lowest dose with **lopinavir/ritonavir**; use ↓ doses with **nelfinavir**, **clarithromycin**, **itraconazole**, **saquinavir/ritonavir**, **darunavir/ritonavir**, **fosamprenavir**, or **fosamprenavir/ritonavir**). May slightly ↑ serum **digoxin** levels. May ↑ levels of **oral contraceptives**. May ↑ effects of **warfarin**.
Drug-Food: **Grapefruit juice** ↑ levels and risk of rhabdomyolysis.

Route/Dosage

PO (Adults): 10–20 mg once daily initially; (may start with 40 mg/day if LDL-C needs to be ↓ by >45%); may be ↑ every 2–4 wk up to 80 mg/day; *Concurrent nelfinavir therapy*—Dose should not exceed 40 mg/day; *Concurrent clarithromycin, itraconazole, saquinavir/ritonavir, darunavir/ritonavir, fosamprenavir, or fosamprenavir/ritonavir therapy*—Dose should not exceed 20 mg/day.

PO (Children 10–17 yr): 10 mg/day initially, may be ↑ every 4 wk up to 20 mg/day; *Concurrent nelfinavir therapy*—Dose should not exceed 40 mg/day; *Concurrent clarithromycin, itraconazole, saquinavir/ritonavir, darunavir/ritonavir, fosamprenavir, or fosamprenavir/ritonavir therapy*—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 initiating, 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 occurs 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 Loniten 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 if unexplained muscle pain, tenderness, or weakness occurs, 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 of medication regimen prior to treatment or surgery.
- Instruct female patients 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?