Lovastatin (loe-va-sta-tin) 
Altoprev, Mevacor

Classification
Therapeutic: lipid-lowering agents
Pharmacologic: HMG-CoA reductase inhibitors (statin)

Pregnancy Category X

Indications
Adjunctive management of primary hypercholesterolemia and mixed dyslipidemia.
Primary prevention of coronary heart disease (myocardial infarction, unstable angina, and coronary revascularization) in asymptomatic patients with increased total and low-density lipoprotein (LDL) cholesterol and decreased high-density lipoprotein (HDL) cholesterol. Slows the progression of coronary atherosclerosis in patients with coronary artery disease.

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. Slows the progression of coronary atherosclerosis with resultant decrease in coronary heart disease-related events.

Pharmacokinetics
Absorption: Poorly and variably absorbed after oral administration.
Distribution: Crosses the blood-brain barrier and placenta.
Metabolism and Excretion: Extensively metabolized by the liver, most during first pass; excreted in bile and feces. 10% excreted unchanged by the kidneys.
Half-life: 3 hr.

TIME/ACTION PROFILE (cholesterol-lowering effect)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tr>
<td>PO</td>
<td>2 wk</td>
<td>4–6 wk</td>
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†After discontinuation

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Active liver disease or unexplained persistent elevations in AST and ALT; Concurrent use with strong CYP3A4 inhibitors (e.g., ritonavir, indinavir, saquinavir, lopinavir, fosamprenavir, tipranavir, amiodarone); OB, Lactation: Pregnancy or lactation.

Use Cautiously in: History of liver disease, Alcoholism, Renal impairment; Concurrent use of gemfibrozil, niacin, cyclosporine, amiodarone, danazol, diltiazem, verapamil, colchicine, or ranolazine; History of myopathy; Pedi: Children <10 yr (safety not established); Women of childbearing age.

Adverse Reactions/Side Effects
CNS: amnesia, confusion, dizziness, headache, insomnia, memory loss, weakness.
EENT: blurred vision.
GI: abdominal cramps, constipation, diarrhea, flatulence, heartburn, altered taste, drug-induced hepatitis, dyspepsia, nausea, pancreatitis.
Endo: hyperglycemia.
GU: erectile dysfunction.
Derm: rashes, pruritus.
MS: rhabdomyolysis, arthralgia, immune-mediated necrotizing myopathy, myopathy, myositis.
Misc: hypersensitivity reactions.

Interactions
Drug-Drug: Strong CYP3A4 inhibitors, including: ritonavir, saquinavir, protease inhibitors, boceprevir, telaprevir, clarithromycin, erythromycin, telithromycin, nefazodone; Concurrent use contraindicated. Cholesterol-lowering effect may be reduced with colestyramine and colestipol, but bioavailability may be increased by concurrent amiodarone, cyclosporine, verapamil, diltiazem, danazol, or large doses of niacin (concurrent use with gemfibrozil or cyclosporine should be avoided). Use with d-amphetamine, modafinil, or modafinil may potentiate effects of warfarin.
Drug-Natural Products: St. John’s wort may increase effectiveness.
Drug-Food: Grapefruit juice may increase blood levels and the risk of rhabdomyolysis. Food enhances blood levels of lovastatin.

Route/Dosage
PO (Adults): 20 mg once daily with evening meal. May be increased at 4-wk intervals to a maximum of 80 mg/day (immediate-release) or 60 mg/day (extended-release). Concurrent use with strong CYP3A4 inhibitors (e.g., ritonavir, indinavir, saquinavir, lopinavir, fosamprenavir, tipranavir, amiodarone) — Dose should not exceed 20 mg/day unless carefully titrated.

Renal Impairment
PO (Adults): CCr 30–59 mL/min — dosage should not exceed 20 mg/day unless carefully titrated.

Other Information

Store at room temperature 20°–25°C (68°–77°F).

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PO (Children/Adolescents 10-17 yr): Familial heterozygous hypercholesterolemia—10-40 mg/day; adjusted at 4 wk intervals.

**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 6-8 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, hepatitis or jaundice occur, discontinue simvastatin and do not restart. May also cause alkaline phosphatase and bilirubin levels.
- If patient develops muscle tenderness during therapy, monitor CPK levels. If CPK levels are 10 times the upper limit of normal or myopathy occurs, therapy should be discontinued.

**Potential Nursing Diagnoses**
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)
- Noncompliance (Patient/Family Teaching)

**Implementation**
- Do not confuse Mevacor with Benicar (olmesartan).
- PO: Administer with food. Administration on an empty stomach decreases absorption by approximately 30%. Initial once-daily dose is administered with the evening meal. Swallow extended-release tablets whole; do not crush, break or chew.
- Avoid grapefruit and grapefruit juice during therapy; may increase risk of toxicity.

**Patient/Family Teaching**
- Instruct patient to take medication as directed, entire slip dose or double-up on missed doses. Advise patient to avoid drinking more than 200 mL/day of grapefruit juice during therapy. Medication helps control but does not cure elevated serum cholesterol levels.
- Advise patient that the 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 rash.
- Advise patient to notify health care professional 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.
- Decrease in triglyceride levels.
- Slowing of the progression of coronary artery disease.

Why was this drug prescribed for your patient?