

## Rapid Effects of Simvastatin on Lipid Profile and C-Reactive Protein in Patients with Hypercholesterolemia

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### Summary

**Background:** Rapid lowering of low-density lipoprotein (LDL) cholesterol levels as well as C-reactive protein (CRP) by administration of drugs may produce early benefit to the coronary endothelium in patients with coronary heart disease and reduce angina and coronary events after revascularization. Limited information has been available in evaluating a potentially effective first 2-week therapeutic approach for the treatment of patients with hypercholesterolemia using a statin.

**Hypothesis:** The study was undertaken to investigate whether a rapid LDL cholesterol and CRP reduction can be achieved by 2-week simvastatin therapy using a common lipid-lowering protocol in patients with hypercholesterolemia.

**Methods:** Forty-two patients were randomly assigned to 20 or 40 mg/day of simvastatin. Blood samples were drawn at Day 0 and at Day 14 for measuring lipid profile, CRP levels, and hepatic enzymes in all patients.

**Results:** The results showed that both doses of simvastatin (20 and 40 mg) induced significant reductions in total cholesterol (TC, 25 and 38%) and LDL cholesterol (31 and 46%) compared with baseline. However, the highest dose of simvastatin (40 mg) resulted in significantly greater reductions in TC and LDL cholesterol ( $p = 0.04$ ,  $p = 0.02$ , respectively) compared with the group receiving 20 mg ( $p < 0.04$ ,  $p < 0.02$ , respectively). A less significant reduction was observed in mean triglycerides (TG) level (16 and 25%) compared with TC and LDL cholesterol. There was no significant difference in mean high-density lipoprotein (HDL) cholesterol levels compared with baseline in either group. In addition, both doses of simvastatin induced significant reductions in mean CRP levels on Day 14 (22.3 and 23.1%) in a non dose-dependent manner ( $p < 0.001$ , respectively).

**Conclusions:** Our data suggest that a common daily dose of simvastatin, especially 40 mg, is an effective 2-week therapy for patients with hypercholesterolemia, and benefit to the vascular endothelium can be derived quickly by reduction of CRP levels.

**Key words:** simvastatin, lipid profile, C-reactive protein, hypercholesterolemia

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