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Rosuvastatin

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Rosuvastatin, containing the characteristic statin pharmacophore (dihydroxy heptenoic acid), is the first drug of this class to include a polar methane sulphonamide group that increases the drug's hydrophilic nature. It allows for selective inhibition of hydroxymethylglutaryl coenzyme A reductase and *de novo* cholesterol synthesis in the liver, similar to pravastatin and greater than other statins. Rosuvastatin has a long elimination half-life (14 to 21 hours), its low-density lipoprotein (LDL)-cholesterol lowering ability is not affected by the time of administration and it has no significant affinity for various cytochrome P450 substrates, including 2C9, 2C19, or 3A4, suggesting drug/food interactions may be limited.

A Phase II study found rosuvastatin (1 to 80 mg/day) reduced LDL-cholesterol by 34 to 65% and increased high-density lipoprotein (HDL)-cholesterol by 9 to 14%. Rosuvastatin has been compared to atorvastatin, pravastatin, and simvastatin in six Phase III studies. Four trials evaluated low doses (5 or 10 mg/day) in patients with mild to moderate hypercholesterolaemia, and two assessed high doses (20 to 80 mg/day) in those with heterozygous familial hypercholesterolaemia. Rosuvastatin was more effective than other statins in lowering LDL-cholesterol levels and raising HDL-cholesterol levels, and enabling more patients to attain target LDL-cholesterol levels. It was also found to be effective in patients with hypertriglyceridaemia or diabetes mellitus. Combination of rosuvastatin with niacin, fenofibrate, or cholestyramine did not produce a greater LDL-cholesterol lowering effect, although niacin was found to increase the HDL-cholesterol raising effect of rosuvastatin.

Across its dosage range rosuvastatin is well tolerated. Its adverse effect profile is similar to other statins. The frequency of creatine kinase and ALT elevation was similar to that of placebo. While the role of rosuvastatin will be determined by future long-term outcome, safety, and pharmacoeconomic studies, the drug shows great promise for those with coronary heart disease (CHD), CHD risk equivalents (e.g. diabetes mellitus) and high-risk primary prevention groups. ▲