Effects of atorvastatin versus fenofibrate on apoB-100 and apoA-I kinetics in mixed hyperlipidemia

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Kinetics of apo B and apo A-I were assessed in 8 patients with mixed hyperlipidemia at baseline and after 8 weeks of atorvastatin 80 mg q.d. and micronised fenofibrate 200 mg q.d. in a cross-over study. Both increased hepatic production and decreased catabolism of VLDL accounted for elevated cholesterol and triglyceride concentrations at baseline. Atorvastatin significantly decreased triglyceride, total, VLDL and LDL cholesterol and apo B concentrations (-65%, -36%, -57%, -40% and -33%, respectively, P<0.05). Kinetic analysis revealed that atorvastatin stimulated the catabolism of apo B containing lipoproteins, enhanced the delipidation of VLDL1 and decreased VLDL1 production. Fenofibrate lowered triglycerides and VLDL cholesterol (-57% and -64%, respectively, P<0.05) due to enhanced delipidation of VLDL1 and VLDL2 and increased VLDL1 catabolism. Changes of HDL particle composition accounted for the increase of HDL cholesterol during atorvastatin and fenofibrate (18% and 23%, P<0.01). Only fenofibrate increased apo A-I concentrations through enhanced apo A-I synthesis (45%, P<0.05). We conclude that atorvastatin exerts additional beneficial effects on the metabolism of apo B containing lipoproteins unrelated to an increase in LDL receptor activity. Fenofibrate but not atorvastatin increases apo A-I production and plasma turnover.

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