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Gemfibrozil reduces small low-density lipoprotein more in normolipemic subjects classified as low-density lipoprotein pattern B compared with pattern A.

Randomized controlled trial

Superko HR, et al. Am J Cardiol. 2005.

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Abstract

We tested the hypothesis that gemfibrozil has a differential effect on low-density lipoprotein (LDL) and high-density lipoprotein (HDL) subclass distributions and postprandial lipemia that is different in subjects classified as having LDL subclass pattern A or LDL pattern B who do not have a classic lipid disorder. Forty-three normolipemic subjects were randomized to gemfibrozil (1,200 mg/day) or placebo for 12 weeks. Lipids and lipoproteins were determined by enzymatic methods. The mass concentrations of lipoproteins in plasma were determined by analytic ultracentrifugation and included the S(f) intervals: 20 to 400 (very LDL), 12 to 20 (intermediate-density lipoprotein), 0 to 12 (LDL), and HDL(2) mass (F(1.20) 3.5 to 9.0) and HDL(3) mass (F(1.20) 0 to 3.5). Postprandial measurements of triglycerides and lipoprotein(a) were taken after the patients consumed a 500 kcal/M(2) test meal. Treatment with gemfibrozil, compared with placebo, significantly reduced fasting

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plasma triglycerides (difference from placebo +/- SE; -50.2 +/- 20.6 mg/dl, p = 0.02), total cholesterol (-16.4 +/- 7.5 mg/dl, p = 0.04), apolipoprotein B (-16.1 +/- 5.5 mg/dl, p = 0.006), very LDL mass of S(f) 20 to 400 (-50.8 +/- 24.1 mg/dl, p = 0.02), S(f) 20 to 60 (-17.5 +/- 8.5 mg/dl, p = 0.05), S(f) 60 to 100 (-16.2 +/- 8.1 mg/dl, p = 0.05), and increased peak S(F) (0.48 +/- 0.27 Svedberg, p = 0.08). Gemfibrozil reduced the postprandial triglyceride level significantly at 3 (p = 0.04) and 4 (p = 0.05) hours after the test meal. A significantly different subclass response to gemfibrozil was observed in those with LDL pattern A versus B. Those with LDL pattern B had a significantly greater reduction in the small LDL mass S(f) 0 to 7 (p = 0.04), specifically regions S(f) 0 to 3 (p = 0.009) and S(f) 3 to 5 (p = 0.009). In conclusion, normolipemic subjects with either predominantly dense or buoyant LDL respond differently to gemfibrozil as determined by the changes in LDL subclass distribution. Thus, treatment with gemfibrozil may have additional antiatherogenic effects in those with LDL pattern B by decreasing small dense LDL that is not apparent in those with pattern A.

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