EFFECTS OF ROSUVASTATIN AND GEMFIBROZIL ON SMALL DENSE LDL-CHOLESTEROL IN CHRONIC HEMODIALYSIS PATIENTS

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Background/Aims: Small dense-low density lipoprotein cholesterol (sd-LDL-C) is associated with enhanced cardiovascular risk and is often elevated in chronic hemodialysis (CHD) patients. We tried to determine the effects of rosuvastatin and gemfibrozil on sd-LDL-C and LDL particle size in CHD patients. Methods: This study was designed as a prospective randomized controlled trial. After a 4-week washout period, fifty four patients with triglycerides (TG) > 150 mg/dL were randomized to control group or gemfibrozil group (received 300mg twice a day for 8 weeks). Fifty eight patients with LDL-C > 100 mg/dL were randomized to control group or rosuvastatin group (received 10mg once daily for 8 weeks). Laboratory evaluation was performed at baseline and 8 weeks post-treatment. Sd-LDL-C was measured by the Quantimetrix Lipoprint™ System LDL Subfraction Kit. Results: Gemfibrozil reduced TG by 44.9% (p < 0.001) and increased HDL-C by 20.4% (p = 0.05). Gemfibrozil had no significant effect on LDL-C concentration. However, gemfibrozil decreased sd-LDL-C by 25.0% (p = 0.05) and increased lb-LDL-C by 20.8% (p = 0.05) and LDL particle size (from 263.2 ± 4.7 Å to 267.4 ± 4.1 Å, p = 0.001). Rosuvastatin reduced LDL-C by 43.3% (p < 0.001) and decreased both sd-LDL-C (49.0%, p < 0.001) and lb-LDL-C (43.8%, p = 0.001). Rosuvastatin did not change TG, HDL-C concentrations and LDL particle size. Conclusion: These results suggest that rosuvastatin reduce all LDL subfractions, including sd-LDL-C and lb-LDL-C, by similar amounts. However, gemfibrozil selectively decrease sd-LDL-C and may induce a shift from small dense LDL particles to larger, more buoyant LDL particles in CHD patients.