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Effects of dietary counseling and simvastatin treatment on the blood lipid levels in patients with hyperlipidemia according to genetic polymorphism of apo CIII, and paraoxogenase

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The purpose of this study was to investigate the influcence of genetic polymorphism (apo CIII, paraoxogenase) with the dietary counseling and simvastatin treatment on the levels of blood lipids, lipoproteins, apolipoproteins, Lp(a), lipid peroxide, total antioxidant, homocysteine, atherogenic index, and coronary risk factor values of the hyperlipidemic patients. Subjects consisted of 43 hyperlipidemic patients registered with Kyunghee medical center and Bundang Cha hospital, Korea. Nutrient intake was determined by 24-h recall method through a personal interviews. The patients were instructed to take hypolipidemic and hypocholesterolemic diet. The patients changed their basal diet containing 19% fat (182.7mg cholesterol/day), 16% protein, and 64% carbohydrate to a diet containing 18% fat (139.2mg cholesterol/day), 16% protein, and 65% carbohydrate for 12 weeks. At the beginning of apo CIII-Msp I study, the level of blood TG was high for patients with the TT, TC. Following dietary counseling, the patients with CC exhibited the largest changes in blood TG and HDL-cholesterol. Following simvastatin treatment with dietary counseling, blood LDL-cholesterol, and apo B decreased the most for patients with TT. At the beginning of apo CIII-Fok I study, the levels of blood TG, AI were the highest for patients with CC. Following dietary counseling, patients with TC exhibited the significant change in blood TG levels. Following simvastatin treatment with dietary counseling, blood LDL-cholesterol decreased the most for patients with CC. At the beginning of PON study, the levels of blood TG, apo B, AI, and coronary risk factor were the highest for patients with BB. But, their HDL-cholesterol and LPO levels were lower than those of patients with AA, and AB. Following dietary counseling, patients with BB exhibited highest change in blood TG, TC, LDL-cholesterol, and AI.

We concluded that blood lipid levels has been decreased by restriction of total intake of calories and cholesterol. There was variation in the level of blood lipids according to apo CIII, PON polymorphism. The levels of blood lipids responded to dietary counseling and drug treatment in a different ways according to genetic polymorphism. Therefore, it is not desirable to prescribe dietary therapy or drug therapy uniformly to lower blood lipid levels. Accordingly, the individualized therapy based on the patient's genetic polymorphism is very important for effective therapy.