

Effects of a phytosterol-enriched dairy product on lipids, sterols and 8-isoprostane in hypercholesterolemic patients: a multicenter Italian study.

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BACKGROUND AND AIMS: Plant sterols, added to several food sources, lower serum cholesterol concentrations. Plant sterol-induced cholesterol lowering is paralleled by a mild decrease in plasma levels of the antioxidant beta-carotene, the amount of this decrease being considered clinically non-significant. Whether the effect on lipid profile of daily consumption of plant sterol-enriched low-fat fermented milk (FM) is paralleled by a concomitant variation in a reliable marker of the oxidative burden like plasma isoprostane levels is unresolved. **METHODS AND RESULTS:** The effect of plant sterol consumption on plasma lipid and isoprostane levels of hypercholesterolemic patients was evaluated in a multicenter, randomized double blind study. Hypercholesterolemic patients consumed a FM daily for 6 weeks. Subjects were randomized to receive either 1.6g of plant sterol-enriched FM (n=60) or control FM product (n=56). After 6 weeks of plant sterol-enriched FM consumption, LDL cholesterol was reduced from 166.2+/-2.0 to 147.4+/-2.8 mg/dL (p=0.01). A significant reduction was observed for total cholesterol (from 263.5+/-2.6 to 231.0+/-3.2mg/dL, p=0.01). There was greater LDL cholesterol lowering among hypercholesterolemic patients with higher LDL cholesterol at baseline. We found a reduction of plasma 8-isoprostane in patients taking plant sterol-enriched FM (from 43.07+/-1.78 to 38.04+/-1.14 pg/ml, p=0.018) but not in patients taking the control product (from 42.56+/-2.12 to 43.19+/-2.0 pg/ml, p=NS). Campesterol and beta-sitosterol levels were not influenced by phytosterol consumption. **CONCLUSIONS:** Daily consumption of low-fat plant sterol dairy product favourably changes lipid profile by reducing LDL-cholesterol, and may also have an anti-oxidative effect through a reduction of plasma isoprostanes.

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