

Thesis Title    Effect of Soybean-based Formula Supplemen-  
                  tation on Lipid Status in Patients with  
                  Type II Hyperlipoproteinemia

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#### ABSTRACT

The purpose of this study is to evaluate the effect of soybean-based formula (SBF) supplementation on lipid status, their platelet function, blood glucose status, and its acceptability, tolerance, compliance and safety in 12 patients with type II hyperlipoproteinemia, attending Nutrition Clinic, Department of Medicine, Ramathibodi Hospital. They consisted of 5 men and 7 women aged 18-66 yr, and had of serum total cholesterol (TC) level of  $\geq 5.2$  mmol/L and low density lipoprotein-cholesterol (LDL-C) level of  $\geq 3.4$  mmol/L. The study consisted of 4 wks of control and 8 wks of SBF periods. Throughout the study, the patients were instructed to consume diets with 15% protein-, 30% fat-, and 55%

carbohydrate-calories, use soybean oil in their daily cooking at 20% of total energy intake, and control their daily cholesterol intake to less than 300 mg. During the SBF period, they consumed 40g of Gen-Formula, a SBF and nutritionally complete medical food, dissolved in water as their dietary supplement twice daily at 10 a.m. and 2 p.m. This 80g of Gen-Formula provided 361.68 kcal, 13.6g of protein derived equally from soyprotein isolate and sodium caseinate, 12.2g of fat derived from soybean oil only, and 49.28g of carbohydrate derived from 34.96g of dextrin, 8.0g of sucrose, and 4.0g of polydextrose.

There were no significant changes of serum lipid and apoprotein levels during the control period. After the patients consumed Gen-Formula as their dietary supplement, there were significant decreases in serum TC, LDL-C and phospholipid (PL) levels with significant increases in serum and erythrocyte linoleate and serum triglyceride (TG) levels. There was no significant change in their serum HDL-C level. The net percentages of changes of their serum TC, LDL-C, HDL-C, TG, PL, and serum and erythrocyte linoleate levels at wk8 from those at wk4 were -6.1, -9.9, -2.4, 11.5, -8.4, 1 and 2%, respectively, whereas the corresponding figures between wk12 and wk4 were -6.7, -12.2, -5.7, 28.0, -9.6, 4 and 9%. Since there were no significant changes in their cholesterol, energy,

saturated fatty acid and monounsaturated fatty acid intakes throughout the study, the cholesterol-lowering effect of Gen-Formula is most likely due to the increased consumption of linoleic acid and soyprotein isolate. During the study only 1 patient had diarrhea and 1 patient had abdominal pain without requiring treatment. The study also showed that there were no striking changes in their platelet function assessed by platelet count and platelet aggregation, as well as blood glucose status assessed by fasting and 2-hr postprandial blood glucose levels. The safety of SBF supplementation was evident by normal hematological parameters, serum mineral levels, liver and renal function tests.