Efficacy of Dietary Modification Following the National Cholesterol Education Program (NCEP) Recommendation on Lipid Profiles among Hyperlipidemia Subjects

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Background: *Hyperlipidemia has adverse effects on atherosclerosis, causing it to develop into cardiovascular disease. The prevalence of hyperlipidemia has been increasing among those in the working-age group and may be caused by inappropriate dietary patterns. Dietary modification should form the basis of lipid management.*
Objective: Evaluate the effects of a dietary modification following the NCEP-ATP III recommendation on lipid profiles among hyperlipidemia subjects.
Material and Method: *The design was a quasi-experimental study, with a pre-test/post-test two-group design. Each group consisted of 31 hyperlipidemia subjects aged 30 to 59 years old with total cholesterol (TC) greater than or equal to 240 mg/dl or low-density lipoprotein cholesterol (LDL-C) greater than or equal to 130 mg/dl. The present study was conducted between January and June 2009. The research procedure included 6-week nutrition counseling and a 2-week follow-up for 12 weeks. Data were collected by self-reported questionnaire and a 3-day food record. Dietary and biological assessments were compared before and after the experiment. Statistical analysis was performed using means, standard deviations, independent and paired t-tests, Friedman test, Mann-Whitney U test, and Wilcoxon signed-rank test.*
Results: *The intervention group had a significant reduction of TC and LDL-C at the end of the experiment ($p<0.05$). Moreover, this group had a significantly higher percentage reduction of TC and LDL-C than the comparison group (8.5% vs. 3.0%, and 10.8% vs. 2.4%, respectively) ($p<0.05$). Distributions of monounsaturated fatty acids (MUFAs) in the intervention group were significantly higher than in the comparison group ($p<0.05$). Distribution of saturated fatty acids (SFAs):MUFAs:polyunsaturated fatty acids (PUFAs) were 12.0:13.4:6.3% in the intervention group and 12.3:9.2:5.6% in the comparison group. Neither group was able to reduce SFAs intake to <7% as recommended. Neither the recommended one-third of vegetable protein nor two-thirds of complex carbohydrate was achieved. Dietary fiber was less than 10 g/1,000 kcal. The cholesterol intake in the intervention group was less than in the comparison group (155.9 vs. 206.3 mg/d).*
Conclusion: *The dietary modification in the present study significantly lowered TC and LDL-C. However, compliance with the recommendation of high MUFAs intake was difficult to achieve. The dietary modification might be focused instead on lowering intake of SFAs, replacing animal protein with vegetable protein, and increasing complex carbohydrates, fruits, and vegetables to raise dietary fiber.*

Keywords: *Dietary modification, Lipid profiles, Hyperlipidemia subjects*

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Hyperlipidemia, an elevated total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-C), is one of the most important risk factors of coronary heart disease (CHD) and all types of artherosclerotic vascular disease[1]. Surveys of health status in the working-age group demonstrated that the prevalence of hyperlipidemia was increasing dramatically average 15% in both rural and 25% in urban areas[2-6]. The link between the dietary pattern, hyperlipidemia, and coronary heart disease has been well established both by epidemiology studies and by controlled clinical trials[7]. Unfortunately, the relationship between elevated TC and LDL-C and dietary patterns in hyperlilipdemia subjects is not clear. However, the Fifth National Food and Nutrition Survey of Thailand 2003[6] reported inappropriate dietary patterns in the

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