Thesis Title Essential fatty acid status in patients with carcinoma of the esophagus

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Degree Master of Science (Nutrition)

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Date of Graduation 22 May B.E. 2532 (1989)

## ABSTRACT

Essential fatty acid (EFA) status was assessed in 14 male patients on total parenteral nutrition (TPN) before and/or after the operation. They were divided into 3 groups according to the sequence of the study period. Group I consisted of 6 patients with carcinoma of the esophagus. The study period covered for 27 days. During pre-TPN period for 3 days, they received soft diet. During 7 days of preoperative TPN and 14 days of postoperative TPN period, they received a daily supply of 75 g amino acids and 2450 non-protein calories derived from 500 g glucose and 50 g fat. The preoperative TPN improved their protein-calorie status. The benefits of postoperative TPN were evidenced by the improvement of visceral protein status, maintainance of somatic protein status, and increase in body fat. After receiving fat emulsion, there was no change in serum triglyceride levels whereas serum total cholesterol, LDL-c, and HDL-c levels

decreased. The patients received 16% and 8.44% of total energy supply as fat and linoleic acid. This regimen restored the serum 18:2 n-6, 16:1 n-7, and 18:1 n-9 percentages to the normal levels. However, serum 18:3 n-3 level was higher than normal level during the study. Group II consisted of 2 patients with carcinoma of the esophagus and 1 patient with carcinoma of the larynx. They received only postoperative TPN for 14 days with the same regimen as group I. Postoperative TPN prevented further deterioration in their anthropometric measurements and visceral protein status. After receiving fat emulsion for 7 days, their serum total cholesterol, LDL-c, and HDL-c levels decreased whereas at D14 these parameters increased. They also showed the adequacy of triglyceride clearance during the study. Before receiving TPN, they were in the state of linoleate depletion and improved after receiving fat emulsion. Group III consisted of 5 patients with carcinoma of the esophagus who entered the study at difference periods as described in group I. Before receiving TPN, they had inadequate protein-calorie status but TPN regimen prevented further deterioration of their protein-calorie status. After receiving fat emulsion, they had adequacy in triglyceride clearance but 3 of them exhibited increase in serum total cholesterol and LDL-c levels. The parenteral administration of 18:2 n-6 improved their linoleate depletion evidenced by increased serum 18:2 n-6 levels with concomitant decreased serum 18:1 n-9, 20:3 n-9, and 16:1 n-7 levels.