Thesis Title	Effect of branched-chain amino acid enriched diet on protein-carlorie status in patients with liver cirrhosis
Name	Kanitha Tisapamoak
Degree	Master of Science (Nutrition)

Thesis Supervisory Committee

Vichai Tanphaichitr, MD, PhD, FACP, FACN

Preeya Leelahagul, DSc

Virasak Wongpaitoon, MD, MRCP (U.K.)

Date of Graduation 28 June B.E. 2533 (1990)

ABSTRACT

The objective of this study was to investigate the effect of branched-chain amino acids (BCAA) enriched diet compared with conventional liver diet on protein-calorie status in 16 patients with liver cirrhosis assessed by anthropometric measurement, nitrogen balance, serum transport protein levels, carnitine, creatinine, and urate status. Their ages ranged from 40-68 yrs and were randomly divided into 2 groups. All of them participated in a 4-wk metabolic study, wks 1-3 at Clinical Research Ward, Ramathibodi Hospital and wk 4 at home. All of them received 150 g of Aminoleban EN (a soft powder nutrient-mixture containing high content of BCAA) providing 40 g protein and 630 kcal, together with the conventional liver

diet providing 40 g of protein and 1500 kcal daily during wks 1, 2, and 4 for group A and during wks 2-4 for group B. For group A, during wk 3 they received the conventional liver diet providing 80 g protien and 2130 kcal. For group B, during wk 1 they received the conventional liver diet providing 40 g protein and 2130 kcal. The results indicate that both groups could achieve the assigned dietary intake during receiving Aminoleban EN supplementation better than during receiving conventional liver diet alone. Group a exhibited positive nitrogen balance throughout the study. Higher nitrogen balance was observed during receiving Aminoleban EN supplementation than during receiving conventional liver diet alone. Group B showed negative nitrogen balance during wk 1 due to their low protein intake of 40 g daily. Their nitrogen balance became positive after receiving Aminoleban EN supplementation. Both groups exhibited singificant increase in serum transferrin levels during receiving Aminoleban En which may indicate correction of impaired protein synthesis in the cirrhotic lever, probably due to BCAA supplementation and normalization of the plasma amino acid pattern. It is possible that the increased urinary carnitine excretion during receiving Aminoleban EN (wks 1-2 in group A) is due to a rapid in vivo conversion of orally administered lysine to carnitine. Since carnitine is required for long-chain fatty acid oxidation this may

explain higher serum acyl carnitine levels but lower acyl carnitine clearance in our cirrhotic patients than those in healthy adults. Serum creatinine levels in our cirrhotic patients were within normal limit throughout the study and there was significant positive correlation between UAMC and urinary creatinine excretion. The influence of the levels of protien and purine intake on serum and urinary uric acid levels in also evident in our study. The patients could tolerate the diet prescribed evidenced by their actual intakes were closed to the assigned levels. Biochemical assessment did not find any deterioration of their hepatic function. Besides, blood ammonia levels were decreased in 13 out of 16 patients following consuming conventional liver diets supplemented with Aminoleban EN.