



Brief report

Nutrition therapy using a multidisciplinary team improves survival rates in patients with liver cirrhosis

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ABSTRACT

Objectives: Very few reports thus far have clinically elucidated the advantages of a nutrition support team (NST) in the field of liver diseases. The present study retrospectively analyzed whether nutrition therapy for liver cirrhosis (LC), performed by a multidisciplinary team that includes registered dietitians, improves survival rates.

Methods: In study 1, we compared survival rates between two groups of patients with LC to elucidate the effects of nutrition management by registered dietitians. The first group was comprised of 101 patients that received no dietary counseling from a dietician, and the second group was comprised of 133 patients that received nutritional counseling following nutrition assessment. In study 2, we split the patients who received nutritional counseling in study 1 into two groups and compared their survival rates with the objective of investigating the effects of a multidisciplinary team approach on survival rate. The first group was comprised of 51 patients that, in addition to regular nutritional counseling given by a dietician, regularly attended courses on liver disease given every 3 to 6 mo. The second group was comprised of 82 patients that did not attend the liver-disease courses.

Results: During study 1, 34 patients in the first group and 20 patients in the second group died, representing a significant difference ($P < 0.05$). This difference was even more pronounced in the subset of patients classified as Child-Pugh class A ($P < 0.01$), but no differences were seen among patients in classes B and C ($P = 0.378$). During study 2, four patients in the first group and 15 patients in the second group died, representing a significant difference ($P < 0.05$).

Conclusions: This study showed that nutritional intervention using a multidisciplinary team during the treatment of LC improves survival rates and quality of life of the patients.

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Introduction

Nutrition therapy for liver cirrhosis (LC) is based on dietary counseling that aims to correct protein-energy malnutrition (PEM) caused by hepatic metabolic disorders. Recent studies have reported that administration of branched-chain amino acids (BCAA) improves the survival rate of patients with LC and that the intake of late-evening snacks (LES) prevents morning starvation in cirrhotic patients [1–3]. These interventions are also recommended in the clinical nutrition guidelines [4].

However, in reality, nutrition therapy requires the establishment of nutrient intake levels by performing nutrition assessments in all patients, the reevaluation of nutritional standards based on quick responses to changes in the disease state of patients, and support for enabling long-term continuation of nutrition therapy. If the above conditions are not met, PEM may not improve, obesity may develop, and impaired glucose tolerance may be exacerbated. In addition, in order to successfully enable long-term continuation of BCAA supplementation and LES treatment, it is essential to show patients evidence of these treatments and to ensure that they understand the benefits. To efficiently perform these therapeutic interventions, it is important to establish a multidisciplinary nutrition support team (NST) of physicians, dietitians, pharmacists, and nurses to educate

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Table 1
Patients' clinical characteristics

| Study 1 | | | |
|---|--|---|-------|
| | No dietary counseling from a dietician (n = 101) | Dietary counseling from a dietician (n = 133) | P |
| Age (y) | 66 ± 15 | 67 ± 9 | ns |
| Sex ratio (M/F) | 69/32 | 70/63 | <0.05 |
| Etiology of cirrhosis (HBV/HCV/Alcohol/other) | 12/60/18/11 | 7/77/23/26 | ns |
| Child-Pugh Score (A/B/C) | 70/27/4 | 77/47/9 | ns |
| Study 2 | | | |
| | Attending liver disease courses (n = 51) | Not attending liver disease courses (n = 82) | P |
| Age (y) | 66 ± 6 | 67 ± 11 | ns |
| Sex ratio (M/F) | 26/25 | 44/38 | ns |
| Etiology of cirrhosis (HBV/HCV/Alcohol/other) | 4/27/5/15 | 3/50/18/11 | <0.05 |
| Child Pugh Score (A/B/C) | 34/14/3 | 43/33/6 | ns |

ns, not significant; HBV, hepatitis B virus; HCV, hepatitis C virus

patients. However, very few reports thus far have clinically elucidated the advantages of NST in the field of liver diseases.

The present study retrospectively analyzed whether nutrition therapy for LC, performed by a multidisciplinary team that includes registered dietitians, improves survival rates.

Subjects and methods

Study 1

To elucidate the effects of nutrition management by registered dietitians, we compared survival rates between two groups of LC patients who visited our department between January 2005 and October 2012. The first group was comprised of 101 patients (69 men, 32 women) who received no dietary counseling from a dietician. The second group was comprised of 133 patients (70 men, 63 women) who received nutritional counseling following nutrition assessment. The nutritional consultation recommended 30–35 kcal with 1.0–1.5 g of protein/kg of ideal bodyweight per day in both groups following the European Society of Parenteral and Enteral Nutrition guidelines [4]. The first group received nutritional advice from a physician and was prescribed BCAA and/or LES at the discretion of the attending physician. The second group, as a general rule, received body-composition monitoring and advice on nutrient-intake levels by a registered dietician every 1 to 3 mo. During each visit, they presented a 3-days food diary and were encouraged to maintain an appropriate diet. In addition, if the dietician found that administration of BCAA and/or LES was necessary, he or she advised the attending physician to carry out the therapy. Survival rates were analyzed using the Kaplan-Meier estimator. In addition, we analyzed whether dietary interventions for men and women led to the same survival rates. We also analyzed factors that may result in different survival rates (i.e., Child-Pugh A versus B and C and < 65 y versus ≥ 65 y).

Study 2

With the objective of investigating the effects of a multidisciplinary team approach on survival rate, we split the LC patients that received nutritional counseling in Study 1 into two groups and compared their survival rates. The first group was comprised of 51 patients (26 men, 25 women) who, in addition to regular nutritional counseling given by a dietician, regularly attended liver-disease courses given every 3 to 6 mo. The second group was comprised of 82 patients (44 men, 38 women) who did not attend the liver-disease courses. During the courses on liver disease, physicians gave lectures on the importance of nutrition therapy, dietitians explained the actual condition of nutrition therapy, pharmacists provided instructions on how to take medications, and nurses provided advice on various aspects of daily life. Furthermore, sessions were held on the preparation of therapeutic foods and snacks, and patients attended tasting sessions during the courses, expanding the patients' knowledge of nutrition therapy and providing them with the support necessary for undergoing therapy.

Statistical analysis

Data are expressed as mean ± standard deviation or as the number of cases. Categorical data were analyzed using the χ^2 test. Mann-Whitney U test was used for two-group comparisons. Kaplan-Meier analysis was used for variables associated with survival. A *P* value < 0.05 was considered statistically significant.

Results

Study 1

The characteristics of cirrhotic patients are shown in Table 1. Comparison of the patients' backgrounds between the group that did not receive nutritional counseling and the group that did

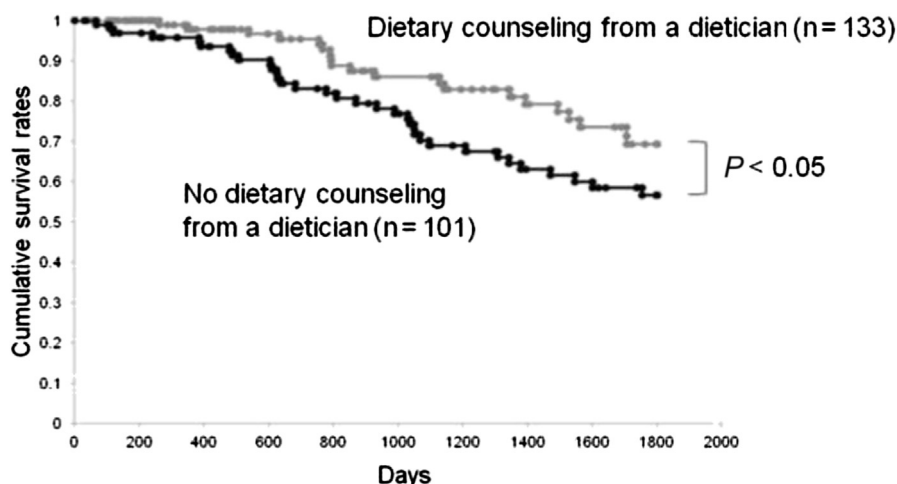


Fig. 1. Nutritional intervention by dietician prolongs survival of liver cirrhosis (*P* < 0.05). Kaplan-Meier survival curves of cirrhotic patients who received dietary counseling or not from a dietician, with *P* values calculated using the log rank test.

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