

Original Research Article

Observational study on diet compliance in hospitalized patients diagnosed with liver disease

Ritu Yadav¹

Department of Clinical Nutrition & Dietetics,
Mahatma Gandhi Medical College & Hospital, Jaipur

Abstract

Background: Malnutrition is very common in patients suffering with liver disorders and it is also proven to deteriorate the patient's prognosis. Various types of liver disorders are linked with many nutrient deficiencies. Chronic liver disease patients generally exhibit fat malabsorption and decreased albumin levels. These physiological derangements lead to malnutrition in liver patients. These patients can undergo liver transplant, therefore improved nutritional status prior to transplant can improve their prognosis after transplant. Therefore, it is crucial to identify malnutrition in these patients in order to treat it and to achieve and maintain ideal body weight, improve their response to treatment and reduce complications. This study aimed to determine the nutritional status and dietary intake of CLD patients.

Methods: A prospective observational study was conducted on the patients who were suffering from chronic liver disease, among which 50 subjects were studied, between 19 to 59 years of age. Duration of the study was 3 months. Nutritional status of the patients was assessed using Subjective global assessment (SGA) that was based on anthropometry, biochemical reports, clinical examination and dietary intake of patients.

Results: On the basis of results obtained from the present study it can be concluded that majority of patients were males, the mean height of males was 163 cm and for females, it was 155 cm. The mean weight of males and females was 72 kg and 61 kg respectively. The majority of the patients showed Body Mass Index in the normal range. The majority (34%) of patients were suffering from Chronic liver disease, Alcoholic liver disease, with symptoms of jaundice, ascites, portal hypertension and diabetes. Diet

intake data depicted that 54% patients had moderately lower energy and protein intake (60-79%) of their requirements

Conclusion: It can be concluded from the present study that Chronic liver disease and treatment of Chronic liver disease both put the patients at nutritional risk by causing malnutrition, increased nutritional needs and decreased food intake. It can be prevented by timely or early detection of nutritional status or requirements, so that timely decision can be taken for right nutritional intervention for them.

Keywords

Chronic liver disease, nutritional status, dietary intake, anthropometric measurement.

Introduction

The liver is the powerhouse of human body as it is the major site for metabolism of nutrients and drugs. Simultaneously it has a major role in detoxification of toxins and metabolic wastes ^[1]. Playing important role in nutrient metabolism, liver disorders are directly linked to nutritional deficiencies and malnutrition.

Metabolic hepatic steatosis is becoming very common due to higher incidences of obesity, type 2 diabetes and dyslipidemia. Sarcopenic obesity is also common in chronic liver disease patients in which intensive nutrition care is of utmost importance to prevent loss of lean body mass. Research has proven a regressive relationship between weight loss and liver fibrosis ^[2].

Cirrhosis is becoming a major cause of mortality and morbidity globally. It is accounting for 2.2% of global mortality and 1.5% of morbidity all over the world ^[3]. Chronic liver disease was observed in both genders with higher incidences in men showing mortality of 1.32 million in 2017 ^[4].

Factors Contributing to Malnutrition

Malabsorption of fat and fat soluble vitamins is seen in metabolic hepatic steatosis due to deranged bile salt production. It leads to reduced amount of essential fatty acids. Albumin production is also decreased in condition of chronic liver disease. It leads to oedema that hinders the absorption of nutrients in the intestines. In condition of energy deficiency, protein is used as energy sources leading to depleted muscle mass [5].

Clinical signs and symptoms

There is a wide spectrum of signs and symptoms of CLD, such as fatigue, anorexia, weight loss etc. The three significant complications are portal hypertension (esophageal varices, ascites), hepatocellular insufficiency (e.g., jaundice, hepatic encephalopathy), and hepatocellular carcinoma.

Treatment and Prophylaxis

The goal of treatment is to stop the progression of the disease and to prevent development of further complications that require a multidisciplinary approach. Therefore present study was planned with following aims and objectives -

Aim

- To assess the nutritional status and dietary pattern of chronic liver disease patients

Objectives

- To collect the general Information and demographic profile of the patients.
- To assess the nutritional status and dietary pattern of chronic liver disease patients.
 - To collect the anthropometric measurements of the patients.
 - To collect the Biochemical data of the patients.
 - To assess clinical signs & symptoms of the patients.
 - To collect the dietary information of the patients.
- To compare nutritional status of all patients
- To observe the diet compliance of hospitalized patients

Research Methodology

Purpose: Assessment of nutritional status and dietary compliance of chronic liver disease patients.

Period of Study: The study was conducted for 3 months

Study Population: The Population for this study includes all Chronic Liver Disease patients receiving for treatment in Mahatma Gandhi Hospital

Sample Technique: Purposive sampling technique is used for this study

Sample Size: 50 patients were studied.

Inclusion Criteria:

- Patients having liver disease
- Both males and females were included in the study
- Patients who were willing to be a part of the study after informed consent

Exclusion Criteria:

- Unwilling/non cooperative patients

Collection of general information and demographic data: To collect general information and demographic profile of patients, a well structured questionnaire was prepared in advance, which was given to patients or attendants (in case patient was not able to fill it) and information was recorded for patient's age, sex, educational status, economic status, occupation, marital status, lifestyle practices like consumption of smoking, alcohol, type of disease.

Assessment of nutritional status

Assessment of anthropometric measurements: In this height of the subjects was measured using a heightometer and weight was recorded by a digital weighing balance. Body mass index was calculated by the formula: Weight (Kg)/ Height (M²).

Biochemical; reports of the subjects were noted that were prescribed by hepatologists. These were majorly for Liver Function Tests like serum bilirubin total, serum bilirubin direct, serum bilirubin indirect, serum alkaline phosphatase, serum total proteins, serum albumin, serum globulin, SGOT/AST, SGPT/ALT and CBC (Complete Blood Count) hemoglobin, platelet count, WBC, RBC count etc.

Clinical signs & symptoms were recorded using a checklist following signs and symptoms: Weakness, wasting, cough, anorexia, loss of appetite etc.

Dietary intake was recorded using a 24 hour dietary recall combined with food frequency questionnaire and by providing them nutritional interventions.

Statistical analysis

Data collected was processed statistically to calculate its mean and percentage. It was tabulated under results and discussion section.

Results and Discussion

1. General information:

Total patients	Males	Females
50	43	7
100 percent	86%	14%

Table 1: No of patients

Above table 1 shows the distribution of patients according to their gender. Total no of patients was 50, out of which 43 were male and 7 were female. Percentage males were 86% and females were 14%.

Anthropometric measures	Males		Females	
	No of patients (50)	Percentage (100%)	No of patients (50)	Percentage (100%)
Mean Height (cm)	169	-	155	-
Mean Weight (kg)	72	-	61	-
BMI (Underweight)	1	2.3%	-	-
Normal	26	60.5%	4	57.1%
Overweight	10	23.3%	2	28.6%
Obese	6	14%		14.3%

Table 2: Anthropometric measurements

Above table 2 depicts the distribution of patients according to their anthropometric measurements.

The mean height in males was 169 cm, mean weight was 72 Kg. In females mean height was 155 cm, while mean weight was 61 kg.

On the basis of BMI: Out of 43 males, 26 were normally nourished, 1 was undernourished, 10 were overnourished and 6 were obese, had higher weight / BMI but they were malnourished as this weight was due to accumulation of ascitic fluid into peritoneal cavity.

On the basis of BMI: Out of 7 females, 4 were normally nourished, and no-one was undernourished, 2 were overnourished and 1 was obese, had higher weight / BMI but they were malnourished as this weight was of water (ascitis).

2. Diagnosis:

Diagnosis	No of patients (N = 50)	Percentage
CLD	12	24%
Ascites	6	8%
ALF	4	12%
Hepatitis	5	10%
Alcoholic CLD	6	12%
CLD/ACLF/JAUNDICE/ASCITES/PHTN/ DIABETES.	17	34%

Table 3: Diagnosis

Above table 3 is showing the distribution of patients according to their diagnosis.

Out of total 50 patients, 24 % were suffering with CLD, 8% were suffering with ascites, 12% were suffering with ALF, 10% were suffering with hepatitis, 12% were suffering with Alcoholic CLD and 34% were suffering with CLD / ACLF / JAUNDICE / ASCITES / PHTN / DIABETES.

3. Diet compliance:

Nutrient intake	No of patients (N = 50)	Percentage (100%)
Energy (Kcal) 80 – 100 % of the requirements	17	34%
Energy (Kcal) 60 – 79 % of the requirements	27	54%
Energy (Kcal) < 50 % of the requirements	6	12%
Protein (g) 80 – 100 % of the requirements	17	34%
Protein (g) 60 – 79 % of the requirements	27	54%
Protein (g) < 50 % of the requirements	6	12%

Table 4: Diet compliance

Table 4 presents the distribution of patients on the basis of their diet compliance. The diet intake was converted to nutrient intake and that nutrient intake was compared to nutrient requirements. On the basis of comparison, it was found that, out of total patients, 34% patients had energy intake normal (80 – 100 percent of the requirements), 54% patients had moderately lower energy and protein intake (60 – 79 %) of the requirements and 12% patients had severely less nutrient intake (< 50%) of the requirements.

The less intake was due to the reduced appetite, less interest in food, change in taste buds, mental health conditions, digestive disorders and stomach conditions, alcohol use disorders and social and mobility problems.

Conclusion

On the basis of results obtained from the present study it can be concluded that majority of the patients were males, the mean height of males was 163 cm and for females it was 155 cm. The mean weight of males was 72 kg and mean weight of females was 61 kg. Majority of patients had normal Body Mass Index and the majority 34% were suffering from CLD, ALD, ACLF, Jaundice, ascites, portal hypertension, diabetes. Diet compliance of patients was seen that 54% patients had moderately lower energy and protein intake (60-79 %) of their requirements

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