

*Case Report***A 43 year old male with Jaundice****Ritik Agrawal¹**

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Abstract

Malnutrition and liver cirrhosis go hand in hand due to poor metabolic and detoxifying capacity of liver. Due to impaired liver function, patient is anorexic, portal hypertensive, altered mental state, nausea, jaundice, ascitis. These symptoms associated with liver diseases are enough to lead to malnutrition by poor food intake, maldigestion, malabsorption and impaired detoxification process. Present case was a 43 year old male suffering diagnosed with D-CLD with jaundice, ascitis, hepatic encephalopathy with comorbidities of type 2 diabetes and hypothyroidism. He was grossly investigated for extent of liver function in terms of Child Turcotte Pugh and MELDna scores. Accordingly his medications were started. Simultaneously, the patient was assessed for his nutritional status, in which he was found moderately malnourished as evidenced by SGA rating B. Patient was motivated to improve food intake and given a lot of varieties in diet. Consequently his condition was improved drastically although permanent treatment was liver transplant for which workup has been started.

Keywords

Liver, D-CLD, jaundice, ascitis, liver transplant, nutrition, hand grip strength, assessment, intervention, diet compliance

Introduction

Burden of malnutrition in liver cirrhosis patients is quite evident all over the world. Problem of malnutrition leads to liver failure. Researches have manifested prevalence of malnutrition in more than 20% patients suffering from compensated CLD, while malnutrition was found in more than 50% patients suffering from decompensated liver disease ^[1]. Symptoms of liver disease may range from as common as anorexia and

fatigue to ascitis, portal hypertension, hepatic encephalopathy and sarcopenia. Patients may be both underweight or overweight having similar symptoms. Many a times, sarcopenia is neglected in obese patients which is more dangerous condition [2]. Therefore importance of good nutritional support is of utmost importance in liver disease patients.

Case description

A 43 year old male was admitted on 25th May 2024 with complaints of altered sensorium, hepatic encephalopathy grade II, acute kidney injury, nausea, one episode of vomiting in morning and loose motions. On clinical examination, he was found to have portal hypertension non bleeder, grade I esophageal varices, chronic liver disease alcohol related, Mets ALD, decompensated jaundice, ascitis, hepatic hydrothorax, hepato renal syndrome and coagulopathy. Patient was shifted to ICU for vital monitoring and nursing care.

Personal history

By occupation he was in a PVT job (employee in a foreign liquor company) belonged to middle income group family having number of family members as seven.

Previous medical history

He was diagnosed with Met Ald (predominantly ALD) when he developed jaundice since 2 months which was painless, progressive, non cholestatic, abdominal distension, and pedal edema since 1 month. He was admitted in another hospital with these complaints and was diagnosed with CLD with portal hypertension, ascitis and hepatic hydrothorax. Ascitis fluid analysis was done showing high SAAG, low protein, no SBP. Pleural fluid analysis was done showing high SPAG and no SBE. Upper GI endoscopy was done showing grade 1 esophageal varices. He was started on oral medication and discharged. Then patient came to MGH (14th to 20th May) for further evaluation and management. During this duration, he was admitted to ward with history of smoking, alcoholism, impaired vision, impaired hearing and impaired speech. His psychological status was withdrawn. There was no complaint of pain. There was no known allergy.

Present examination

At the time of admission, his vitals were

BP 110/60 mmHg, PR 70/ min., SPO₂ 92% on RA, RR 22/min.

Airway - Non intubated, Breathing - spontaneous, Circulation - Heart rate - 75, BP (Systolic/ Diastolic/ MAP) – 126 / 82 / 93, GCS - E4V5M6

Investigations

Investigations	Reference range	14 th May	25 th May	3 rd June
WBC/ TLC	4 – 10 $10^3/\mu\text{L}$	2.52	3.2	3.6
Hb	13 – 17 g/dL	8.4	9.8	8.3
Platelet	150 – 410 $10^3/\mu\text{L}$	81	132	72000
RFT				
Sr. Ammonia	15 – 60 $\mu\text{g/dL}$	38.6	249	
S. Cr	0.52- 1.25 mg/dL	0.8	0.8	0.6
LFT				
Total Bilirubin	0.2 – 1.3 mg/dL	4.2	5.3	5.8
Direct Bilirubin	<0.3 mg/dL	1.5	2 mg/ dl	2.9
AST	15- 46 U/ L	31.9	27.8	39
ALT	13 – 69 U/ L	18.2	17.5	22
SAP	38 -126 U/L	94.2	100.8	173
Total proteins	6.3 -8.2 g/dL	7.3	9.2	8.1
Albumin	3.5 – 5 g/dL	3.0	3.6	2.7
Electrolytes				
Na	135- 145 mmol/L	129	128	126
K	3.5 – 5.1 mmol/ L	4.1	4.7	3.8
Cl	98 – 107 mmol/L	97	91.1	
PT/ INR	10.3 12.6 Sec./ 11.4 Sec.	22.2/2.07	34.9/3.41	29/2.87
CTP	< 5	11/C	9/B	
MELDna		29	32	

Table 1: Investigations of the patient at different time intervals

Present issues were altered mentation, poor diet intake, constipation, therefore recommendations were for RT insertion, foley's catheterization, looz enema, chest X ray and patient was shifted to ICU. IV fluids and NS were stopped.

Provisional Diagnosis

Portal hypertension non bleeder, grade 1 esophageal varices

CLD – Met ALD (LSM – 75 kpa)

Decompensation – Jaundice, ascitis, 1 episode of hepatic encephalopathy

Bilateral hepatic hydrothorax (L>R)

Comorbidities: T₂DM, Hypothyroidism

CTP - 11/C

MELDna-29

Treatment advised

Drug role	Drug & dose - At the time of admission	Drug role	Drug & dose - At the time of discharge
Antibacterial	Tab PIPTAZ 4.5 g IV	Reduces portal hypertension	Tab MIDODRINE 5 mg TDS
Laxative	Syp Looz orally 6 hrly	Diuretic to treat fluid overload	Tab DYTOR PLUS 10/50 mg BD
Laxative	Looz enema	To treat hypothyroidism	Tab THYRONORM 50 mcg OD
Treat encephalopathy	Tab RIFAGUT 55g oral TDS	OHA	Tab ONDEROMET 2.5/500 mcg – BD for 7 days
Improves liver functioning	Inj. LARNIT 25 g/ day	Antihypertensive	Tab CARDIVAS 3.125 mg – BD
Albumen	Inj. H Albumen 20% IV OD	Antacid	Tab PANTOCID 40 mg OD before breakfast
Antiemetic	Inj. EMSET IV	Treat encephalopathy	Tab RIFAGUT 550 mg- BD
Laxative	Liq Lacti hep 15 ml TDS	Antibacterial	Tab TAXIM O 200 mg – BD
		Laxative	Syp LACTIHEP 30 ml TDS
		Nutraceutical	Celevida Liv protein powder 2scp TDS

Table 2: Medical treatment of the patient at the time of admission and discharge

Review

He was started on IV antibiotics, IV albumin and other supportive medications. Triple phase CECT abdomen was done showing features of cirrhosis of liver with portal hypertension. HRCT chest was done showing massive left pleural effusion and moderate right pleural effusion. Liver transplantation as a definitive management of patient's condition was explained to patient and his family members. Liver transplant workup was started with due consent. Dobutamine stress echo was done which was negative for provokable MI. Now he was awaiting pulmonology clearance for transplantation.

Patient was reviewed daily for improvement in terms of functional capacity and liver functioning as evident from his biochemical parameters from table 1. According to that, patient's medical treatment was modified that has been shown in table 2.

Nutrition care process

Nutritional assessment: Patient's nutritional status assessment was done using anthropometry, biochemical investigation, clinical signs and symptoms and dietary history. On the basis of this, his nutritional diagnosis was inferred. On the basis of nutritional diagnosis, patient's nutrition intervention was planned and monitored for his diet compliance.

Anthropometry

Height (cm)	Weight (kg)	BMI (kg/m ²)	Target body weight (kg)	Handgrip strength
172	88	27	62	26 (46 kg)*

Table 3: Anthropometric measurements of the patient ^[3]

*Reference range in parenthesis

Activity level: No physical activity level since past 2 years

Nutrient intake: Suboptimal

History of weight loss/ gain: 5 - 10 % weight loss during past 6 months

Symptoms: Anorexic, feeling full quickly

Functional capacity: Bed ridden

Metabolic requirements: High

Loss of body fat: Mild

Loss of muscle mass: Mild

Presence of edema/ ascitis: Grade 1

Home diet recall

Patient's home diet recall was noted on the basis of that, his energy intake was found to be 60% of his requirements. His intake of protein, carbohydrates and fat was observed as 50%, 80% and 75% of his requirements [4].

Nutritional diagnosis: SGA rating B

PES statement: Patient was found to be moderately malnourished due to poor diet intake and chronic illness as evidenced by SGA rating B, decrease fat mass, decreased muscle mass, lower hand grip strength.

Nutrition intervention

- Short term goals
 - Abstinence from alcohol
 - To increase oral intake
 - To maintain lean body mass & muscle mass
 - To correct micronutrient deficiencies
- Long term goals
 - To achieve ideal body weight
 - To keep the patient free from macro and micronutrient deficiencies
 - To impart nutrition education and improve overall quality of life
- Patient's requirements
 - Energy 2170 Kcal (35 Kcal/ kg IBW)
 - Protein 93 g (1.5 g/ kg IBW) = 372 Kcal (17% of total calories)
 - Carbohydrates: 315 g (55 – 60 % of total calories)
 - Fat in emulsified form = 60 g (30 g visible fat) (25% of total calories)

- Cal: N₂ ratio = 145 : 1
- Non protein calories: 1800 Kcal
- Sodium: 1000 mg

Diet compliance monitoring during hospital stay

Date	Type of diet	Energy prescribed	Energy intake	% intake	Protein prescribed	Protein intake	% intake
26/5/24	Liquid + soft	1200	900	75%	45	30	66.66%
27/5/24	High protein soft diet	1653	1587	96 %	64	70	109 %
28/5/24	High protein diet	2065	2105	102 %	92	88	95.65%
29/5/24	High protein diet	2065	1588	76.90 %	92	62	67.39%
30/5/24	High protein diet	2143	2019	94.21 %	92	91	98.9%
31/5/24	High protein diet	2071	1947	94 %	100	68	68%
1/6/24	High protein diet	1993	2222	112 %	90	105	116.66%
2/6/24	High protein diet	2210	2200	99.54 %	107	105	98.13%

Table 4: Diet compliance study during hospitalization

Above table 4 is presenting diet intake of the patient during hospitalization. It is evident that when patient was admitted, he was suffering with nausea, vomiting, loose motions and altered sensorium. Therefore his diet intake was very poor. He was able to take just liquids. That too could be given in limited quantity due to ascitis. But later, patient was motivated and counselled intensively to improve diet intake and lot of variety was suggested in his diet. Besides this medication also worked well, due to which patient's food intake improved dramatically and it was found that his calories and protein intake was nearly 100 % of his requirements. It brought about significant improvement in his clinical condition.

Discharge

Patient was discharged on request with advice to follow up in hepatology OPD after 7 days. As a part of nutritional literacy, he was prescribed a discharge diet with 2400 Kcal 90 g protein with salt restriction.

Conclusion

A 43 year old male suffering from Met ALD, showing symptoms of portal hypertension, ascitis, jaundice, hepatic encephalopathy with comorbidities of type 2 diabetes and hypothyroidism was admitted with complaints of nausea, vomiting, loose motions and altered state of mind. He was thoroughly investigated for declining symptoms of liver function and other functional capacities. It was noted that motivating patient to eat a variety of foods providing him pleasure of eating. He understood the importance of nutrition when he saw improvement in his condition. It was self motivation and led to improved nutrition intake with improved quality of diet. But simultaneously it was also clear that liver transplant was a permanent treatment. Therefore patient was discharged with this recommendation and motivation for eating to maintain good nutritional status before transplant.

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