
بسم الله الرحمن الرحيم
السلام عليك يا فاطمة الزهراء


رَبِّ أَدْخِلْنِي مُدْخَلَ صِدْقٍ وَأَخْرِجْنِي مُخْرَجَ صِدْقٍ وَاجْعَل لِّي مِن لَّدُنكَ سُلْطَانًا نَّصِيرًا



Role of Nutrition in the Management of Chronic Liver Disease

GI Day 2025

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SANOFI

- ***Malnutrition affects a substantial proportion of people with chronic liver disease (CLD), with a prevalence ranging from 13.3% to 85% (average 37.6%).***
- ***As CLD progresses to liver cirrhosis (LC), malnutrition rates increase to a range of 26.7%–93.6% (average 44.1%)***

- ***Sarcopenia***

the progressive loss of skeletal muscle mass and strength—is closely linked to malnutrition and highly prevalent among patients with CLD and LC.

- ***Both malnutrition and sarcopenia are associated with higher rates of complications such as susceptibility to***
- ***infections,***
- ***hepatic encephalopathy (HE),***
- ***and ascites.***

- *Furthermore, they are independent predictors of lower survival in LC and among those undergoing liver transplantation.*
- *While malnutrition and sarcopenia influence the prognosis and management of CLD, the role of targeted nutritional management in improving patient quality of life (QoL) and decreasing complications of LC is unclearly described.*

- *This lecture aims to describe the impact of*
- *malnutrition,*
- *sarcopenia, and*
- *frailty on persons with CLD and LC*
- *and outline the evidence supporting multidisciplinary management of nutrition status very briefly*

Definition of Malnutrition, Sarcopenia and Frailty in Patients With CLD

- Malnutrition
- "An acute, subacute or chronic state of nutrition in which a combination of varying degrees of
- overnutrition or undernutrition with or without
- inflammatory activity have led to a change in
- body composition and diminished function"

Sarcopenia

- Progressive reduction in muscle mass and subsequent function as found on CT imaging of the third lumbar vertebraesex-specific, skeletal muscle index cut-offs < 50 cm2 /m2 for men and< 39 cm2 /m2 for women.

Frailty

- Clinically recognizable state of limited or impaired physical function due to decreased physiologic reserve

- *It is recommended that all patients with CLD, regardless of etiology, be screened for malnutrition and undergo a comprehensive nutrition assessment.*
- *It is also recommended to assess frailty and monitor these patients for signs of sarcopenia to identify potential risk of malnutrition.*
- *Nutrition is especially vital for people undergoing liver transplantation*

Screening for Malnutrition

- Body Mass Index (BMI) and
- Child-Pugh Classification

- It is generally understood that any patient with a
- BMI less than 18.5 kg/m2 or with
- CPG-C decompensated LC, is classified as the highest risk for malnutrition.

- ***There has been an advent of screening tools to stratify patients with CLD and LC at risk for malnutrition;***
- ***The Subjective Global Assessment (SGA)***
- ***Royal Free Hospital-SGA (RFH-SGA)***
- ***Liver Disease Under Nutrition Screening Tool (LDUST)***

SGA (Subjective Global Assessment Scoring Sheet)

Patient Name:_____Patient ID:_____Date:_____

Part 1: Medical History

SGA Score

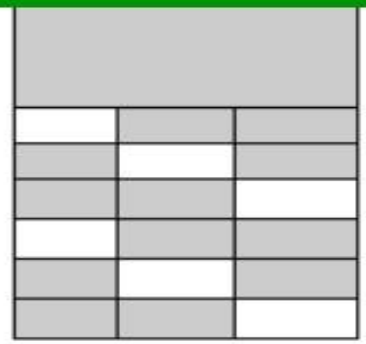
A	B	C

SGA (Subjective Global Assessment Scoring Sheet)

4. Functional Impairment **(nutritionally related)**

A. Overall impairment: _____ none
_____ moderate
_____ severe

B. Change in past 2 weeks: _____ improved
_____ no change
_____ regressed



Part 2: Physical Examination

5. Evidence of: Loss of subcutaneous fat
Muscle wasting
Edema
Ascites (hemo only)

SGA Score

Normal	Mild	Moderate	Severe

Part 3: SGA Rating (check one)

A. ☐ Well-Nourished B. ☐ Mildly-Moderately Malnourished C. ☐ Severely Malnourished

Subjective Global Assessment

Recognized by KDOQI as a useful measure of PEM

- Provides a nutritional score based on 2 components
  - Medical history: history of wt. loss (6 months), eating habits, GI symptoms, physiological functions and metabolic stress
  - Physical assessment: visual assessment of loss of subcutaneous fat and muscle mass
- Patient is scored on a 7–point scale (1)
  - 6-7 well nourished
  - 3,4,5 mild to moderately nourished
  - 1 or 2 severely malnourished

Liver Disease Undernutrition Screening Tool (LDUST)

- ***is based on six parameters:***
- ***recent oral intake,***
- ***weight loss,***
- ***subcutaneous fat loss,***
- ***muscle mass loss,***

- *fluid retention,*
- *ascites or leg edema, and*
- *effects on daily activities.*
- *Each parameter is graded as A, B, or C.*

Screening for Sarcopenia

- CT Lumbar Spine
- Dual-Energy X-Ray Absorptiometry (DEXA) Scan
- Anthropometric Methods

- ***Unlike CT and DEXA imaging, body mass assessment can be done at the bedside via anthropometric methods most used measurements include the MAMC, the mid-arm muscle area, and triceps skinfold thickness (TSF).***

Sarcopenic Obesity (SO)

- *occurs in the setting of decreased muscle mass alongside increased adiposity, is closely linked to insulin resistance and metabolic syndrome.*
- *Furthermore, growing evidence suggests an association of SO with the development and progression of metabolic dysfunction–associated steatotic liver disease (MASLD)*

Summary of Screening Modalities

- The best approach involves using a combination of tools including global assessment, imaging, body composition assessment methods
- Although further validation is needed, both the RFH-NPT and the LDUST have been shown to accurately identify malnutrition in patients with LC with a high sensitivity, in the inpatient and outpatient settings respectively

Screening

- Low BMI (<18)
- Advanced liver disease (Child-Pugh class C)
- Positive RFH-NPT score

Patients at risk

Nutritional assessment

- Muscle mass
  - Anthropometry
  - DEXA, BIA
  - CT scan (L3)
- Muscle strength
  - Handgrip test
- Global physical performance
  - TUG
  - 6 MWT

Conclusion

- *Malnutrition, sarcopenia and frailty are highly prevalent among patients with CLD and warrant individualized approaches to nutritional optimization*

- *Several assessment tools to evaluate for malnutrition and sarcopenia including*
- *BMI, CPG, CT scanning, DEXA scanning, body measurements as well as screening surveys such as RFH-NPT and LDUST.*

Recommendations

- 1. We suggest early administration of oral or enteral nutrition supplementation therapy in hospitalized patients with cirrhosis
- 2. In patients with cirrhosis or alcohol-associated hepatitis, we suggest implementation of nutritional supplementation therapy
- 3. In patients with MASH without cirrhosis, we suggest treatment with natural vitamin E 800 IU daily

- *4. We suggest coffee consumption, preferably $2 cups per day, in patients with chronic liver disease to reduce risk of hepatic fibrosis progression or HCC developmen*
- *5. In patients with cirrhosis and ascites who are managed with diuretic therapies, we cannot recommend for or against strict sodium restricted diets*
- *6. We suggest not restricting dietary protein in patients with decompensated cirrhosis and hepatic encephalopathy*

- ***7. We suggest a diet enriched in vegetarian sources of protein in patients with cirrhosis and hepatic encephalopathy who require nutritional supplementation***
- ***8. We recommend the use of branched chain amino acids (when available) in addition to standard-of-care treatment in patients with cirrhosis and hepatic encephalopathy***

- ***9. We recommend incorporating late evening snacks in patients with cirrhosis to improve body mass index, lean muscle tissue, and reduce the risk of ascites and hepatic encephalopathy***

- ***10. High-fructose/sucrose-containing diets are potent inducers of hepatic de novo lipogenesis and insulin resistance***
- ***11 . High-fructose/sucrose-containing diets are associated with chronic liver disease and fibrosis in a dose-dependent manner***
- ***12. Low-fructose diets are recommended in all patients with chronic liver disease across the entire spectrum of disease severity***

- ***13. Dysbiosis is associated with the development/progression of many forms of liver disease***
- ***14.Malnutrition/sarcopenia is generally more severe with greater fibrosis/more advanced liver disease.***
- ***This concept extends from early MASLD to advanced ALD***
- ***15. Evidence for supplemental vitamin D in chronic liver disease is limited; however, if vitamin D level is low, supplementation may offer bone-related and liverrelated health benefits***

- ***16. Zinc supplementation should be considered for patients with liver disease and hypozincemia and/or signs/symptoms of zinc deficiency***

- ***17.Lifestyle modification with diet and exercise decreases adverse clinical outcomes in patients with MASH and should be encouraged independent of MASH disease severity***

- ***18.In patients with cirrhosis and evidence of fluid retention (ascites and/or edema), free water restriction may be needed when serum sodium is below 126 mEq/L***

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Key Points?





THANKS FOR YOUR ATTENTON


Thank you for your attention