Enteral Nutrition Support for a Sarcopenia in End-Stage Liver Disease

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INTRODUCTION

• Weight loss with muscle wasting, also known as sarcopenia, commonly occurs in patients with end-stage liver disease (ESLD).
• A robust association between sarcopenia and mortality in cirrhotic and post-liver transplant patients has been reported.
• This is a report of a patient with severe sarcopenia and ESLD who was provided enteral nutrition using a Dobhoff tube (DHT) pre-liver transplant resulting in successful bridging to transplant.

CASE REPORT

A 59 year old male with chronic hepatitis C-related cirrhosis was awaiting liver/kidney transplant. Complications of his ESLD included hepatorenal syndrome, recurrent admissions for hepatic encephalopathy, variceal bleeding and refractory ascites.

• In addition, the patient continued to lose weight. The patient reported poor appetite and decreased oral intake. His body mass index (BMI) had fallen to 17.2 kg/m² and raised concern by our transplant team about his ability to survive transplantation.
• Past surgical and family histories were unremarkable.
• Physical examination was notable for cachexia, temporal and perianal wasting, moderate abdominal distension and lower extremity edema.

• Significant laboratory data included a pre-albumin of 6.0 mg/dL and albumin of 2.1 g/dL.
• Pre-transplant computed tomography of the abdomen and pelvis (CT a/p) of this patient revealed a mean total psoas area (TPA) of 820.70 mm² (Figure A-B) indicating severe sarcopenia.

• A DHT was placed to improve his nutritional status and allow for home enteral feeding. The DHT was secured with a nasal bridle system. Weight loss with muscle wasting, also known as sarcopenia, commonly occurs in patients with end-stage liver disease (ESLD). Additional information about sarcopenia in patients with ESLD who was provided enteral nutrition using a Dobhoff tube (DHT) pre-liver transplant is provided.

Figure 1: CT Abdomen/Pelvis at L4 Demonstrating Patient Total Psoas Area (TPA)

Mean cross-sectional area of the left and right psoas muscle at the level of the fourth lumbar vertebra (L4) was determined. This was accomplished by first identifying the individual vertebral levels on a CT scan of the abdomen and pelvis. We then selected the individual imaging slice at the midportion of the L4 vertebra and outlined the borders of the left and right psoas muscle. The cross-sectional area (in mm²) of the enclosed region was used to calculate the mean total psoas muscle area (TPA). The mean TPA for this patient is 820.70 which is calculated as follows: [(789.96 mm² + 851.45 mm²)/2].

Figure 2: Placement of Dobhoff Tube Secured with a Nasal Bridle System

DISCUSSION

As previously reported, there is an increased incidence of perioperative morbidity and mortality associated with a low psoas muscle area as measured on a CT scan of the abdomen and pelvis at the level of the L4 vertebra. This case demonstrates that home enteral nutrition supplementation with a DHT is an option to be considered for improving a patient’s nutritional status pre-liver transplant. Although complications such as vomiting, diarrhea and gastro-intestinal bleeding are possible with this intervention, it is overall low risk with regard to infection. DHT for supplemental enteral feeding should be considered in patients with pre-transplant sarcopenia to preserve their candidacy as a transplant candidate. Well-designed trials are needed to study this intervention to determine its overall effectiveness.

REFERENCES


None of the authors have any relevant disclosures to report.