

FEEDING IN THE SETTING OF SEROSAL TEAR REPAIR & SMALL BOWEL OBSTRUCTION

Erin McDonnell, Nutritional Sciences Program, MS-Nutrition Student & Dietetic Intern

BACKGROUND

Enteral nutrition (EN) should be prioritized over parenteral nutrition (PN) whenever possible to support gut integrity, lessen oxidative stress, and temper systemic immunity. PN should only be considered after 7-10 days if EN is contraindicated and patient is unable to meet >60% of energy and protein needs.

EN is contraindicated in the case of small bowel obstruction (SBO), a blockage of the small intestine often occurring as the result of surgery. SBO may resolve spontaneously or may require surgical intervention.

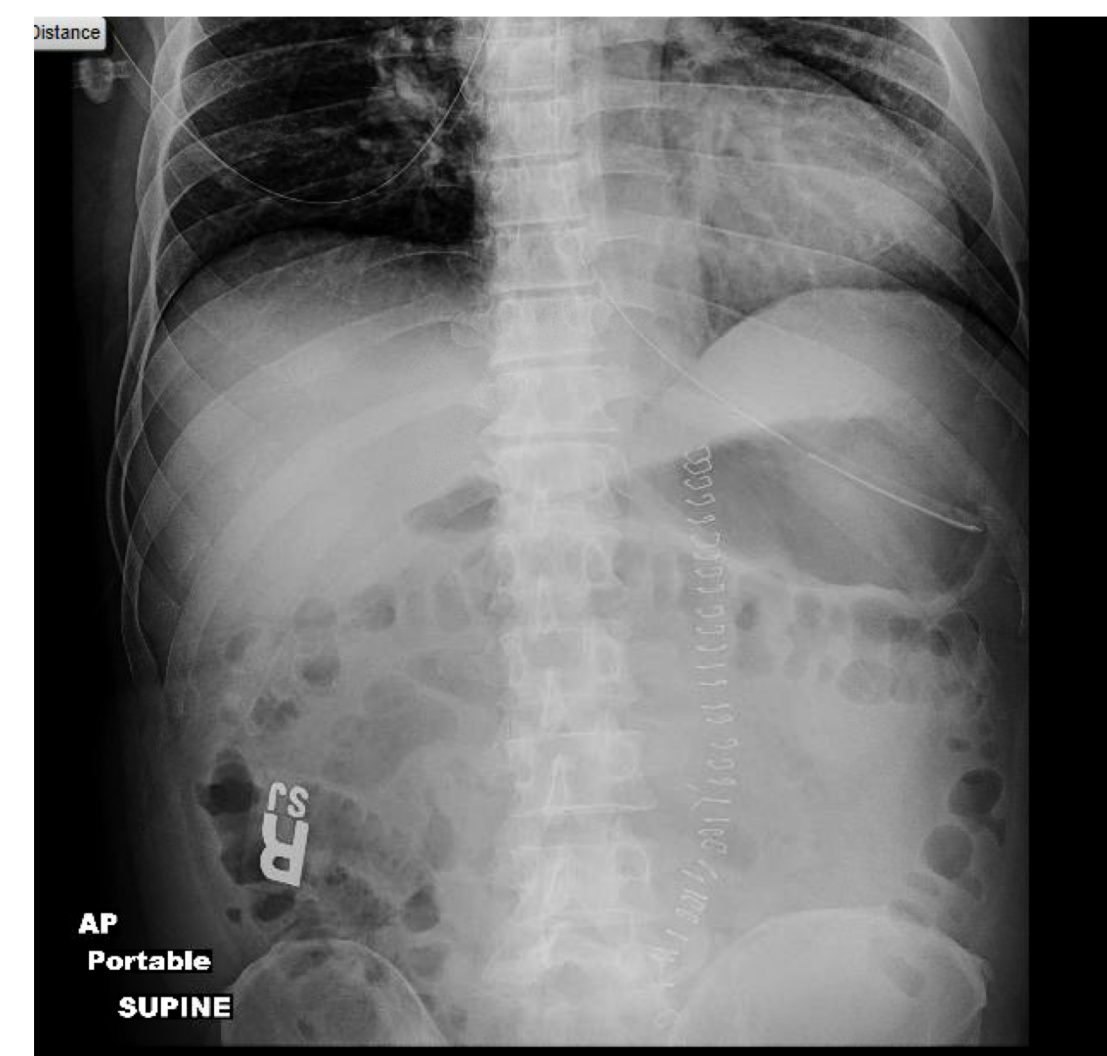
CLINICAL COURSE

HD2: Presented w/ ruptured abdominal aortic aneurysm (AAA) and found to have proximal jejunal serosal tear, both repaired on HD2

HD5-6: Started clear liquid diet 3 days post-op, advanced to full liquid diet the following day

HD7: Assessed by RD, found to be at low risk for malnutrition, but moderate risk of refeeding. Advanced to general diet, given thiamine (100mg). Nausea and lg. emesis overnight after first solid food meal

HD8: Placed NGT to LIWS (output >1L), CT Scan concerning for small bowel obstruction



Abdominal CT Scan revealing a distended, fluid-filled stomach and duodenum proximal to a transition point at the duodenojejunal junction anterior to the aortic repair site, concerning for small bowel obstruction

HD10: Nutrition consulted for TPN recs on HD9, PICC line placed and TPN started (50% dextrose) on HD10, thiamine and lytes added to TPN per PharmD

HD12: Lytes and hydration status stabilized, NGT removed and patient advanced to 100% TPN goal

HD13-14: Started clear liquid diet, advanced to full liquid diet the following day, both tolerated

HD15: Advanced to general diet. Ate 50% of 2 meals, then developed mild nausea, was given antiemetics, TPN continued overnight

HD16: Tolerated PO w/o nausea, TPN discontinued

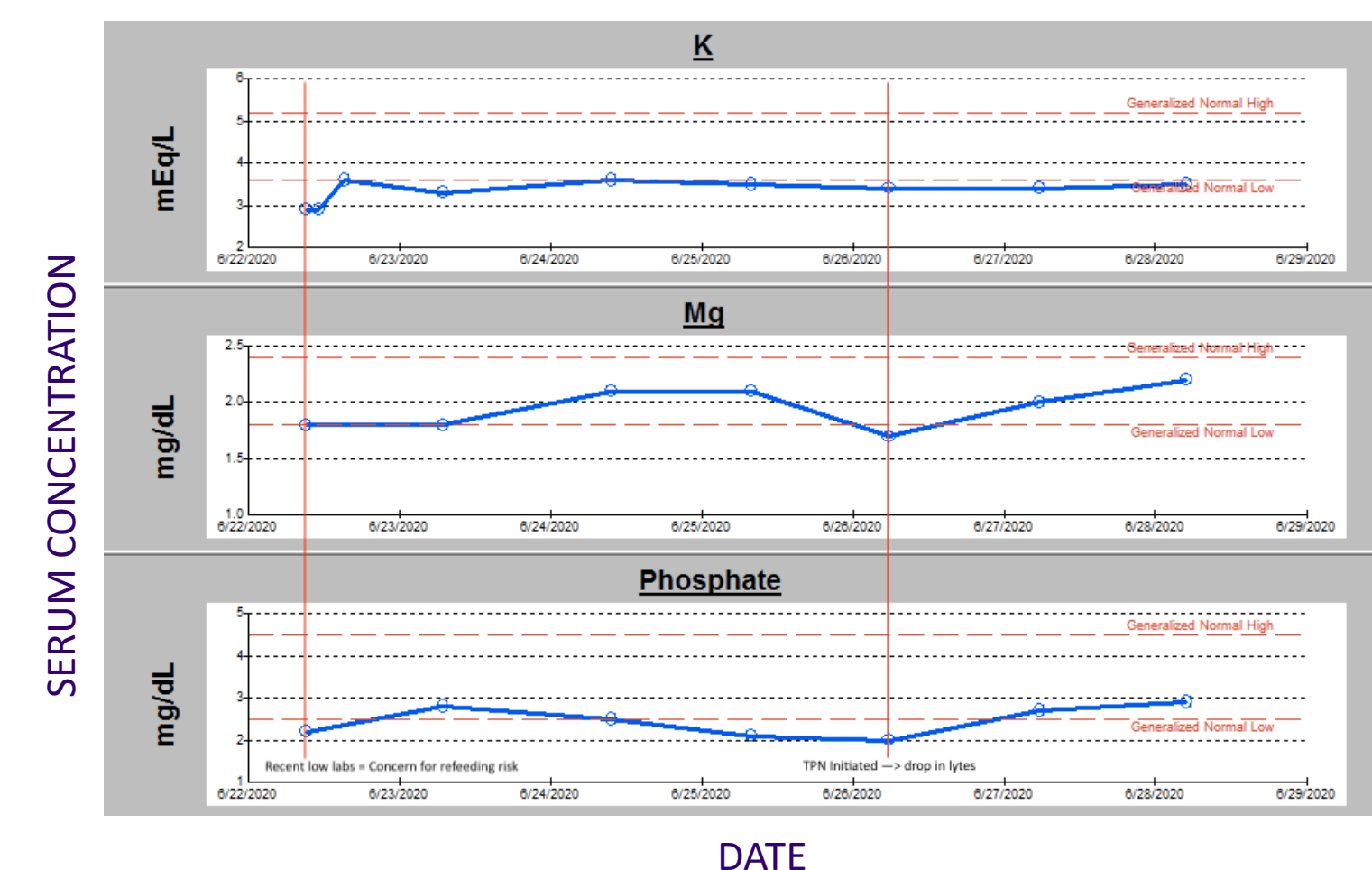
INDICATIONS FOR PN

1. Enteral feeding contraindicated by small bowel obstruction
2. Pt unable to meet >60% of energy/protein needs for >7 days via enteral route

INDICATIONS OF REFEEDING RISK

1. <75% of estimated energy requirement for >7 days during an acute illness or injury
2. Recently low K, Mg, or Phos

Electrolyte Trends



ASPEN REFEEDING GUIDELINES

- Initiate with 100–150 g of dextrose or 10–20 kcal/kg for the first 24 hours; advance by 33% of goal every 1 to 2 days.
- Initiation of or increasing calories should be delayed in patients with severely low phosphorus, potassium, or magnesium levels until corrected
- Check serum potassium, magnesium, and phosphorus before initiation of nutrition and q12 hours x 3 days
- Supplement thiamin 100 mg before feeding or before initiating dextrose-containing IV fluids in patients at risk and for 5–7 days or longer in patients at severe risk

ASPEN PARENTERAL NUTRITION GUIDELINES

- In the patient at low nutrition risk, exclusive PN should be withheld over the first 7 days following ICU admission
- Use of supplemental PN should be considered after 7–10 days if unable to meet >60% of energy and protein requirements by the enteral route alone
- Hypocaloric PN dosing (≤ 20 kcal/kg/d or 80% of estimated energy needs) with adequate protein (≥ 1.2 g protein/kg/d) should be considered in appropriate patients (high risk or severely malnourished) requiring PN
- Withhold or limit SO-based IVFE during the first week of PN in the critically ill patient if there is concern for essential fatty acid deficiency
- EN is clearly not feasible postoperatively if there is evidence of continued obstruction of the GI tract
- As tolerance to EN improves, the amount of PN energy should be reduced and finally discontinued when the patient is receiving >60% of target energy requirements from EN

Assessment:

49 year old Male, BMI: 30.5, PMH: Hypertension (HTN)

Nutrition Diagnosis:

Inadequate oral intake r/t altered GI function aeb eating <25% EER for 9 days, need for TPN support

Nutrition Requirements:

1965-2265kcal (BEE* x 1.3-1.5); 105-140g protein (1.5-2.0g/kg*)
*assessed using an adjusted body weight of 70.3kg.

TPN Order:

D360g + AA120g + IV Lipids 25% 250mL = 1592kcal, 120g protein
Start @ D180g (advance if refeeding lytes adequately replaced)

CASE DISCUSSION

Enteral nutrition was prioritized in the post-operative setting and TPN only considered once EN was contraindicated by SBO and patient had received little PO intake for 7 days

Patient at moderate risk for refeeding due to recent low PO intake and depressed refeeding electrolytes; patient was not at high risk due to being previously well-nourished with no history of high-risk conditions or co-morbidities

TPN was initiated at a rate of 22kcal/kg -- slightly higher than the rate suggested by ASPEN guidelines -- because patient had received IV dextrose and thiamine prior to initiation of a general diet on HD7, thereby reducing refeeding risk

Team continued to prioritize goal of resuming enteral feeding as quickly as possible to support overall gut health

CONCLUSION

Evidence supports the use of TPN in critically ill patients if unable to get >60% of energy through enteral means for >7days and the slow initiation of TPN (+thiamine and monitoring/repletion of Mg, Phos, K as needed x3 days) to prevent refeeding syndrome

Evidence also supports the transition back to enteral feeding as soon as able to maintain gut integrity