BACKGROUND

Enteral nutrition (EN) should be prioritized over parenteral nutrition (PN) whenever possible to support gut integrity, lessen oxidative stress, and preserve 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.

ASPN 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

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

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

Case Discussion

Enteral nutrition was prioritized in the post-operative setting and PN 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 and was not developing signs of refeeding syndrome.

TPN was initiated at a rate of 22 kcal/kg/day slightly lower 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

ASPN 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

CONCLUSION

Evidence supports the use of TPN in critically ill patients if unable to get ≥60% of energy through enteral means for >7 days and the slow initiation of TPN (+thiamine and monitoring/repletion of Mg, Phos, K as needed for 3 days) to prevent refeeding syndrome.

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