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ASPEN Guidelines: An Update

Objectives

- Understand the recently updated nutritional support guidelines
- Effectively utilize the updated TPN calculator to assess a patient's nutritional goals
- Recall clinical pearls regarding TPN adjustments

TPN Initiation

- EN is preferred
  - Within 24 – 48 hours for critically ill patients
- Supplemental PN can be considered after 7 – 10 days if a patient is unable to meet > 60% of their energy/protein requirements via EN
- High nutritional risk:
  - NRS 2002 ≥ 5
  - NUTRIC score ≥ 5

Mclave SA, Taylor BE, Martindale RE, et al. Guidelines for the provision and assessment of nutritional support therapy in the adult critically ill patient . *JPEN*. 2016;40(2):159-211.

TPN Initiation

- If previously healthy, well-nourished
  - If voluntary intake is diminished, or if EN is not an option, PN should be withheld for 7 days after ICU admission
- If malnourished
  - PN is appropriate in patients who are critically ill
  - If not critically ill, or not malnourished, wait 7 days

Sepsis Considerations

- Patients should receive EN within 24 – 48 hours
  - Severe sepsis or septic shock
  - Once hemodynamically stable
- PN during the acute phase of sepsis has been linked to poor outcomes
- Trophic feeds (10 – 20 kcal/h) during initial phase
  - Advance as tolerated to > 80% energy goals over first week

Open Abdomen Considerations

- EN should be initiated early
  - 24 – 48 hours post injury
- Source of much hesitation
  - EN feeds in OA patients has been safely demonstrated
- Confirm the absence of a bowel injury
- Increased calories and protein are required for vac exudate
  - 15 – 30 g/L of exudate

Operative Considerations

- Pre-operative PN is acceptable if:
  - TPN will last 5 to 7 days
  - The patient is malnourished
- PN should be delayed for 5 to 7 days post-op
  - Malnutrition and high nutrition risk may warrant sooner initiation IF EN is not an option

Baseline Labs

- BMP
- Mg
- PO_4
- Pre-Albumin
- Ionized Calcium
- Triglycerides
  - If > 300: Decrease lipids by 50%
  - If > 400: Remove lipids completely

Daily Protein Requirements

- **Patients with BMI < 30**
  - 1.2 – 2.0 g/kg ABW
- **Obese Patients**
  - BMI 30 – 40
    - 2.0 g/kg IBW
  - BMI ≥ 40
    - 2.5 g/kg IBW
- **Hepatic Failure**
  - 1.2 – 2.0 g/kg ABW*
- **Wound Vac patients**
  - Extra 15 – 30 g/L of exudate
- **HD**
  - 1.2 – 1.5 g/kg IBW
- **CRRT**
  - 1.5 – 2.5 g/kg IBW
- **AKI/ARF**
  - 0.8 – 1.2 g/kg IBW

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Daily Energy Requirements

NON-ICU PATIENTS

- BMI < 20
  - 25 – 35 kcal/kg ABW
- BMI 20 – 30
  - 25 – 30 kcal/kg ABW
- BMI > 30*
  - Use MSJ equation

CRITICALLY ILL

- BMI < 30
  - < 20 kcal/kg ABW
- BMI 30 – 50*
  - 11 – 14 kcal/kg ABW
- BMI > 50*
  - 22 – 25 kcal/kg **IBW**

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New Calculator

Adjusting TPN

- Initiate formula at 100% protein goal at Day 1 for all patients
- Initiate formula at 50% caloric goal and progress as tolerated
  - 75% and 100% will remain on the calculator
  - ICU patients should receive a maximum of 80% caloric goal for approximately 7 days
- D/C TPN when 60% of EN is tolerated

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Blood Glucose

- Goal BG
  - 150 – 180 mg/dL
- Be proactive
  - Add/Increase Levemir
  - Increase SSI as needed
- Consider patient comfort
  - Decrease Accu-Chek when necessary
- All patients are placed on SSI
  - Utilize Novolin-R

Electrolyte Management in PN

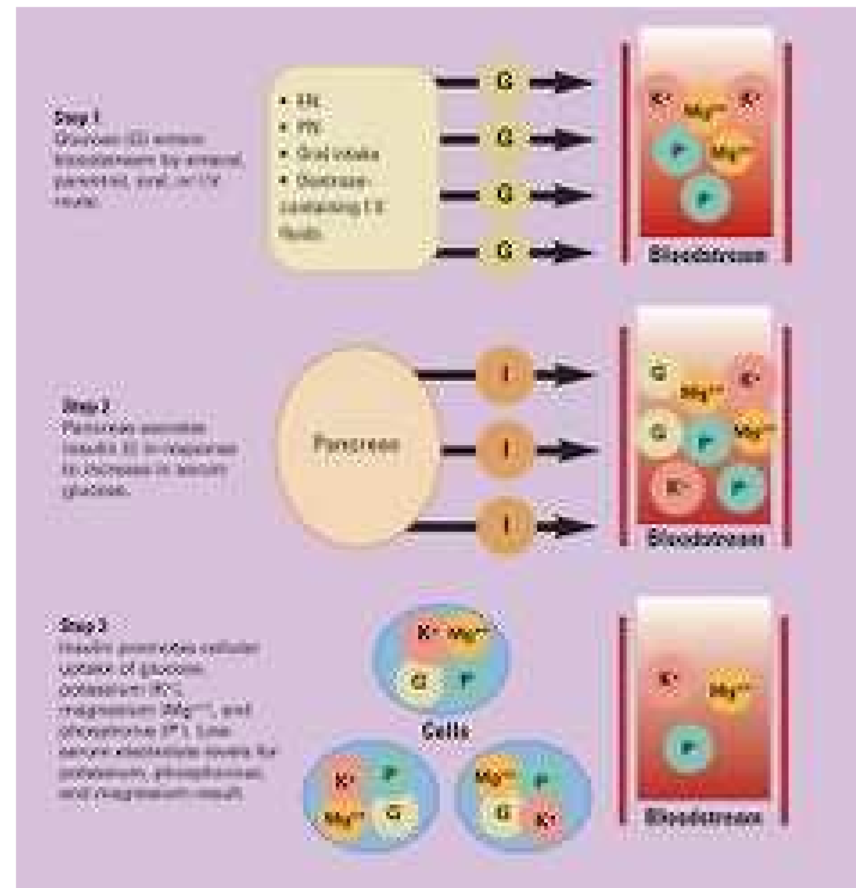
- **Sodium: 85 mEq/d**
  - Increase by 20 mEq/d to see increases
  - Less for edema, CHF
- **Potassium: 55 mEq/d**
  - Increase by 10 mEq/d to see increases
  - Increased serum levels after D/C of NGT
  - Correct Mg++
  - Less for renal patients

Electrolyte Management in PN

- **Phosphorus: 15 – 20 mM/d**
  - May take 2 – 3 days to correct
  - Less with renal patients
- **Magnesium: 8 – 10 mM/d**
  - May take 2 – 3 days to correct
  - Less with renal patients
- **Calcium Gluconate: 8 – 10 mEq/d**
  - Less with some cancer patients

Electrolyte Management in PN

- All patients are placed on the electrolyte protocol**
- Be aggressive with PO_4
  - Especially in vent/cardiac patients
  - Bolus as needed based on levels
- Keep K ≥ 4 in vent/cardiac patients



Vitamins and Supplements

- Thiamine 100 mg during refeeding
- B12 ***<u>1000 mcg/week</u>*** is appropriate if TPN is expected for long term use
- Zinc 5 mg can be used for wound healing
- MVI Added upon compounding
- CRRT:
  - <u>Vitamin B12</u>: 100 mcg
  - <u>Thiamine</u>: 100 mg
  - <u>Vitamin B6</u>: 50 mcg

Summary

- New protein goals are being implemented
- Once the new calculator is finalized an posted "Live," everyone will be notified
- Use clinical judgment, along with the new calculator, to assess patients that are obese or have renal deficiencies
- Maintain electrolyte and insulin protocols
- Contact Amy or Diane with questions as we make this transition

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