PICU Nutrition Case Study 2

JJ is a 16 year old male admitted to the PICU after being involved in a motor vehicle accident, injuries include a traumatic brain injury including brainstem hemorrhage and bilateral pulmonary contusions. He is intubated and has bilateral chest tubes. Pertinent medications include Fentanyl, Versed, Midazolam, Epinephrine, Miralax, and Senna. Weight on admission is 72 kg, Height is 173 cm.

Pertinent patient information:
Admit Weight: 72 kg
Height: 173 kg
BMI: 24.1 (84%tile, z-score 1.0)
NFPE Findings: Chest is full, ribs do not show. Rounded shoulders. Appropriate fat stores, very muscular arms/legs.

1. 2 days after admission the team agrees to start NG feeds, what would your initial nutrition prescription and enteral recommendations be?

   Calories: **2800-3300 kcal (39-46 kcal/kg, REE x 1.3-1.6 per TBI SOP)**
   Protein: **>108 g (>1.5 g/kg)**
   Fluid: **2540 mL**

   EN recs: **Osmolite 1.2 @ 100 mL/hr x 24 hours**

2. Would you recommend any supplements or additives?

   Zinc- 50 mg daily x 14 days

3. To maintain sodium levels he requires a 3% Hypertonic Saline infusion at 30 mL/hr in addition to all of his other sedation, team is concerned with fluid overload. What changes would you recommend to his enteral feeding goal? **Osmolite 1.5 @ 80 mL/hr x 24 hours** OR **TwoCal HN at 60 mL/hr x 24 hours**

4. After 3 weeks it is determined he will require a tracheostomy and G-tube. On the day of surgery his bed scale is zeroed so weights are able to be accurately obtained. Admit weight on 2/21 was 72 kg, now on 3/14 his weight is 62 kg. His average intake over the last 2 weeks has been ~1800 kcal/day, would you adjust his goal feeds?

   No, he has only been receiving 2/3 of his goal volume and could also be resolving edema. Could encourage condensing to allow his to get better volume intake with frequent NPO time.

5. Following recovery from trach and G-tube he is off all sedation and tolerating continuous feeds with following weight trend
   3/21- 60 kg (average intake 2100 kcal/day)
   3/26- 59.5 kg (average intake 2400 kcal/day)
   Feeds are being held frequently for therapies, is there any further adjustments you can recommend to help improve intake?

   Transition to bolus feeds

6. Next weight on 4/2 is 59.0 kg with average daily intake of 2900 kcal/day. He has net even fluid balance and has had no signs of edema. How do you explain this significant and continued weight loss despite receiving adequate calorie intake?

   Muscle wasting due to inactivity