TPN Discontinuation
Post Bowel Resection

Clinical Case Study by:
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Overview

- Examine patient post reconstructive surgery
- Review patients outcome
- Determine best practice for TPN discontinuation
The Patient

- 52 year old female patient admitted for pelvic sarcoma
- Resection of recurrent pelvic sarcoma, en bloc ileocecal region, sigmoid colon and dome of the bladder, extensive lysis of adhesion for reestablishment of gastrointestinal continuity, and a cystoscopy with ureteral stent placement
ADIME Charting: Assessment

Anthropometric

- Ht: 60"
- Weights:
  - 54.4kg - at admission
  - 45.1kg - 15 days post admission
- Ideal Body Weight: 49kg
- % Ideal Body Weight:
  - 110% - at admission
  - 92% - 15 days post admission
- BMI: 22.7 at admission
ADIME Charting: Assessment

Past Medical History

- Metastatic pelvic cancer
- TPN dependence since 2011
  - 100% TPN for > 3 years
- Venting gastric tube in place
- Chronic anemia
- Recurrent bacteremia and line sepsis
- Benign meningioma in 1990
- Invasive breast cancer of right breast

Surgical Procedures

- Pelvic Sarcoma resection followed by abdominal/pelvic radiation in 2010
- Small bowel to transverse colon anastomosis in 2013
- Risk for malabsorption of fat soluble vitamins, B12, and fluids/electrolytes
ADIME Charting: Assessment

Nutrition Focused Information

- Poor appetite and fear of eating
- Related to numerous years of TPN
- Surgeon note reports “adequate intake with some emesis” on prior to discharge
- Weight loss of 9.3kg between admission and discharge
- 17% decrease - considered significant in 30 day period
ADIME Charting: Assessment

• Estimated Nutritional Needs:
  • Calories: 1640kcals (30kcals/kg)
    • Admission weight used
    • Based on Harris-Benedict with x1.5 stress factor for current cancer
  • Protein: 65-81g (1.2-1.5g/kg)
    • Related to current cancer and post resection
ADIME Charting: Diagnosis

PES 1: Altered gastrointestinal function related to decreased functional intestine length as evidenced by two resections of small bowel sarcoma and 5 years of partial parenteral nutrition dependence including 3 years of no enteral nutrition.

PES 2: Inadequate caloric intake related to abrupt discontinuation of TPN as evidenced by a > 5% weight loss in less than 1 month post discontinuation.
ADIME Charting: Case Study Intervention

- TPN was abruptly discontinued upon discharge
- No outpatient follow up or RD referral for diet counseling scheduled
- Inpatient RD gave as much information/support as possible
- Signs of dehydration/malabsorption
- Moderate fat intake, increasing soluble fiber, frequent small meals, decreasing fluid intake during meals
- Vitamins, minerals, and supplementation
Abrupt vs. Stepwise TPN Discontinuation

- Abrupt vs. Stepwise discontinuation:
  - Abrupt discontinuation
    - Quickens increases of enteral intake
    - Risk of weight loss
  - Stepwise discontinuation
    - Combines TPN and oral intake
    - Adjusts as oral intake increases
    - Delays adequate oral nutrition
Abrupt vs. Stepwise TPN Discontinuation

- Current research on gut atrophy after TPN dependence:
  - Journal of Digestive Disease and Sciences
  - Rat model - 8 days 100% TPN
    - Significant (p<0.01) decreases in intestinal circumference, villi diameter in the jejunum and ileum
  - Nutrition Issues in Gastroenterology
    - Great risk of malabsorption during adaptation phase
    - Can last 2-3 years post resection
Abrupt vs. Stepwise TPN Discontinuation

- Three case studies by the International Life Sciences Institute
  - Patient #1 adapted to abrupt discontinuation
    - Required nocturnal enteral hydration
  - Patient #2 discontinuation with nightly TPN
    - Extremely short functioning length ~100cm
    - Nocturnal TPN only to promote oral intake
  - Patient #3 Stepwise TPN tapering planned
    - 3 meals/day provided ~55% calories, TPN ~45%
ADIME Charting: Intervention & Monitoring

- Patient needs diet counseling and weight monitoring in relation to reinitiating of oral intake
- Stepwise TPN discontinuation should be utilized
  - Begin with nightly TPN meeting 75% needs and decrease in relation to oral intake
  - There should be little to no unintentional weight loss
- Weight and oral intake should be self monitored by patient at least x2 weekly and changes reported to dietitian
- Any weight loss would trigger a reevaluation of diet and nutritional support
Conclusions

• Unfortunately unable to personally follow up with patient after discharge

• Outpatient RD reported weight stabilized at 41kg (83.5% IBW) with supplemental TPN reinitiated
Conclusions

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<th>Best evidence-based research shows:</th>
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<tbody>
<tr>
<td>Gut adaptation with abrupt discontinuation is possible</td>
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<tr>
<td>Dependent on many factors</td>
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<td>- Functional intestine length</td>
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<td>- Other SBS treatments (medications, EN, etc.)</td>
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<td>- Ability for oral intake</td>
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<tr>
<th>Most effective treatment plan:</th>
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<tr>
<td>A patient centered approach!</td>
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<tr>
<td>- TPN discontinuation dependent on not only functional length, but also patient’s readiness for oral intake</td>
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<td>- Diet adaptation, with education and monitoring, should also be based on individual needs</td>
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