Nutrition Therapy for Perforated Duodenal Ulcer and Cholecystectomy

Major Case Study
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Overview:

- Case Report
  - General Information
  - Social History
  - Medical History
  - Nutritional History
  - Medical Course of the Patient
- Case Discussion
- References
- Questions
Introduction:

• The Patient: “GD”
  • Admitted with upper right quadrant abdominal pain
    • Hypotension
    • Decreased po intake x 5 days
    • Dehydration
    • Vomiting
  • Total hospital stay - 16 days
Social History

• GD is currently married and living at home with her husband.
  • One daughter

• Insured through Medicare Plan A

• Limited Income

• No smoking, recreational drug use or alcohol consumption.
Medical History

- GD’s medical history includes the following:
  - Hypertension
  - GERD
  - Hypothyroidism
  - Bipolar Disorder
  - Arthritis
  - Parkinson’s Disease
  - Breast Cancer
  - Major Depressive Disorder
Surgical History

- GD has had the following surgeries:
  - Hysterectomy
  - Left mastectomy
  - Cataract surgery in both eyes
  - Cesarean section x 1
Current Medications:

- GD was admitted with the following medications:
  - Synthroid 11 mcg po: Hypothyroidism
  - Diovan 160 mg po: Hypertension
  - Paxil 20 mg po: Major Depressive disorder
  - Meloxicam 15 mg po: Pain (arthritis)
  - Amlodipine 10 mg po: Hypertension
  - No vitamins, minerals or other herbal supplements recorded
Nutritional History

- GD reported her baseline nutritional intake as:
  - 3 meals/day
  - Following a regular diet
  - No food allergies

- One week prior to ER visit:
  - Minimal po consumption foods or liquids due to severe abdominal pain, nausea and vomiting.
  - No weight loss
  - UBW: 137 lbs
Physical Examination

- GD was admitted to the ER
  - Weight 139.5 lbs
  - Temperature: 36.5 C
  - Blood Pressure: 137/60 mmHg
  - Pulse Oximetry: 96%
  - Pulse: 71 beats/minute
  - Abdomen was very tender
  - Hypoactive bowel sounds
  - No visible edema
Physical Examination:

• Post ER Admittance:
  • Exploratory Laparotomy:
    • Large perforated duodenal ulcer
    • Pelvic abscess
    • Cholecystitis
    • Cholelithiasis
    • Ascites
Medical Treatment:

- GD was intubated and the following procedures were performed:
  - Duodenal Ulcer Repair:
    - Omental patch - operative procedure for duodenal ulcers that pulls the omentum (fat layer in the abdomen) through the perforation and fixed to the bowel to seal off the hole created by the ulcer.
  - Open Cholecystectomy
  - NG Tube placement
Medical Treatment:

- GD transferred to SICU:
  - IV Zosyn (antibiotic)
  - Zantac
  - Dilaudid
  - JP (Jackson-Pratt) drain and foley were placed
Medical Treatment:

• Date 1
  • NG tube for LIS with 80 ml of output
  • Labs:
    • Hgb 9.8
    • Hct 30.8
    • K+ 6.2
    • BUN 44
    • Creatinine 2.9
• Moderate abdominal pain
• NPO for bowel rest and repair
Medical Treatment:

- Date 2
  - Physical Therapy - GD able to walk slowly
  - Labs - remained stable
  - Severe abdominal pain, inability to urinate
    - Foley inserted and 800 ml of urine output
  - NG tube output - minimal
  - NPO x 4 days
  - Transferred to general surgical recovery floor
Medical Treatment:

- Date 3
- GD progressing slowly:
  - Passed flatus
  - NG tube removal
  - Continued abdominal pain with nausea
  - Initiation of clear liquid diet - NPO x 7 days
    - Not tolerating well
  - GD reported difficulty swallowing
  - PICC line placed for TPN initiation
Medical Treatment:

- Date 4
  - Speech pathology consult received: GD diagnosed with mild dysphagia secondary to severe reflux.
  - Recommended liquid diet with slow progression to mechanical ground diet with thin liquids once cleared by MD team.
  - Foley removed
Nutrition Therapy:

- **Initial Nutrition Consult:**
  - Patient NPO x 5 days.
  
- **Diagnosis:**
  - Inadequate oral intake related to NG tube placement as evidenced by her current diet order of NPO without clearance for diet advancement.
  
  - Altered GI function related to her recent surgical repair of a duodenal ulcer and laparotomy cholecystectomy as evidenced by the RN’s report of no flatus or stool/need for NPO with NG tube to suction LIS.
Nutrition Therapy:

- **Nutritional Recommendations:**
  - Once diet advancement order received, order Enlive! supplements three times/day to provide energy and protein.

- **Nutritional Goals:**
  - Achieve normal bowel function
  - Maintain blood glucose of <160 mg/dL as medically feasible

- **Nutritional Interventions:**
  - Diet advancement to clear liquids >> GI soft
  - High nutritional risk - NPO 5 days
Nutrition Therapy:

- **Follow Up Assessment:**
  - Received MD consult for TPN initiation due to NPO status x 8 days.
  - TPN order contained:
    - 1560 ml total volume continuously infusing via PICC line
    - Initial Rate: 30 ml/hr  Goal Rate: 65 ml/hr
    - 1500 kcals (24 kcals/kg)
    - 75 g protein (1.2 g/kg)
    - 220 g dextrose (GIR: 2.4)
    - 45 g lipid (0.7g/kg)
    - Electrolytes replaced as needed
Nutrition Therapy:

- Follow Up Assessment:
  - Pt tolerating TPN and meeting energy and protein needs.
  - Goals not met: FSBG <160 mg/dL and normal GI function
  - GIT showed signs of returning functionality
    - MD team advanced diet
    - TPN remained infusing at 65 ml/hr
    - Supplements were ordered to increase kcal and protein po intake.
Nutrition Therapy:

- Follow Up Assessment:
  - Pt met all four nutritional goals
    - Consuming >60% of meals
    - TPN discontinued
    - FSBG remained stable <160 mg/dL
  - Pt complained of reflux during and after meals
  - Pt continued on supplements
Case Discussion:

- **Perforated Duodenal Ulcers:**
  - Open sore or lesion in the mucous membrane lining of the small intestines
    - leakage of gastrointestinal contents into the surrounding abdominal peritoneal cavity
  - Symptoms include:
    - Pain and a burning sensation
    - Nausea
    - Vomiting
    - Poor appetite
    - If left untreated weight loss
Case Discussion:

- Causes of peptic ulcers:
  - Heliobacter Pylori (H. Pylori)
    - Cause of 92% of duodenal ulcers and 70% of gastric ulcers
  - Peptic ulcers may also develop as a result of:
    - Increased pepsin and stomach acid secretion
    - Impaired/damaged gastrointestinal mucosa lining
    - Steroid use
    - High alcohol use
    - High doses of aspirin
    - Smoking,
    - High stress
Case Discussion:

- Peptic Ulcer Treatment:
  - 7-14 day course of 2 antibiotics with bismuth (antidiarrheal) and a proton pump inhibitor (PPIs)
  - Antacids
  - Histamine-blocking agents
  - Prokinetics
  - Mucosal protectants
Case Discussion:

- **H. Pylori Evolution:**
  - Concern with evolution of helicobacter pylori antibiotic-resistant strains of bacteria has resulted in a re-evaluation of use of antibiotics.
  - If unresponsive to treatment:
    - Inadequate nutritional intake resulting in weight loss
    - Electrolyte imbalances from vomiting and diarrhea
    - Decreased iron levels from ulcer bleeding
    - Reduction in calcium and vitamin B12 absorption due to the decreased acid production caused by medication
Case Discussion:

- Peptic Ulcer CAM Treatments:
  - Herbal Therapies:
    - Cranberry (thought to inhibit H. pylori growth)
    - Mastic extract (inhibit H. pylori growth)
    - DGL-licorice extract
  - Homeopathic Therapy
  - Acupuncture
Case Discussion:

- GD was dx with: cholecystitis secondary to cholelithiasis that required a cholecystectomy.
- Stone-like materials that may obstruct the bile ducts leading to pain and inflammation.
- S/p cholecystectomy, pts may experience:
  - Indigestion
  - Nausea
  - Vomiting
  - Diarrhea
  - Pain after eating and at the incision site
Nutritional Considerations:

- Macronutrient requirements:
  - Based on the protocol followed by the dietitians and medical team of Harbor Hospital
    - 1264 - 1580 kcals (25-30 kcal/kg)
    - 69-82 g protein (1.1-1.3 g/kg current body weight)
    - 1264 - 1580 kcal (25-30 ml/kg)
  - As an older adult it is recommended that GD’s protein needs be elevated to 1.0 grams to 1.25 g/kg
  - Due to surgery, wounds on her abdomen and to promote healing of the perforated ulcer, protein needs were elevated further
Nutritional Considerations:

• TPN Needs:
  • NCM finds it necessary to support nutritional intake in patients where oral intake is suboptimal or nonexistent with duodenal ulcers
    • when the ulcers are actively bleeding or have perforated, enteral feeding is contraindicated and TPN becomes the primary method of nutrition access
    • No unique complications to TPN have been identified in patients with perforated duodenal ulcers
Nutritional Considerations:

- **TPN Needs Continued:**
  - “first bag” infusing at 15-20 kcals/kg and containing 75-100% of protein needs, a GIR of 2 dextrose and full lipids
    - Per Harbor Hospital protocol
  - Advanced 200-300 kcals every 3-4 days upon no s/s of refeeding syndrome
  - The patient’s lab and nutritional status should be monitored closely while receiving TPN
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Questions?