Crohn's Disease

Inflammatory Bowel Disease

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Learning Objectives

The participant will be able to:

- Illustrate the characteristics of Crohn's disease (CD)
- Demonstrate a clear understanding of pathophysiology, treatment and nutrition implications/interventions related to CD
- Apply appropriate nutrition interventions to patients suffering from IBD/CD

Inflammatory Bowel Disease (IBD)

- An autoimmune Inflammatory condition of the gastrointestinal tract

- IBD leads to two major diagnosis

1. Crohn's Disease
2. Ulcerative Colitis

Crohn's Disease

- Inflammatory damage of gastrointestinal mucosa caused by abnormal immune response.

Predisposition

- Genetic susceptibility
- People from Eastern European (Ashkenazi) Jewish heritage
- Some association with cigarette smoking

Pathophysiology: Crohn's Disease

- Localized inflammation in bowel mucosa progresses through bowel wall and ultimately destroys mucosa
- Usually localized in terminal ileum and colon but can attack any portion of the GI tract(skipping pattern)

Signs and symptoms

- Chronic diarrhea
- Abdominal pain and cramping
- Blood/mucus in stool
- Malnutrition
- Anorexia
- Tenesmus
- Weight loss
- Fever
- Delayed growth in adolescents

Complications

NUTRITIONAL

- Malabsorption
- Malnutrition
- Anorexia
- Deficiencies
- PEM
- Drug-nutrient interaction
- Anemia

CLINICAL

- Abdominal fistula
- Intestinal obstruction
- Bacterial overgrowth
- Gallstone
- Kidney stone
- UTI
- Perianal disease
- Poor wound healing
- Osteoporosis
- Compromised Immune system

Diagnostic Measures

- CDAI score
- Antiglycan antibodies
- Calprotectin, lactoferrin
- Barium enema with air contrast
- Mucosal biopsies
- Abdominal ultrasound
- MRI
- CT scan
- Endoscopy

Diagnosis: CDAI score

Stage	Definition
CDAI (150-220) Mild –moderate disease	Ambulatory individuals can tolerate oral alimentation without the development of dehydration, toxicity, abdominal tenderness, painful mass, obstruction, >10%weight loss
CDAI (220-450) Moderate-severe disease	Individuals who fail to respond to tx for mild-moderate disease or have major symptoms of fever, significant weight loss ,abdominal pain, tenderness, intermitten N/V, significant anemia
CDAI (>450) Severe-Fulminant disease	Individuals with persistent symptoms in spite of medication use or have high fever, persistent vomiting, evidence of intestinal obstruction, rebound tenderness, cachexia, evidence of an abscess
Remission	Asymptomatic individuals or those without inflammatory sequelae, t hose responded to acute medical intervention or surgical resection without gross evidence of residual disease.

Treatment

- (Mesalamine, sulfasalazine) Aminosalcylate medications
- Immunosuppressive medications
- Immunomodulators
- Corticosteroids
- Antibiotics
- Biologic therapies
- Surgical intervention

Patient Information

- 35 YOM, Caucasian
- Married ,father of a 5yo son, high school math teacher.
- Non smoker, non drinker
- No family hx of disease
- C/O "unbearable abdominal pain, constant diarrhea and current fever"

Patient Information: Medical History

- Dx of IBD 3 yrs ago
- Dx of Crohn's disease 2 ½ yrs ago
- Initially acute disease within last 5-7 cm of jejunum and first 5 cm of ileum
- Tx with corticosteroids, Azulfidine, recently 6-mercaptopurine
- Hospitalized with abscess and acute exacerbation of Crohn's disease, 4 months ago
- Allergy: possibly milk

Patient Information: Physical & Diagnosis

- Vitals

Temp 101.5 F, BP 125/82 mm/Hg

- Ct scan indicated bowel obstruction
- Crohn's disease classified as sever fulminant
- Diarrhea, abdominal pain, weight loss and fever consistent with the Dx

Patient Information: Anthropometric Assessments

- Ht-5’ 9”
- Wt- 63.6kg (140#)
- BMI- 20.7 (normal)
- UBW- 167# (84% UBW)
- IBW- 160# (88% IBW)
- 16% wt

Patient Information: Labs

Lab	Normal Range	Admit
Albumin	3.5-5 g/dL	↓ 3.2 g/dL
Total Protein	6-8 g /dL	↓ 5.5 g/dL
Prealbumin	16-35 mg/dL	↓ 11 mg/dL
Transferrin	215-365 mg/dL	↓ 180 mg/dL
C-Reactive protein	<1.0 mg/dL	↑ 2.8 mg/dL
Ferritin	20-300 mg/mL	↓ 16 mg/mL
ASCA	neg	+

Patient Information: Nutritional History

- Pt states consuming "fairly normal diet"
  - Low fiber
  - Used Boost between meals
  - Purposefully avoided milk but consumed cheese
  - Daily multivitamin
  - Home cooked food by wife/self

Nutritional History

Recent Dietary Intake	
AM	Cereal, skim milk, toast, bagel, juice
AM Snack	Cola, sometimes crackers/pastry
Lunch	Sandwich(ham or turkey) from home, fruit, chips, cola
Dinner	Meat, pasta or rice, some type of bread, rarely eats vegetables
Bedtime snack	Cheese and crackers, cookies, cola

24 hr recall: Clear liquids past 24 hrs.

Surgical Intervention

- Dx :bowel obstruction
- 200 cm resection of jejunum and proximal illeum with placement of jejunostomy
- Illeocecal valve preserved
- Intact colon
- SBS

Nutritional Outcome After Surgical Intervention

- Nutrition support consult
- Immediately postoperative Parenteral Nutrition
- Jejunum-Absorption site of macronutrients and most micronutrients
- Amino acids
- Small Peptides
- Lipids
- Monosaccharides
- Ca, Fe, Po4,Mg,Vitamins A,D,E,K, Vitamin C, vit B6

Nutritional Diagnosis

- PES:

Altered GI function (NC,1.4) R/T severe fulminant Crohn's disease AEB diarrhea, fever and severe abdominal pain.

- Ideal Goal:

Initiate PN to provide 127g protein, 254g CHO, 60 g of 3% lipid to meet energy demands related to CD

- Intervention
  - Initiate PN post operative
  - Multidisciplinary team meeting to reassess for enteral nutrition eligibility
  - Monitor basic metabolic panel
  - Monitor weight change

Estimation of Energy Requirement

- Harris-Benedict:

REE=1579 kcal

- Mifflin St. Jeor:

REE== 1658 kcal

- Ireton Jones:

REE= = 3246 kcal

- TEE=2285 kcal

Estimated Nutritional Needs

- Energy needs: 1818-2180 kcal/d
- Protein needs: 109g-127 g (436-509 kcal/d)
- Lipid needs: 60 g (657kcal/d)
- CHO needs:254g (1014kcal)
- Fluid needs: 1 mL /kcal=2180mL/d

Post operative Nutritent Prescription

- 200g Dextrose/L
- 42.5g AA/L
- 30g Lipid/L

Parenteral nutrition initiated at 50cc/hr with goal rate of 85cc/hr

Post operative Nutrient Prescription Comparison

	Ordered	Recommended
Energy	2600kcal	2180kcal
Protein	85g	127g
Lipids	60g	60g
CHO	400g	254g

Medical Nutrition Tx

- PN to provide 127g protein, 254g CHO, 60 g of 3% lipid with electrolytes and trace elements per consult with the multidisciplinary team.

ADIME: Assessment

- Pt C/O "unbearable abdominal pain, constant diarrhea and current fever". Previously dx with acute crohn's disease within 5-7 cm of jejunum and first 5 cm of ileum. Pt reports losing >20# wt during past four months after hospitalization due to abscess and acute exacerbation of CD.
- 35 YOM, Dx: Crohn's disease classified; severe fulminant
- Ht-5' 9" ,Wt- 63.6kg (140#), UBW 167#, BMI-20.7
- Lab: Albumin:3.2 g/dL, Total Protein: 5.5g/Dl

CRP: 2.8mg/dL: Pre albumin: 11 mg/Dl

- EER: 1818-2180 kcal/d, EPR: 109g-127 g (436-509 kcal/d)

ADIME: Diagnosis

- Altered GI function (NC,1.4) R/T severe fulminant Crohn's disease AEB diarrhea, fever and severe abdominal pain.
- Increased protein needs(NI, 5.1) R/T altered GI function AEB diarrhea and recent weight loss of more than 20#.

ADIME: Intervention

- Initiate PN post operative to provide 127g protein, 254g CHO, 60 g of 3% lipid
- Multidisciplinary team meeting to reassess for enteral nutrition eligibility

ADIME: Monitoring and Evaluate

- Monitor basic metabolic panel
- Monitor for transition to EN
- Evaluate if any weight change occurs
- Referral for rehabilitation after discharge

References

1. Nelms, et al. (2011). *Nutrition Therapy & Pathophysiology.* (2 ed., pp. 93-100,415-422) Belmont, CA: Wadsworth Cengage
2. Nelms, et al. (2011). *Medical Nutrition Therapy; A Case Study Approach .* (3ed., pp. 158-168) Belmont, CA: Wadsworth Cengage
3. http://www.ccfa.org/media/pdf/FactSheets/surgerycd.pdf
4. http://www.ccfa.org/info/about/crohns
5. http://digestive.niddk.nih.gov/ddiseases/pubs/shortbowel/index.aspx