Case Study: Acute Pancreatitis

Jillayne Gee
Agenda

• Background
• Pathophysiology
• Nutritional Implications
• Assessment
• Diagnosis
• Intervention
• Summary
DK camps over the weekend and drinks a moderate amount of alcohol. The following Monday, DK starts to experience abdominal discomfort, nausea, vomiting, fever, and chills. The abdominal pain progresses to the point that DK is admitted into the emergency department. He is diagnosed with acute pancreatitis.
The Pancreas

- Functions
  - *Endocrine* and *exocrine* production and secretions
Functions

• **Endocrine Pancreas**
  o **Islet hormones release** …
    • A=glucagon
    • B=insulin
    • D=somatostatin

• **Exocrine Pancreas**
  o **Acinar cells release** …
    • Digestive enzymes: lipase, amylase, and protease
    • Zymogens
    • Bicarbonate
Acute Pancreatitis

• Reversible inflammation of the pancreas
• Ranges between mild, moderate, and severe
• Attacks can be once or recurring
• Prognosis
  o Differs depending on severity
  o Organ failure within 24 hours of admit significantly increases risk of death (1)
• Morbidity
  o 210,000 hospitalized/year for acute pancreatitis (1)
• Mortality
  o <1% for mild (1)
  o 10-30% for severe (1)
Alcohol and Gallstones

- Alcohol theories
  - Sphincter of Oddi (2)
  - Trypsinogen (3)
- Gallstone theory
  - Ampulla of Vater (2)
Physiological Consequences

- SIRS
- Pseudocysts
- Pancreatic Cancer
Acute Pancreatitis w/Pseudocysts

Background

Pathophysiology

Nutritional Implications

Assessment

Diagnosis

Intervention

Monitoring/Evaluation

Summary
Symptoms

• Abdominal pain
  o Most common
  o Rapid onset of maximum pain (10-20 min.)
  o Lasts several hours
• Nausea and vomiting
  o Lasts several hours
• Steatorrhea
Diagnosis

• Ranson’s Criteria or APACHE
• Lab
• Radiologic Features
  o Abdominal ultrasonography
  o Computed tomography
Ranson’s Criteria

Ranson's Criteria on Admission:
- age greater than 55 years
- a white blood cell count of > 16,000/µL
- blood glucose > 11 mmol/L (>200 mg/dL)
- serum LDH > 350 IU/L
- serum AST >250 IU/L

Ranson’s Criteria after 48 hours of admission:
- fall in hematocrit by more than 10 percent
- fluid sequestration of > 6 L
- hypocalcemia (serum calcium < 2.0 mmol/L (<8.0 mg/dL))
- hypoxemia (P_{O_2} < 60 mmHg)
- increase in BUN to >1.98 mmol/L (>5 mg/dL) after IV fluid hydration
- base deficit of >4 mmol/L

The prognostic implications of Ranson’s criteria are as follows:
- Score 0 to 2: 2% mortality
- Score 3 to 4: 15% mortality
- Score 5 to 6: 40% mortality
- Score 7 to 8: 100% mortality
Labs

- Amylase
- Lipase
- Glucose
Treatment

- **Mild or Moderate Pancreatitis**
  - Fasting
  - Fluid infusion
  - Medication to reduce pain

- **Severe Pancreatitis**
  - Fasting
  - Fluid/electrolyte support
  - Antibiotic treatment
  - Pain meds
Medications

• Pain meds
  o Demerol

• Pancreatic secretions
  o H2 receptor antagonists
  o Proton pump inhibitors
  o Antacids
  o Anticholinergic drugs
  o Gabexate Mesilate: protease inhibitor

• Antibiotics given for fever, leukocytosis, and sepsis
Nutritional Implications

• Acute pancreatitis (4)
  o Mild to moderate
    • NPO and progress to CL or low-fat diet (NCM)
      o High-protein, low-fat, and MIV
        • Fat-soluble vitamin replacement
      o Modifications for diabetes, obesity, and alcoholism
  o Severe
    • Enteral nutrition within 24-38 hours (NCM)
      o Parental nutrition if enteral has failed and no nutrition support for >5 days.
      o Complications of nutrition support

• Chronic pancreatitis (4)
  o High risk for malnutrition
  o Pancreatic enzymes
Client History

• Personal
  o 36-year old, caucasian male was admitted into the hospital on 06/15/2012

• Health history
  o hyperlipidemia, and reflux symptoms
  o Family history: diabetes and coronary disease
  o Surgery history: N/A

• Social history
  o Significant drinking problems
  o Anxiety and depression
  o Divorced
Anthropometric

• Height
  o 5ft 9in.

• Weight
  o Admit weight, 202#
  o Current weight, 216#
  o UBW, 190#

• BMI/IBW%
  o 31.4 (obese stage 1), 133%
Weight Changes

Weight

- 27-Jun
- 26-Jun
- 25-Jun
- 24-Jun
- 23-Jun
- 22-Jun
- 21-Jun
- 20-Jun
- 19-Jun
- 18-Jun
- 17-Jun
- 16-Jun
- 15-Jun

190 195 200 205 210 215 220 225


Background
Pathophysiology
Nutritional Implications
Assessment
Diagnosis
Intervention
Monitoring/Evaluation
Summary
Biochemical

- Pancreatitis
  - AST, 70
  - Amylase 275 (H)
  - Glucose, 101 (H)
  - Cholesterol/triglycerides: 361, 891 (H)

- Malnutrition
  - AB level at admit normal (3.8)
    - AB level decreases (2.7)

- Refeeding Syndrome
  - Mg normal (2.1)
  - P low (2.3)
  - K normal (4.0)

- Renal
  - Creatine low (0.60)
  - BUN normal (10)
  - GRF normal (>60)
Food/Nutrition Related History

- **Malnutrition**
  - Diet history: N/A
  - Medications & herbal supplements: N/A
  - Access to food & related supplies: N/A
  - Physical activity: N/A
  - Knowledge/beliefs/attitudes: significant alcohol problems; unwilling to change

- **Vitamin/mineral intake**
  - Hospital is giving Banana bag
Hospital Course

• Oral intake
  o 15th: Clear liquids, thiamine, and uncontrolled lab values
  o 16th: Clear liquids, thiamine, and pain uncontrolled
  o 17th: Low-fat, bland diet, thiamine, adequate oral intake, and abdominal pain continues
  o 18: NPO, labs improve, symptoms are worse, but adequate oral intake
  o 19th: NPO, pt gets worse, worried about volume overload, not malnourished, keep him on liquid diet and p.o. intake if possible.
  o 20th: NPO, thiamine, and request to place jejunum Keofeed tub, feels hunger; pancreatitis is improving but still severe, and request to place jejunum Keofeed tube
Nutrition-Focused Physical Findings

- Overall appearance
  - Awake, alert, mildly confused and agitated, and more comfortable

- Digestive system
  - Abdominal pain decreased, more controlled
  - Abdomen distended
  - Feels hungry
  - Unclear bowel movements
  - Constipation
  - Positive bowel sounds
Comparative Standards

- Energy: 2200-2500
- Protein: 110 (1.5 g/kg/day, IBW)
- Fluid: 2200-2500 (1 ml/kcal)
Other Medical Problems

- Anemia, community-acquired pneumonia, and acute renal failure (resolved)
Diagnosis

- PES: Inadequate oral intake related to acute pancreatitis AEB severe abdominal pain and NPO.
Intervention

- Food and/or Nutrient Delivery
  - Insert enteral feeding tube (4)
  - Goal: Pt will consume 50-70% of kcal and pro needs x 2 days
  - Specific interventions:
    1. Give 60 ml/h of Vital 1.5 providing ~2250 kcals, 101 g pro, and 1146 ml fluid x 1 day.
    2. Have PEN team closely follow pt.
    3. Monitor labs, weight, I&O’s, intake, and health status x 2 days

- Nutrition Prescription:
  - Recommend pt receive 15 ml/hr of Vital 1.5. Advance feedings to 15 ml every 6 hours until 60 ml/hr is reached.

- Interfering factors
  - Risk for refeeding syndrome (3)
  - Uncontrolled symptoms and labs
  - Precontemplation stage of change
Comparing

- Food and/or Nutrient Delivery
  - Recommendations:
    - Enteral nutrition within 24-48 hours if on NPO (4)
  - Actually done:
    - Vital 1.5 at 10 ml/h giving 2160 kcal/d, 97 g protein/d, and 1100 ml fluid/d
    - Taper IV as feeding rate advances

- Nutrition education or counseling
  - Recommendations:
    - Alcoholism associated micronutrient deficiencies and pancreatitis (4)
  - Actually done:
    - Educated about alcohol and pancreatitis

- Coordination of Care
  - Recommendations:
    - MD, RD, and nurses
  - Actually done:
    - RD followed up on 20th, possible the 19th but no record.
Monitoring and Evaluations

- Adequate intake
  - Amount of food
  - Appetite
  - N/V
  - Weight
  - I&O’s

- Tolerance to tube feed
  - Gastric residuals
  - N/V

- Pancreatitis labs
  - Amlyase, lipase, glucose

- Refeeding labs
  - Mg, P, and Ca
Summary

- DK’s prognosis
- Effectiveness of NCP
  - Follow-up sooner
References


