Chronic Pancreatitis

Christina Kalafsky, Dietetic Intern
University of Maryland College Park
Major Case Study
February 12, 2014
Overview

- Chronic Pancreatitis
- Case Study
  - Medial Treatment
  - Nutritional Treatment
- Implications to the Field of Dietetics
Chronic Pancreatitis (CP)

- **Pancreas**
  - Endocrine Functions: Produces glucagon and insulin
  - Exocrine Functions: Secretes bicarbonate and digestive enzymes

- **Pancreatitis**
  - Enzymes activate within the pancreas and auto-digest the pancreatic tissue
  - Acute → Chronic

Image from emedicinehealth.com/pancreatitis/article_em.htm
Chronic Pancreatitis

Etiology

- Hypertriglyceridemia
- Hypercalcemia
- Biliary Tract Disease
- Gallstones
- Hereditary Disorders
- Certain Medications
- Viral Infections
- Chronic Alcoholism
- Unknown
Chronic Pancreatitis

- **Prevalence:**
  - 2 out of every 25,000
  - Men > Women
  - Blacks > Whites
  - 30 – 40 years old

- **Diagnosis:**
  - Lab Values
  - Abdominal CT Scan
  - Abdominal Ultrasound
  - Endoscopic Retrograde Cholangiopancreatography (ERCP)
  - Magnetic Resonance Cholangiopancreatography (MRCP)
Chronic Pancreatitis

- Symptoms:
  - Abdominal Pain
  - Diarrhea
  - Nausea
  - Vomiting
  - Steatorrhea

- Nutritional Implications: Malnutrition
  - Inadequate Oral Intake
  - Malabsorption
  - Fat Soluble Vitamin Deficiency
  - Poor Bone Health
Chronic Pancreatitis

- Treatment:
  - Pancreatic Enzyme Replacement Therapy (PERT)
  - Nutrition
    - EN: ~5%, PN <1%
    - NPO → Small, frequent meals with highest amount of fat tolerated
  - Alcohol Avoidance
  - Fiber
  - High CHO
  - Diabetes
  - Pain Relief
    - Narcotics
    - Nerve Blocks
Chronic Pancreatitis

- **Treatment:**
  - **Surgical Options:**
    - Drainage Procedures
    - Resection Procedures
      - Whipple
  - **CAM:**
    - Antioxidants, Herbs
    - Discuss with doctor

**Whipple Procedure**

Image from Mayoclinic.com Health Library
AH is a 36-year-old obese Black female

Admitted to BWMC on 11/11/13 for a planned Whipple procedure for chronic pancreatitis.

Hospital Duration: 7 days
Past Medical History

- Cardiomyopathy with AICD
- Congestive Heart Failure
- Dyslipidemia
- Hypertension
- Obesity
- Type II Diabetes
- GERD
- Chronic anemia
- Major Depressive Disorder
Past Medical History

- **Pancreatitis:**
  - Initial Onset: 5 years ago (2008)
  - CP: 3 years ago (2010)
    - Initial Etiology: Hypertriglyceridemia
    - Possible Current Etiology: Common bile duct stones

- **Attempted Interventions:**
  - Partial cholecystectomy
    - Remaining gallbladder contains gallstones
  - ERCP’s: Unsuccessful due to severe duodenal stenosis
  - MRCP: Unable to perform due to pt’s AICD
Social History

- Independent in ADLs and IADLs
- Currently unemployed, receiving disability since 2012
- Single and lives with her mother
- Insured with prescription coverage
- Former cigar smoker (quit in 2000)
- Denies alcohol use, recreational drug use, or prescription drug abuse
- Decreased social life due to current condition
Medical Treatment

- Plan: Surgical Intervention – Whipple

- 11/11/13: The laparoscopic Whipple was converted to an open-cholecystojejunostomy and gastrojejunostomy due to significant inflammation of the pancreas, affecting safe dissection of blood vessels around the pancreas.


- GI Status: Abdominal soft, non-distended, and appropriately tender. Continue NPO secondary to gastrojejunal anastomosis; will start sips tomorrow.
Medical Treatment

- 11/13/13: POD 2- Given nature of wound drain output and presence of biliary drainage in NGT, ongoing bleeding or biliary stricture not suspected. Low NG output suggests good gastric emptying through gastrojejunostomy.
  - GI Status: Abdominal soft, non-distended, and appropriately tender. Bowel sounds are present. Sips of clear liquid diet- will likely further advance diet tomorrow if patient stable.

- 11/14/13: POD 3- NGT has been removed and patient has been restarted on medications for cardiomyopathy.
  - GI Status: Abdominal soft, non-distended, and appropriately tender. Bowel sounds are present. Patient is tolerating sips of clear liquids. AH denies flatus or BM, as well as N/V. Will hold on advancing diet.
Medical Treatment

- **11/15/13: POD 4-** Patient was transferred to 6W telemetry floor from SICU with a cardiac monitor.
  - GI Status: Patient with one episode of bilious vomiting yesterday, but reports feeling better this AM. Diet to be advanced from sips to clear liquid diet.

- **11/16/13: POD 5-**
  - GI Status: Abdominal soft, RLQ tender to touch; Bowel sounds are normal; patient passing gas but denies BM. No vomiting but patient reports some nausea of which is now controlled with medications around the clock. Patient tolerating the clear liquid diet. Diet to be advanced to regular diet with small frequent meals. Reglan will be added to improve gastric emptying.
Medical Treatment

- **11/17/13: POD 6** - Patient found with a magnesium level of 1.4 and given 4 gms of magnesium sulfate for repletion. Patient continues to ambulate hallway independently with no shortness of breath. Patient’s activity level is returning to normal. Remains stable from a cardiac perspective.
  - GI Status: Patient tolerating diet with adequate intake; no N/V.

- **11/18/13: POD 7** - Patient hemodynamically stable and pain is well controlled. Hypomagnesaemia has been resolved. Patient to be discharged home today.
  - GI Status: Abdominal soft, non-tender, and non-distended. Patient had a BM this AM and is tolerating a regular diet. Reported one episode of yellow liquid emesis of small amount. No further N/V. Reglan to be continued to improve gastric emptying. The importance of 6 small meals per day was discussed with the patient for discharge.
  - Plan: Patient to follow-up with her pain management physician upon discharge to discuss weaning of chronic pain medication.
**Nutrition History**

- TPN x 2 weeks PTA
- Prior to Nutrition Support: Only able to consume small amounts of food due to N/V
- Low Fat/Fat-Free Diet
- Previous Education:
  - CHO Counting: Unsuccessful
  - Weight Management Classes
  - Low Fiber Diet
- Physical Activity Level: Sedentary
- No known food allergies
# Anthropometrics

<table>
<thead>
<tr>
<th>Height</th>
<th>Weight</th>
<th>BMI</th>
<th>IBW</th>
<th>%IBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>154.9 cm (5 ft 1 in)</td>
<td>81.6 kg (180 lbs)</td>
<td>34.0 kg/m² Obese</td>
<td>47.7 kg (105 lbs)</td>
<td>171% Obese</td>
</tr>
</tbody>
</table>
Weight History

Weight (kg) vs Date

Weight History

# Pertinent Lab Values

<table>
<thead>
<tr>
<th>Lab</th>
<th>11/12/13</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na</td>
<td>132 (L)</td>
<td>Overhydration, vomiting, tissue injury, gastric suction, hyperglycemia</td>
</tr>
<tr>
<td>K+</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Creat</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>BUN</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Glucose</td>
<td>121 (H)</td>
<td>DM, acute stress, surgery, chronic pancreatitis</td>
</tr>
<tr>
<td>POC Glucose</td>
<td>109 (H)</td>
<td>DM, acute stress, surgery, chronic pancreatitis</td>
</tr>
<tr>
<td>Mg</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Phos</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Lipase</td>
<td>69 (H)</td>
<td>Chronic pancreatitis, gallstones, cholecystitis</td>
</tr>
<tr>
<td>Medication</td>
<td>Dosage</td>
<td>Medical Function</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Acetaminophen (Ofirmev) Injection</td>
<td>1,000 mg 3x daily</td>
<td>Analgesic, antipyretic</td>
</tr>
<tr>
<td>Enoxaparin Sodium (Lovenox) Injection</td>
<td>40 mg nightly</td>
<td>Anticoagulant</td>
</tr>
<tr>
<td>Fentanyl (Duragesic) Patch</td>
<td>1 patch every 72 hours</td>
<td>Analgesic, narcotic, opioid.</td>
</tr>
<tr>
<td>Hydromorphone PF (Dilaudid) Injection</td>
<td>2 mg every 3 hours PRN</td>
<td>Analgesic, opioid. Relieves severe pain</td>
</tr>
<tr>
<td>Insulin Lispro (Humalog) Injection</td>
<td>0-12 Units 4 x daily - before meals and nightly</td>
<td>Rapid acting bolus insulin</td>
</tr>
</tbody>
</table>
### Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Medical Function</th>
<th>Nutrition Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metoclopramide (Reglan) Injection</td>
<td>10 mg every 6 hours PRN</td>
<td>Antiemetic, anti-GERD, diabetic gastroparesis treatment</td>
<td>Dry mouth, ↑ gastric emptying, nausea, constipation; may alter insulin requirements for those with DM; does not cause diarrhea—its prokinetic effects do not extend beyond the duodenum</td>
</tr>
<tr>
<td>Metroprolol (Lopressor) Injection</td>
<td>2.5 mg 4x daily</td>
<td>Antihypertensive, anti-angina, CHF treatment</td>
<td>Diarrhea, dry mouth, N/V, dyspepsia, flatulence, constipation, hyperglycemia. Grapefruit juice interaction. Avoid natural licorice and EtOH. It may be necessary to decrease dietary calcium and sodium, which may decrease absorption.</td>
</tr>
<tr>
<td>Pantoprazole (Protonix) Injection</td>
<td>40 mg daily</td>
<td>PPI. Anti-GERD, Antisecretory</td>
<td>Diarrhea, ↓ gastric acid secretion, ↑ gastric pH, N/V/D/C, flatulence, dyspepsia, gastroenteritis</td>
</tr>
<tr>
<td>0.9% Sodium Chloride Continuous Infusion</td>
<td>75 ml/hr</td>
<td>Hydration, repletion</td>
<td></td>
</tr>
</tbody>
</table>
Initial Nutrition Assessment

- Screened for TPN
- POD 1
- NPO x 1 day- to be advanced to sips tomorrow
- GI: Pt reports nausea but no vomiting since surgery; LBM 11/10; 150 mL bilious output from NGT
- Weight stable since admission- at pt’s baseline; no edema
- Pt interested in CHO counting
Nutrition Diagnosis

- (NI-2.1): Inadequate oral intake related to s/p open cholecystojejunostomy and gastrojejunostomy due to chronic pancreatitis as evidenced by NPO status.

- (NC-1.4): Altered GI function related to compromised exocrine function of pancreas as evidenced by diagnosis of chronic pancreatitis, abdominal pain, N/V, and s/p open cholecystojejunostomy and gastrojejunostomy.
## Estimated Nutrient Needs

<table>
<thead>
<tr>
<th>Source</th>
<th>Kcal Requirements</th>
<th>Protein Requirements</th>
<th>Fluid Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Standards</td>
<td>1580-1880 kcal/day</td>
<td>60-70 gm protein/day</td>
<td>1580-1880 ml/day</td>
</tr>
<tr>
<td>Evidence Analysis Library</td>
<td>1445 kcal/day</td>
<td>No Recommendation</td>
<td>No Recommendation</td>
</tr>
<tr>
<td>Nutrition Care Manual</td>
<td>1880 kcal/day</td>
<td>55 – 70 gm pro/day</td>
<td>1880 ml/day or 2448-2856 ml/day</td>
</tr>
</tbody>
</table>
Nutrition Intervention

- **Food &/or Nutrient Delivery:**
  - ND-1.3: Recommend advancing diet beyond NPO/clear liquids by POD 5. Pt likely not meeting estimated needs on clear diet alone.
  - ND-1.2: Recommend low fiber, cardiac, CHO controlled diet in 6 small meals per day once PO diet initiated.

- **Nutrition Education:**
  - GI diet: Diet recommendations post-GI surgery/post gastric surgery discussed and handout given to patient (11/14/13)
  - DM: E-1.5: CHO-Counting and sick days DM education provided (11/15/13)

- **Coordination of Care: Collaboration with Other Providers-RC-1.4**
  - Doctor to advance patient’s diet
  - Nursing to monitor intake of food/fluid at meals
  - Recommend optimal glucose control for wound healing
Nutrition Monitoring and Evaluation

- AD-1.1.2: Weight
- FH-1.1.1.1: PO Intake/Tolerance
- BD-1.2, 1.4, 1.5 Nutrition-Related Labs
- PD-1.1.5: GI Function
- FH-1.2.2.2 Advancement of Diet
Weights During Admission

- Weight (kg)
- Date

- 80 kg: 11/11/13
- 82 kg: 11/12/13
- 84 kg: 11/13/13
- 86 kg: 11/14/13
- 88 kg: 11/15/13
- 90 kg: 11/16/13
- 92 kg: 11/17/13
- 84 kg: 11/18/13
<table>
<thead>
<tr>
<th>Date</th>
<th>Diet</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/11/13</td>
<td>NPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pt received D5 ½ NaCl with KCl 20 mEq</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuous Infusion @ 120 ml/hr- this provided 489.6 kcal/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/12/13</td>
<td>NPO Except For Sips with Medications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/13/13</td>
<td>Clear Liquid Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sips Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/14/13</td>
<td>Clear Liquid Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/14/13</td>
<td>Clear Liquid Diet- Sips Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/15/13</td>
<td>Pt received D5 ½ NaCl Continuous Infusion @ 120 ml/hr from 11/14-11/16- this provided 489.6 kcal/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/16/13</td>
<td>Cardiac, Carbohydrate Controlled Standard Diet, small frequent meals</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>11/17/13</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>11/18/13</td>
<td></td>
<td>25%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Average Intake</strong></td>
<td>75%</td>
<td>75%</td>
<td></td>
</tr>
</tbody>
</table>
Nutrition Follow-Ups

11/14/13:

GI diet: Diet recommendations post-GI surgery/post gastric surgery discussed and handout given to patient
Nutrition Follow-Ups

11/15/13:
DM: E-1.5: CHO-Counting and sick days DM education provided
Where is she now? (as of 1/11/14)

- **Outpatient Follow-Up, 11/26/13:**
  - Tolerating a regular diet, eating 5 small meals per day, and continues Reglan.
  - Denies N/V; pt with BMs daily.
  - Patient reports 5 out of 10 incisional pain that she continues to manage with pain medication.

- **ER Observation, 12/9/13:**
  - Pain feels like pancreatitis.
  - Abdominal ultrasound reveals possible gallbladder stone.
  - Patient attributed abdominal pain to overeating.

- **Outpatient Follow-Up, 12/27/13:**
  - Denies similar episodes of abdominal pain since ER or pain similar prior to surgical intervention.
  - Tolerating regular diet, eating 2 large meals per day and some snacks, and continues Reglan.
  - Denies N/V; pt with BMs daily.
Implications to the Practice of Dietetics

- High Risk for Malnutrition

- Nutritional Complications
  - Maldigestion
  - Malabsorption,
  - Abdominal Pain
  - Vitamin Deficiency
  - Poor Bone Health

- RDs = Vital Component of Treatment
References


QUESTIONS??