Chronic Pancreatitis Secondary to Chronic Alcoholism

By Kalyn Eden & Gabrielle Siragusa
Background

- Pancreas has 2 major functions:
  - Produces digestive enzymes & bicarbonate.  
    (Exocrine)
  - Hormone production/glucose regulation.  
    (Endocrine)

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What is Pancreatitis?

- Inflammation of the pancreas causing pancreatic damage/autodigestion.
- Can be acute or chronic.
- The most common causes are alcoholism, cholelithiasis, and abdominal trauma.

http://digestive.niddk.nih.gov
Chronic Pancreatitis

- Continuous or recurrent inflammation → progressive and irreversible tissue changes → permanent loss of function
- In Western countries, alcohol consumption is assumed to be the leading cause (70%–90%) of all cases.
- Alcohol is known to exert a number of toxic effects on acinar cells (active cells in pancreas).
- It is common for patients with chronic pancreatitis to have repeated episodes of acute pancreatitis.
Signs & Symptoms

- Abdominal pain
- Back pain
- Nausea
- Vomiting
- Fever
- Swelling of the abdomen
- Rapid pulse
- High/low blood pressure
- Shock
- Faintness
- Jaundice
- Elevated serum amylase & lipase
- Maldigestion/malabsorption
- Diarrhea
- Thirst
- Appetite
- Urination
- Fatigue
- Weight loss

http://www.hmc.psu.edu
Assessment

- Name: Elena Jordan
- Age: 30
- Sex: Female
- Height: 5’8
- Current Weight: 112 lbs.
- UBW: 140 lbs. (1 year ago)
- %UBW: 80%
- IBW Range: 126-154 lbs.
- %IBW: 80% (moderate weight loss)
- BMI: 17.0
Assessment

□ Chief Complaint
  ■ “I’m tired of hurting so much. I’ve had this terrible pain in my stomach for the past 2 days. I took a client out to dinner the other night, but I couldn’t eat much. This has been happening off and on for the past 9 months, but the pain has never gone around to my back before.”

□ Medical History
  ■ No family history of GI disease.
<table>
<thead>
<tr>
<th>Biomedical Marker</th>
<th>Elena's values</th>
<th>Normal Values</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albumin</td>
<td>3.6</td>
<td>3.5-5 g/dL</td>
<td>Normal</td>
</tr>
<tr>
<td>Total Protein</td>
<td>6</td>
<td>6-8 g/dL</td>
<td>Normal</td>
</tr>
<tr>
<td>Prealbumin</td>
<td>20.5</td>
<td>16-35 mg/dL</td>
<td>Normal</td>
</tr>
<tr>
<td>Transferrin</td>
<td>155 (low)</td>
<td>250-380 mg/dL</td>
<td>Negative acute phase responder. Possibly unrelated</td>
</tr>
<tr>
<td>Glucose</td>
<td>130 (high)</td>
<td>70-100 mg/dL</td>
<td>Impaired insulin production/metabolic stress</td>
</tr>
<tr>
<td>Bilirubin</td>
<td>1.5 (high)</td>
<td>&lt;0.3 mg/dL</td>
<td>RBC breakdown caused by leakage of pancreatic enzymes.</td>
</tr>
<tr>
<td>ALT</td>
<td>45 (high)</td>
<td>4-36 U/L</td>
<td>Biomarker for liver injury.</td>
</tr>
<tr>
<td>AST</td>
<td>50 (high)</td>
<td>0-35 U/L</td>
<td>Biomarker for liver injury.</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>225 (high)</td>
<td>120-199 mg/dL</td>
<td>Poss. heredity/lifestyle/diet</td>
</tr>
<tr>
<td>HDL-C</td>
<td>40 (low)</td>
<td>&gt;55 mg/dL</td>
<td>Poss. heredity/lifestyle</td>
</tr>
<tr>
<td>TG</td>
<td>250 (high)</td>
<td>35-135 mg/dL</td>
<td>EtOH</td>
</tr>
</tbody>
</table>
## Assessment

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<tr>
<th>Biomedical Marker</th>
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<th>Normal Values</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>14.5 (high)</td>
<td>4.8-11.8 x 10^3/mm^3</td>
<td>Infection</td>
</tr>
<tr>
<td>HGB</td>
<td>11.6 (low)</td>
<td>12-15 g/dL</td>
<td>Nutritional deficiency</td>
</tr>
<tr>
<td>HCT</td>
<td>35.7 (low)</td>
<td>37-47 %</td>
<td>Nutritional deficiency</td>
</tr>
<tr>
<td>MCV</td>
<td>101.5 (high)</td>
<td>µm^3</td>
<td>Macrocytic anemia due to b12 deficiency</td>
</tr>
<tr>
<td>% GRANS</td>
<td>84.2 (low)</td>
<td>34.6-79.2 %</td>
<td>Infection</td>
</tr>
<tr>
<td>Ferritin</td>
<td>19.5 (low)</td>
<td>20-120 mg/mL</td>
<td>Iron depletion</td>
</tr>
</tbody>
</table>
Assessment

- Psychosocial Factors
  - Education: Bachelor’s Degree
  - Occupation: Pharmaceutical Sales Rep. (50+ hours/week)
  - Household Members: Lives alone
- Other
  - Smoke: no
  - Drink: yes (2-3 drinks/day)
    - Patient stated that she started drinking in high school on the weekends when her friends had parties – only beer (1-2 cans per night)
    - During college drank on weekends often consuming 5 or more drinks per night
  - Meds: antacids & Ortho-Tri Cyclen-28 day cycle
Assessment

- Usual Dietary Intake
  - Breakfast
    - Dry bagel, 1 cup black coffee
  - Lunch
    - Diet coke,
    - Lean Cuisine-usually Swedish meatballs (with noodles)
  - Dinner
    - 5 oz white wine while preparing dinner
    - baked potato-medium sized, with butter, sour cream, and chives
    - 2 stalks steamed broccoli with cheese sauce (made from Cheez Whiz)
    - 2 glasses (5 oz) white wine

- Total calories: 1316
- Protein: 54 grams
Assessment

- **Intake on the Road**
  - **Breakfast**
    - ¾ cup dry cereal with 1½ cups 2% milk
    - 1 cup orange juice
    - 1 cup black coffee
  - **Lunch**
    - Often doesn’t eat lunch but when she does...
    - McDonald’s fruit and yogurt parfait
    - Medium Diet Coke
  - **Dinner**
    - Usually some type of appetizer-most likely fried mushrooms
    - spinach salad with hot bacon dressing
    - fettuccine Alfredo or small (6 oz) filet mignon with garlic mashed potatoes
    - 2-3 glasses of wine (6 oz glasses)
  - **After-dinner drink**
    - Usually sherry (3 oz)

- **Total calories:** 1879
- **Protein:** 48 grams
Assessment

☐ Kcal Needs
  ▪ 655 + (9.6 x 50.9) + (1.8 x 172.7) – (4.7 x 30) = BEE
  ▪ 1313.5 x 1.3 x 1.2 = 2049 kcals/day
  ▪ 40 kcal/50.9 kg = 2040 kcals/day

☐ Protein Needs
  ▪ 50.9 kg x 1.3g/kg = 66 g protein/day

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Diagnoses

- Excessive alcohol intake (NI-4.3) related to pressure from job and lifestyle factors as evidenced by 24 hour recall and usual diet recall.

- Involuntary weight loss (NC-3.2) related to nausea, vomiting, poor appetite, and diarrhea as evidenced by 20% weight loss over 1 year.
Intervention

- Treatment Plan
  - Pregnancy Test
  - CBC
  - Chemistry with liver and pancreatic enzymes
  - Urinanalysis
  - Upper GI with small bowel follow-through
  - CT scan of abdomen and pelvis
  - 72 hour stool collection for fecal fat

- 1 liter NS bolus, then D5NS @ 150 cc/h
- Demerol 25 mg IM q 4-6 h
- NPO
- Chlordiazepoxide 25 mg IV q 6h x 3d
- Thiamine 100 mg IV daily x 3d
- Folic acid 1 mg IV daily x 3d
- Multivitamins 1 amp in first liter of IV fluids
Intervention

- Initiate Parenteral Nutrition (ND-2)
  - Patient cannot tolerate an enteral feeding which might stimulate the pancreas
  - Delay PN until after peak inflammatory response has occurred → approximately 5-7 days
  - NG suction
  - ADAT
Intervention

- Kcal needs: 2049 kcals
- Kcal needs with fever: 2365 kcals
- 66 g protein per day

- Pro: $66g \times (4\text{ kcal/g}) = 264 \div 2365 = 12\%$
- Fat: $25\% \times (2365) = 592 \div 9\text{ kcal/g} = 66g$
- CHO: $63\% \times (2365) = 1490 \div 4\text{ kcal/g} = 373g$

TPN Recommendation: (g/day)
Intervention

- Comprehensive Nutrition Education (E-2)
  - To educate patient on her new diagnoses and modification of alcohol consumption.
  - Moderate to low-fat diet.
  - Pancreatic enzymes with each meal and snack
  - Avoid GI stimulants (alcohol, coffee, tea, spices and condiments)
  - MCT oil
  - B12 and folate supplementation
  - Antacids, H2 receptor antagonists, proton pump inhibitors

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Intervention

- **Outcome goals**
  - **Short Term**
    - Progression from NPO → PN → oral diet.
    - Cessation of alcohol consumption to prevent further destruction of patient’s pancreas.
    - Patient understanding of how alcohol is damaging her body.
  - **Long Term**
    - Weight gain to UBW
    - Normalize lab values (glucose, hgb/hct, mcv)
Scope of Practice

*Initiate parenteral nutrition (ND-2)

*Comprehensive nutrition education (E-2)
Monitor & Evaluate

☐ Follow-up in 3 weeks
  ■ Monitor patient’s labs:
    ☐ Glucose (diabetes)
    ☐ Amylase and lipase
    ☐ B12 and folate (anemia)

☐ Monitor patient’s adherence to abstaining from alcohol
☐ Monitor patient’s weight
☐ Refer to social work for EtOH services
References

- Bornman PC, Beckingham IJ. Chronic Pancreatitis. March 2001; 322:660-663
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- Shigeyuki N. Comparison of enteral nutrition with combined enteral and parenteral nutrition. Nutrition Journal 2009; 8:24
  www.nutritionj.com/content/8/1/24
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