Myocardial Infarction

Dana Kent
Janelle Brown
Myocardial Infarction

- [http://www.youtube.com/watch?v=n8P3n6GKBSY](http://www.youtube.com/watch?v=n8P3n6GKBSY)
- Commonly Referred to as a “Heart Attack”
- 2° Atherosclerosis (CAD)
Procedure

• Angioplasty with Stent Placement
  • [http://www.youtube.com/watch?v=S9AqBd4RExk](http://www.youtube.com/watch?v=S9AqBd4RExk)
Prevalence

• 1.2 Million MI Episodes Each Year
  http://www.nhlbi.nih.gov/health/health-topics/topics/heartattack/

• Cardiovascular Disease:
  The leading cause of death in the US
  (~600,000 deaths/year)
  http://www.cdc.gov/nchs/fastats/lcod.htm
Risk Factors

1. Cigarette Smoking
2. Dyslipidemia
3. Hypertension
4. Diabetes
5. Physical Inactivity
6. Obesity
James Klosterman

• **Sex:** Male
• **Age:** 61 years old
• **Ethnic Background:** German
• **Chief complaint:** Severe unrelenting chest pain
• **Admit diagnosis:** Myocardial Infarction
Anthropometrics

- **Weight**: 185 lbs (84 Kg)
- **Height**: 6’1” (180cm)
- **BMI**: 26.5 (mildly overweight)
- **IBW**: 150-182
Estimated Energy Requirements

- **BEE** = 66.5 + 1159 + 900 – 414 = 1711 kcals/day
- **TEE** = 1711 kcals/day x 1.4 x 1.2 = 2875 kcals/day
- **EER** = 2875 kcals/day

- 30-35 kcals/kg x 84kg = 2,520 – 2940 kcals/kg

- **Protein Req:** 109g/day (1.3g/kg)
Medical History

- Cholecystectomy 10 years ago
- Apendectomy 30 years ago
- History of emphysema/ lung problems
  ~Smokes 1 pack per day for 40 years
- No prior incidence of Angina
- No known history of hypertension, diabetes or high cholesterol.
Lifestyle

• 15 minutes of physical activity daily
• Career: Lutheran Minister
• Wife shops for and prepares all meals
Risk Factors

• Smokes 1 Pack/Day for 40 years (1RF)
• Father-coronary artery disease and MI at 59 (1RF)
• Low to No Physical Activity (1RF)
## Biochemical Assays

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CO2 mEq/l</td>
<td>23-30</td>
<td>20 (L)</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Glucose mg/dL</td>
<td>70-100</td>
<td>136 (H)</td>
<td>106</td>
<td>104</td>
</tr>
<tr>
<td>Total Chol mg/dL</td>
<td>120-199</td>
<td>235 (H)</td>
<td>226 (H)</td>
<td>214 (H)</td>
</tr>
<tr>
<td>HDL mg/dL</td>
<td>&gt;45 men</td>
<td>30 (L)</td>
<td>32 (L)</td>
<td>33 (L)</td>
</tr>
<tr>
<td>LDL mg/dL</td>
<td>&gt;130 men</td>
<td>160 (H)</td>
<td>150 (H)</td>
<td>141 (H)</td>
</tr>
<tr>
<td>LDL/HDL ratio</td>
<td>&lt;3.55 men</td>
<td>5.3 (H)</td>
<td>4.7 (H)</td>
<td>4.3 (H)</td>
</tr>
<tr>
<td>Apo A I</td>
<td>94-178 men</td>
<td>72 (L)</td>
<td>80 (L)</td>
<td>98</td>
</tr>
<tr>
<td>Troponin I ng/dL</td>
<td>&lt;0.2</td>
<td>2.4 (H)</td>
<td>2.8 (H)</td>
<td>-</td>
</tr>
<tr>
<td>Troponin T ng/dL</td>
<td>&lt;0.03</td>
<td>2.1 (H)</td>
<td>2.7 (H)</td>
<td>-</td>
</tr>
</tbody>
</table>
Dietary History

- No Known Food Allergies
- Previous Diet Consult 1 Year Ago
- Wife Purchases/Prepares All Meals (Switching Oils to PUFAs)

### 24-Hour Recall

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>Snack</td>
<td>1 Cinnamon Raisin Bagel (LG) 1 T FF Cream Cheese, 8oz Orange Juice, Coffee (black)</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>1 Can (16oz) Vegetable Beef Soup, Sandwich with 4oz Roast Beef, Lettuce, Tomato, Dill Pickles, 2 t Mayo, 1 Apple, 8oz 2% Milk</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td>2 Lean Pork Chops (3oz each), 1 Large Baked Potato, 2 t Margarine, ½ c Green Beans, ½ Cup Coleslaw w/ Salad Dressing, 1 Slice Pie</td>
<td></td>
</tr>
<tr>
<td>Snack</td>
<td>8oz 2% Milk, 1oz Pretzels</td>
<td></td>
</tr>
</tbody>
</table>
# Dietary Analysis – 24 Hr Recall

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>2,626 Kcals</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>344g (52%)</td>
</tr>
<tr>
<td>Protein</td>
<td>138g (21%)</td>
</tr>
<tr>
<td>Fats</td>
<td>78g (27%)</td>
</tr>
<tr>
<td>Sat Fat</td>
<td>22g (8%)</td>
</tr>
<tr>
<td>Trans Fat</td>
<td>2.1g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>275mg</td>
</tr>
<tr>
<td>Sodium/Potassium</td>
<td>5,633mg/5,271mg</td>
</tr>
<tr>
<td>Fiber</td>
<td>26g</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>4,984 IU</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>142mg</td>
</tr>
<tr>
<td>Calcium</td>
<td>1064mg</td>
</tr>
<tr>
<td>Iron</td>
<td>19.6</td>
</tr>
</tbody>
</table>
Cardiac Diet

• **Specific Dietary Recommendations:**
  “MNT is effective at decreasing blood lipid levels and increasing blood levels of folate, vitamin B6 and B12.” (Lim & Choi, Grade I)

  – *Education Included:*
    • Motivational interviewing
    • Transtherotical model
    • Information about hyperlipidemia
    • Balancing food intake with physical activity
    • Cholesterol & fat content of food
    • Moderate salt consumption
    • Tips for eating out
Cardiac Diet

• Decrease intake of saturated/trans Fats*
  ~Replace with MUFA’s & some CHO*
  [from fruits, veg, & whole grains]
  *(Berlung et al, Grade I)

• Decrease intake of dietary cholesterol

• Decrease intake of sodium
Diagnosis

• Food and nutrition-related knowledge deficit (NB 1.1) related to limited dietary changes after prior education from community dietitian as evidenced by 24-hour food recall.

• Physical inactivity (NB-2.1) related to heavy smoking and not incorporating exercise into daily routine as evidenced by patient report of 15 minutes daily exercise.
Intervention

• Meals and Snacks (ND-1)

Diet Order: Cardiac Diet (AHA Diet)
Intervention

- **Comprehensive Nutrition Education (E-2)**
  - ½-1 cup Daily of **Unsalted Nuts** (NEL Summary)
  - Increase consumption of **plant sterols/stanols** (EAL Summary Statement, Grade I) through rich sources/fortified products
    ~Wheat germ, corn canola & olive oils, peanuts, almonds, brussels sprouts, rye bread, macadamia nuts, benecol & *take control* spreads
  - Switch to ½ **whole grain** baked products
  - Home-made soups or **low sodium** varieties
Intervention

- Coordination of Other Care During Nutrition Care (RC-1)
  - **Referral to Cardiac Rehab Center**
    - *Follow up with Outpatient Dietician*
    - *Increase Physical Activity* to two 15 min walks each day
      
      “Exercise has shown to reduce all cause mortality and cardiac mortality in secondary prevention patients”
      
      (ADA Conclusion Statement Grade II).

  - **Referral to Smoking Cessation Counseling:**
    
    ~Smokes 1 pack/day for 40 years
Medications

• Aspirin 160 mg/day
• Lopressor 50 mg/day
  *Beta Blocker used to treat high blood pressure and Angina
  (take consistently each day, food may increase bioavailability)
• Lisinopril 10 mg/day
  *ACE inhibitor used to treat high blood pressure (May Increase lipid levels of Potassium)
• Nitro-Bid 9 mg/twice daily
  *Vasodilator used to relax and widen blood vessels
• Lipitor 10 mg/day at bedtime
  *Statin used to decrease cholesterol (AVOID GRAPEFRUIT & RED YEAST RICE)

*It is suggested to avoid alcohol with most of these medications.
Intervention

• **Goals:**
  
  – Patient tolerance of/adherence to cardiac diet (patient consumes >75% of meal trays)
  – Serum Lipids Goal: **LDL < 100** **HDL >45**
  – Patient goes to Cardiac Rehab Center
  – Patient goes to Smoking Cessation Therapy
Scope of Practice:
1. Nutrition Education
2. Smoking
3. Physical Activity
Monitoring & Evaluation

- Monitor food intake from trays daily
- Check for patient follow up with outpatient dietitian for lipid monitoring.
- Check for follow up with smoking cessation.

2. Lim HJ, Choi YM, Choue R. Dietary intervention with emphasis on folate intake reduces serum lipids but not plasma homocysteine levels in hyperlipidemic patients. *Nutr Res.* 2008 Nov; 28(11): 767-774. (Grade I)

4. ADA Conclusion Statement (Grade II): http://www.adaevidencelibrary.com/conclusion.cfm?conclusion_statement_id=303


6. ADA Conclusion Statement (Grade I): http://www.adaevidencelibrary.com/conclusion.cfm?conclusion_statement_id=46