Hyperlipidemia: Case Study

Case Study

- **Tim** is a 48 year old, Caucasian male
- Recently relocated to your town and has an appt today for a “physical”
- **Family Hx**
  - Father hx CABG at age 58
  - Brother with 2 cardiac stents at age 56
- **Medical Hx**
  - Hypertension since age 40
  - Type 2 DM diagnosed at age 45
  - Occasional indigestion
- **Medications**
  - HCTZ 25 mg PO daily
  - metformin (Glucophage XR) 500 mg 4 tab q hs
  - Tums PRN
- **Social Hx**
  - Married x 23 years; 2 children in college; works as insurance salesman
  - **Tobacco**: 1 ppd x 20 years, but quit 5 years ago
  - **Diet**:
    - Follows no special diet
    - Eats fast food most days for lunch
    - Wife attempts to cook healthy at dinner (bakes meat and cooks fresh vegetables)
  - **Exercise**: sporadic twice weekly (walk in neighborhood with wife)
  - **Alcohol**: occasional glass of wine (3-4x/month)
- **Vital Signs**:
  - BP 152/94
  - Pulse 82
  - Weight 234 lbs
  - BMI 34
Lab Results

- TC 262 mg/dL
- TG 130 mg/dL
- HDL-C 31 mg/dL
- LDL-C 148 mg/dL
- ALT 36 IU/L
- AST 28 IU/L
- Creatinine 0.7 mg/dL
- TSH 10 mIU/L
- FPG 130 mg/dL
- A1C 7.8%

Using the Pooled Cohort Risk Equation

- Gender: Male
- Age: 48
- Race: White
- Total Cholesterol: 262 mg/dL
- HDL-Cholesterol: 31mg/dL
- SBP: 152 mmHg
- Treatment for hypertension: Yes
- Diabetes: Yes
- Smoker: No

Question

- Based on previous lab value slide and the Pooled Cohort Risk Equation calculator, Tim’s estimated 10 year ASCVD risk is:
  - A. 5.7%
  - B. 10.5%
  - C. 15.3%
  - D. 20.6%
Using the Risk Estimator

• 10-Year ASCVD Risk: 20.6% calculated risk

• 10-Year risk in similar patient with optimal risk factors: 1.7%

• Optimal risk factors include:
  • Total cholesterol: 170 mg/dL
  • HDL-C 50 mg/dL
  • SBP 110 mmHg
  • Not taking meds for hypertension
  • Not diabetic
  • Not smoker
Question

• Based on the new 2013 ACC/AHA cholesterol treatment guidelines, which of the 4 major statin benefit groups does Tim belong?

• A. Clinical ASCVD
• B. LDL > 190 mg/dL
• C. Diabetes Type 1 or 2; age 40 – 75 yo
• D. ≥ 7.5% estimated 10 yr ASCVD risk and age 40-75 yo

Correct Answer!

• Click here to go to next slide
Sorry...Incorrect Answer!

- Click here to go back to previous slide

Question

- Which of the following therapy will you initiate?
  
  A. Moderate intensity statin therapy
  B. High intensity statin therapy
  C. No statin therapy is indicated at this time
  D. High dose niacin therapy

Correct Answer!

- Click here to go to next slide
Case Study

- Which of the 4 major statin benefit groups?
  - DM: 40-75 yrs of age with >7.5% estimated 10 yr ASCVD risk
- Treatment?
  - Moderate or High intensity statin?
- Clinician-Patient discussion:
  - Based on benefit/risk discussion, decision is for a high intensity statin
  - Atorvastatin (Lipitor) 10 mg initiated
    - Titrating up; increase dose q 2-4 wks as tolerated to goal (Lipitor 40 mg) for each unique patient risk profile

Question

- Statin medications are pregnancy risk category:
  - A. B
  - B. C
  - C. D
  - D. X
3 Month Follow-Up

• Tim returns to the office 3 months later. He has titrated up to Lipitor 40 mg daily. He comes in today complaining of muscle aches.
Question

Which of the following could be causing Tim’s muscle aches?

- A. Rhabdomyolysis
- B. Recent increase in dose of statin therapy
- C. Recent antibiotic prescription for clarithromycin
- D. All of the above

Correct Answer!

• Click here to go to next slide

Sorry...Incorrect Answer!

• Click here to go back to previous slide
When considering the possible causes of myalgia, what labs would you want to order for Tim?

A. CBC (complete blood count), BMP (basic metabolic profile), CK (creatine kinase)
B. CK (creatine kinase), FLP (fasting lipid profile), CMP (complete metabolic profile)
C. TSH (thyroid stimulating hormone), B12, CK (creatine kinase)
D. FLP (fasting lipid profile), Vitamin D, ANA (antinuclear antibody)
Statin Adverse Effects

1. Myalgias
   - Check CK, liver enzymes (AST, ALT)
   - Normal
   - Back down on dose
   - Coenzyme Q10
   - Some statins may have a lower incidence of myalgias (Crestor, Livalo)

2. Women of Child Bearing Age
   - Pregnancy risk class X
   - MUST have very reliable method of birth control (tubal ligation, IUD, etc)

3. Antibiotics
   - Macrolides
     - clarithromycin (Biaxin)
     - CYP 450 3A4 inhibitor
     - Hold statin while on macrolides or fluoroquinolones

4. Goals
   - High intensity therapy (40 mg)
   - ADA vs. new cholesterol guidelines

Myalgia Labs

Patient Labs:
- CK: 122 (normal)
- FLP: (next slide)
- CMP:
  - AST, ALT: normal
  - Creatinine: normal

- How long been experiencing myalgias?
- Will symptoms resolve if statin held?

Laboratory Assessment

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Baseline</th>
<th>12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (mg/dL)</td>
<td>262</td>
<td>181</td>
</tr>
<tr>
<td>HDL-C (mg/dL)</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>LDL-C (mg/dL)</td>
<td>148</td>
<td>95</td>
</tr>
<tr>
<td>TG (mg/dL)</td>
<td>330</td>
<td>265</td>
</tr>
</tbody>
</table>
Case

- Symptoms resolve after stopping the statin. You decide to add a low dose of a different statin (rosuvastatin - Crestor 5 mg). The patient tolerates this dose and does not report any muscle symptoms. Due to prior muscle symptoms, the patient is unwilling to have his dose titrated up. Clinician-patient discussion of risks/benefits. He ultimately decides to titrate therapy as tolerated to goal. FU in 3 months.

What the Clinician Needs to Consider

- Hypothyroidism?

- Other drugs?
  - Fibrates, azole anti-fungals, cyclosporine, macrolides, diltiazem, HIV protease inhibitors

- Neuromuscular diseases?

What else needs to be addressed at his visit?

- TC = 181
- TG = 265
- HDL = 33
- LDL = 95
- A1C = 7.8%
- TSH = 10
- BP = 152/94
- BMI = 34
Treatment Plan

1. Cholesterol
   - Goals: TC, LDL, HDL, TG?
   - Revisit lifestyle: diet/exercise

2. DM
   - A1C = 7.8
   - Goal? (<7)
   - Revisit lifestyle: diet/exercise
   - At maximum of metformin
   - Add a second agent? (Janumet 50/1000 BID or Janument 50/1000 XR 2 tab once daily)

3. Thyroid
   - Start Synthroid at 50 mcg PO daily and recheck TSH 6-8 wks

Question

- Which of the following medications should be initiated in addition to HCTZ for better blood pressure control?
  - A. metoprolol (Lopressor) 50 mg PO BID
  - B. amlodipine (Norvasc) 5 mg PO daily
  - C. lisinopril (Zestril) 10 mg PO daily
  - D. clonidine (Catapress) 0.1 mg PO BID

Correct Answer!

- Click here to go to next slide
Sorry…Incorrect Answer!
• Click here to go back to previous slide

Treatment Plan
• 4. BP
  • Diabetic: Add ACE I or ARB (lisinopril 10 mg daily)
  • Goal? ADA (140/80 mmHg)
  • Revisit lifestyle: diet/exercise/low sodium/weight loss
• 5. BMI
  • Diet/Exercise

Unmet Cholesterol Goals?
• 1. TG:
  • Remains elevated
  • Goal? (<150 ?)
• 2. HDL:
  • Remains low
  • Goal? (>40 ?)
Niacin

- Lower TG, raise HDL (modest) and lower LDL (modest)
- Niaspan (Rx) - less flushing
- Flushing
  - ASA 325 mg 30 min prior
  - Niacin at HS; take with a low fat snack

Fibrates

- fenofibrate (Trilipix, Tricor, Antara)
- Lower TG

Omega 3 Fish Oil

- Rx: Lovaza (if insurance will cover)
  - Each capsule 1 gm (Dose: 4 grams/day)
- Lower TG
Bile Acid Sequestrants

- cholestyramine (Questran)
- colesevelam (Welchol)

- AE: constipation
  - risk of fat soluble vitamins

- Off label for chronic diarrhea
  - may use with Irritable Bowel Syndrome

Cholesterol Absorption Inhibitor

- ezetimibe (Zetia)

- Will decrease LDL, but outcomes not as good (not very effective)

- Rarely used