Cholesterol Management: A Case Based Discussion

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Disclosure

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Member/Steering Committee: Patient and Provider Assessment of Lipid Management (PALM), Registry at the Duke Clinical Research Institute
Case Presentation 1

• 55 year Old Caucasian male comes for a routine visit.
• History: Hypertension, No diabetes or smoking.
• Meds: Chlorthalidone 25 mg po daily.
• Family history of premature ASCVD (mother had MI at age 60).
• BP: 135/80 mm Hg, BMI 28 kg/m², WC = 42 inches.
• Exam unremarkable.

<table>
<thead>
<tr>
<th>Labs</th>
<th></th>
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<tbody>
<tr>
<td>TC</td>
<td>218 mg/dl</td>
</tr>
<tr>
<td>HDL-C</td>
<td>42 mg/dl</td>
</tr>
<tr>
<td>TGs</td>
<td>180 mg/dl</td>
</tr>
<tr>
<td>LDL-C (Friedwald)</td>
<td>140 mg/dl</td>
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<tr>
<td>Fasting glucose</td>
<td>115 mg/dl</td>
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<tr>
<td>HbA1C</td>
<td>6.1%</td>
</tr>
<tr>
<td>eGFR</td>
<td>75 ml/min/m²</td>
</tr>
<tr>
<td>UA</td>
<td>No proteinuria</td>
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7.9% Current 10-Year ASCVD Risk
Lifetime ASCVD Risk: 46%  Optimal ASCVD Risk: 3.0%
• You talk about caloric restriction by 500 calories per day, and starting 30 min of walking 5 days a week.

Would You Start a Statin in This Patient as He is Willing to do so if You Feel it is Indicated?

1. Yes
2. No
3. I am unsure
Diagnostic Components of The Metabolic Syndrome

- Additional pathophysiologic features of metabolic syndrome contribute to ASCVD risk:
  - Inflammation
  - Endothelial Dysfunction
  - Small, dense LDL particles
  - Pro-thrombosis

- Lifestyle modification needed to address all pathophysiologic aspects of metabolic syndrome
You figure out that the patient has actually gotten a Coronary Artery Calcium (CAC) score before seeing you and the score is 0.

Based on This You Will:

1. Recommend Statin Therapy
2. Not recommend Statin Therapy
3. Refer to a Lipid Specialist
Case Presentation 2

- 70 year old male with history of hypertension, stage 3 CKD, MI 12 months ago and coronary artery bypass grafting 6 months ago presents for follow-up.

- He is currently on aspirin 81 mg po daily, clopidogrel 75mg po daily, lisinopril 10 mg po daily, carvedilol 12.5 mg po bid, and atorvastatin 80 mg po daily.

- Patient is interested in lowering his future risk of ASCVD.
• Patient’s lipids performed in the clinic are as follows:

Total cholesterol 150 mg/dl, LDL-C of 78 mg/dl, triglycerides 170 mg/dl, HDL-C 38 mg/dl.

Non-HDL cholesterol (TC-HDL-C) = 112 mg/dl

• Patient states that he is adherent to his lipid lowering regimen and you confirm this with his medication refill records.

Is This Patient considered a Very High-risk ASCVD Patient by the 2018 Guideline?

1. Yes
2. No
3. I am not sure
Very High-Risk ASCVD Patients

<table>
<thead>
<tr>
<th>Major ASCVD Events</th>
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</thead>
<tbody>
<tr>
<td>Recent ACS (within the past 12 mo)</td>
</tr>
<tr>
<td>History of MI (other than recent ACS event listed above)</td>
</tr>
<tr>
<td>History of ischemic stroke</td>
</tr>
<tr>
<td>Symptomatic peripheral arterial disease (history of claudication with ABI &lt;0.85, or previous revascularization or amputation)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High-Risk Conditions</th>
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</thead>
<tbody>
<tr>
<td>Age ≥65 y</td>
</tr>
<tr>
<td>Heterozygous familial hypercholesterolemia</td>
</tr>
<tr>
<td>History of prior coronary artery bypass surgery or percutaneous coronary intervention outside of the major ASCVD event(s)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>CKD (eGFR 15-59 mL/min/1.73 m²)</td>
</tr>
<tr>
<td>Current smoking</td>
</tr>
<tr>
<td>Persistently elevated LDL-C (LDL-C ≥100 mg/dL [≥2.6 mmol/L]) despite maximally tolerated statin therapy and ezetimibe</td>
</tr>
<tr>
<td>History of congestive HF</td>
</tr>
</tbody>
</table>

*Very high risk includes a history of multiple major ASCVD events or 1 major ASCVD event and multiple high-risk conditions.*


What Will You Do Next?

1. Add ezetimibe
2. Add a PCSK9 inhibitor
3. Reinforce diet and lifestyle
4. Add Icosapent ethyl ester
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**Thursday, July 9, 2020**

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**Which Non-statins to Use and in What Order?**

**Clinical ASCVD**

ASCVD not at very high-risk*  
Healthy Lifestyle

Very high-risk* ASCVD

**Age <75 y**

- High-intensity statin (Goal: LDL-C ≤50mg/dL)  
  - If high-intensity statin not tolerated, use moderate-intensity statin (Class I)

- If on maximal statin therapy and LDL-C ≥70mg/dL (≥1.8mmol/L), adding ezetimibe may be reasonable (Class IIa)

**Age >75 y**

- High-intensity or maximal statin (Class I)

  - If on maximal statin and LDL-C ≥70mg/dL (≥1.8mmol/L), adding ezetimibe is reasonable (Class IIa)

  - If on clinically judged maximal LDL-C lowering therapy and LDL-C ≥70mg/dL (≥1.8mmol/L), or non-HDL-C ≥100mg/dL (≥2.6mmol/L), adding PCSK9 inhibitor is reasonable (Class IIa)

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**REDUCE-IT**


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**Salim Virani, MD**

**Cholesterol Management: Cases**
Case Presentation 3

A 50-year-old African American woman presents to your clinic. She has a 12-year history of type 2 diabetes (also had gestational diabetes).

She has hypertension and microalbuminuria. She is on dietary management, metformin, and lisinopril/hydrochlorothiazide for her blood pressure. She has a family history of diabetes, but not premature ASCVD.

She has a BP 134/78 mm Hg and a BMI of 34 kg/m^2. Her fasting lipid panel reveals an LDL–C 95 mg/dL, triglycerides 350 mg/dL, and HDL–C 38 mg/dL. Her hemoglobin A1c is 7.5%. eGFR is 45 ml/min/1.73m².

Which of the Following Statements is the Best Answer?

1. Her LDL-C is under 100 mg/dL so she is at "goal" and does not require a statin.
2. She should start simvastatin 20 mg and fenofibrate 160 mg daily.
3. If she does not want to start a statin, a bile acid sequestrant is the next best choice for her.
4. She should be started on a moderate or a high-intensity statin.
Would You Start Her on a Moderate or High-intensity Statin Therapy?

1. Moderate-intensity statin therapy
2. High-intensity statin therapy
3. None of the above
Diabetes-Specific Risk Enhancers That Are Independent of Other Risk Factors in Diabetes Mellitus

<table>
<thead>
<tr>
<th>Risk Enhancers</th>
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<tbody>
<tr>
<td>Long duration ((\geq 10) years for type 2 diabetes mellitus) ((S.4.3-20)) or (\geq 20) years for type 1 diabetes mellitus)</td>
</tr>
<tr>
<td>Albuminuria (\geq 30) mcg of albumin/mg creatinine</td>
</tr>
<tr>
<td>eGFR (&lt; 60) mL/min/1.73 m²</td>
</tr>
<tr>
<td>Retinopathy</td>
</tr>
<tr>
<td>Neuropathy</td>
</tr>
<tr>
<td>ABI (&lt; 0.9)</td>
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Case 3 (continued)

She returns for a follow-up visit 10 weeks later.
What Would You Recommend at This Point?

1. No follow-up lipid panel is recommended since her LDL-C level was already below 100 mg/dL before starting statin therapy.
2. A repeat lipid panel is recommended at 4-12 weeks after initiation of therapy to assess response and adherence to her statin regimen. It should be measured now.
3. A repeat lipid panel is recommended at one year and annually as clinically indicated.
4. A repeat lipid panel is recommended only if patient has adverse effects and discontinues statin therapy.


4.4.3. Monitoring in Response to LDL-C-Lowering Therapy

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
<th>Recommendation</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>A</td>
<td>1. Adherence to changes in lifestyle and effects of LDL-C-lowering medication should be assessed by measurement of fasting lipids and appropriate safety indicators 4 to 12 weeks after statin initiation or dose adjustment and every 3 to 12 months thereafter based on need to assess adherence or safety (S4.4.3.1-S4.4.3.3).</td>
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</tbody>
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