Disclosure to Participants

- Notice of Requirements For Successful Completion
  - Please refer to learning goals and objectives
  - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours
- Conflict of Interest (COI) and Financial Relationship Disclosures:
  - Presenter: Evan Sisson, Pharm.D. – Advisory Board: DM Educate
  - Presenter: Dave Dixon, Pharm.D. – Speakers Bureau: Novartis
- Non-Endorsement of Products:
  - Accredited status does not imply endorsement by AADE, ACPE, AACE or any of the commercial products used in conjunction with this educational activity
- Off-Label Use:
  - Participants will be notified by speakers of all products used for a purpose other than for which it was approved by the Food and Drug Administration

Objectives

1) Compare and contrast current cholesterol guidelines from ACC/AHA, NLA, AACE and ADA.
2) Discuss the impact of recently published clinical trials on treatment of dyslipidemia in current practice.
3) Evaluate the clinical importance of traditional lipoproteins and non-lipid disease markers in determining lipid-lowering goals of therapy.
4) Discuss the limitations and potential controversies with current drug therapy options for treatment of dyslipidemia.
5) Determine optimal therapeutic regimens for patients with diabetes to achieve individualized cardiometabolic goals.

Two problems with CAD in the US

About 800,000 people die of heart disease in the United States every year—that’s 1 in every 4 deaths.

Current Approaches to Management of Dyslipidemia

2013 ACC/AHA Guidelines
2015 ADA Guidelines
2014 National Lipid Association 2015 AACE Guidelines

Endocrine Practice. 2014. DOI:10.4158/EP15693.CS.
Self-Assessment Question 1:

54-year-old African American female with type 2 diabetes presents to a health fair for a cardiovascular risk screening.

Meds: metformin 1g twice daily, lisinopril 20mg daily
BP: 138/80 (treated)
Smoker: Yes (1ppd)
FH: mother living; father @ 43 of MI

5-year ASCVD Risk = 38.3%

10-year ASCVD Risk =

BP: 138/80 (treated)
Meds: metformin 1g twice daily, lisinopril 20mg daily

Relationship Between LDL-C and Event Rates in Selected Statin Trials

Statin Dose Intensities

High-intensity (LDL-C reduction ≥50%)

Moderate-intensity (LDL-C reduction 30 to <50%)

Lovastatin 40 mg; 80 mg
Pravastatin 40 mg; 80 mg
Rosuvastatin 10 mg; 20 mg
Simvastatin 20 mg; 40 mg
Atorvastatin 10 mg; 20 mg

*The panel makes no recommendation for or against specific LDL-C or Non-HDL-C targets for primary or secondary prevention of ASCVD.*

ADA 2015 Lipid Management

2013 ACC/AHA Guidelines:

Four Statin Benefit Groups

Clinical ASCVD (MI, angina, stroke, TIA, PAD)

- Moderate-intensity statin (Age >75)
- High-intensity statin (Age ≤75)

LDL-C ≥190 mg/dL

- High-intensity statin

10-y risk ≥7.5% (Age 40-75)

- Moderate-to-high intensity statin

Diabetes (Age 40-75)

- Moderate-intensity statin
- High-intensity statin if 10-y risk ≥7.5%

ADA 2015 Lipid Management

No risk factors

- No Statin

CVD risk factors

- Moderate/High
- High

Residual Risk Remains

Despite the benefits of LDL-C lowering, 60% to 80% residual risk remains.

Available at: www.medscape.org/viewarticle/569095


CARE, HPS, HPS AFCAPS, CARE, WOSCOPS, LIPID, PROSPER, CARDS, ASCOT

Triglycerides are Independently Associated with Premature Familial CHD

Cholesterol levels (mg/dL)

<table>
<thead>
<tr>
<th>CHD Odds Ratio</th>
<th>Serum Triglycerides (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&lt;100</td>
</tr>
<tr>
<td>2</td>
<td>100-149</td>
</tr>
<tr>
<td>4</td>
<td>150-199</td>
</tr>
<tr>
<td>6</td>
<td>200-299</td>
</tr>
<tr>
<td>8</td>
<td>300-499</td>
</tr>
<tr>
<td>10</td>
<td>&gt;500</td>
</tr>
</tbody>
</table>

Hopkins PN, et al. JACC 2005;45:1003-1012.

Triglyceride and HDL-C Both Contribute to CHD Risk

CHD Odds Ratio

Serum Triglycerides (mg/dL)

HDL-C

<100 100-149 150-199 200-299 300-499 500-799

<30 30-39 40-49 >50

TG = Triglyceride; HDL-C = HDL-cholesterol

Hopkins PN, et al. JACC 2005;45:1003-1012.

3 Consequences of Hypertriglyceridemia

FFATG

Liver

Hepatic Lipase

CETP

HDL

LDL

Atherogenic Dyslipidemia

1. TG/VLDL-C
2. Small Dense (SD) LDL
3. HDL-C


LDL Cholesterol Concentration vs. Particle Number

N=10

Concentration = 70 mg/dl

Concentration = 130 mg/dl

Non-HDL Cholesterol = (TC – HDL)

• Approximates apolipoprotein B (apoB) levels
• ATP III guidelines recommended Non-HDL-C as a goal of therapy for patients with elevated triglycerides (> 250 mg/dL)
• Non-HDL-C is more predictive of ASCVD risk than LDL-C in observational studies and in clinical trials of statin therapy
• When non-HDL and LDL-C are discordant, risk follows non-HDL-C

Benefits of Non-HDL

• Universally available
• No additional cost
• Valid in non-fasting sample


Risk of Major Cardiovascular Events by LDL-C and Non-HDL-C Categories Among Patients Treated With Statins: A Meta-analysis

LDL-C <100 mg/dL

Non-HDL-C <130 mg/dL

LDL-C >100 mg/dL

Non-HDL-C >130 mg/dL

LDL-C >100 mg/dL

Non-HDL-C >130 mg/dL

HR (95% CI)

0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40

CV Risk

Target Levels

AHA 2012 Guideline on Dyslipidemia
NLA Steps in ASCVD Risk Assessment

1) Identify patients with very high risk conditions
- ASCVD
- Diabetes with ≥2 other major ASCVD risk factors or end organ damage

2) Identify patients with high risk conditions
- Diabetes, with 0-1 other major ASCVD risk factors
- Chronic kidney disease Stage 3 or 4
- LDL-C ≥190 mg/dL

3) Count major ASCVD risk factors
- ≥3 and no other indicators of higher risk, assign to high risk category
- Consider assigning to a higher risk category based on other risk factors
- If ≥3 major ASCVD risk factors are present, assign to high risk category

4) Risk scoring (Framingham)
- If <10% 10-year hard CHD risk, assign to moderate risk category.
- If ≥10% 10-year hard CHD risk, assign to high risk category.
- Consider assigning to high or very high risk category, as appropriate, if other risk indicators are present based on additional testing.

NLA Criteria for ASCVD Risk Assessment and Treatment Goals

Target Goals (mg/dL)

<table>
<thead>
<tr>
<th>LDL-C</th>
<th>HDL-C</th>
<th>ApoB</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100</td>
<td>&gt;50</td>
<td>&lt;80</td>
</tr>
<tr>
<td>&lt;70</td>
<td>&gt;100</td>
<td>&lt;80</td>
</tr>
<tr>
<td>&lt;90</td>
<td>&gt;100</td>
<td>&lt;80</td>
</tr>
<tr>
<td>&lt;100</td>
<td>&gt;40</td>
<td>&lt;80</td>
</tr>
</tbody>
</table>

ASCVD Risk Factors:
- Age (men ≥45 years; women ≥55 years)
- Family history CAD (men <55 years; women <65 years)
- Smoking
- Hypertension (BP ≥140/90 mmHg or on therapy)
- Low HDL-C (men <40 mg/dL; women <50 mg/dL)

Self-Assessment Question 1:
54-year-old African American female with type 2 diabetes presents to a health fair for a cardiovascular risk screening.
Meds: metformin 1g twice daily, lisinopril 20mg daily
BP: 138/80 (treated)
Smoker: Yes (1ppd)
FH: father @ 43 of MI
TC: 209 mg/dL
TG: 225 mg/dL
HDL: 36 mg/dL
LDL: 128 mg/dL
Non-HDL: 173 mg/dL
A1C: 6.8%
10-year ASCVD Risk = 38.3%

Question 1: Which of the following is the most appropriate goal of therapy for this patient?
A. HDL >50 mg/dL
B. LDL <100 mg/dL
C. Non-HDL <100 mg/dL
D. ASCVD Pooled Risk <7.5%

Comparison of Two Perspectives on Statin Therapy

ACC/AHA 2013 & ADA 2015
- Patients at high risk benefit from high-intensity statins
- Statins are the most potent and evidence-based approach to lower atherogenic lipoproteins and reduce ASCVD risk
- Benefit derived from statin presence rather than target lipoprotein levels

NLA 2014 & AACE 2015
- “Lower is better”

Variability of Achieved LDL-C with High-Intensity Statin Therapy

- Meta analysis of 8 RCT with statins
- 38,153 subjects
- 6,286 major CV events in 5,387 patients

40% did not achieve LDL-C <70 mg/dL on Atorvastatin 80 or Rosuvastatin 20 mg daily
Self-Assessment Question 2:
48-year-old African American man with type 2 diabetes presents for routine follow-up of dyslipidemia.
Meds: metformin 1g twice daily, rosuvastatin 20mg daily
Lisinopril/HCTZ 20/12.5 mg daily
BP: 132/78 (treated)
Smoker: Yes (1ppd)
FH: mother and father living
TC 203 mg/dL
TG 265 mg/dL
HDL 34 mg/dL
LDL 116 mg/dL
Non-HDL 169 mg/dL
FBG 116 mg/dL
A1C 7%
10-year ASCVD Risk = 27.9%

Question 2: Which of the following is the most appropriate treatment for this patient?
A. No change
B. Add fish oil
C. Add fenofibrate
D. Add niacin ER

Comparison of ACC/AHA and NLA Perspectives on Non-Statin Therapy
Nonstatin therapies may be considered in certain high-risk patients:
• Suboptimal response to statin monotherapy
• Unable to tolerate the recommended statin dose
• Completely statin intolerant

Emphasize adherence to lifestyle and statin before adding nonstatin therapy

No data to support combination lipid therapy proving greater ASCVD risk reduction than statin monotherapy

Comparison of ACCORD and other trials:

<table>
<thead>
<tr>
<th>Trial</th>
<th>TG ≥ 204 mg/dL</th>
<th>HDL-C ≤ 34 mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD</td>
<td>151 vs. 154</td>
<td>81.1 vs. 80</td>
</tr>
<tr>
<td>AIM-HIGH</td>
<td>137 vs. 141</td>
<td>65 vs. 68</td>
</tr>
<tr>
<td>HPS2-THRIVE</td>
<td>128 vs. 141</td>
<td>63 vs. 44</td>
</tr>
</tbody>
</table>

No CV benefit of adding nonstatin cholesterol lowering agent to patients already treated with statin AT GOAL

Evidence supporting nonstatin therapy

<table>
<thead>
<tr>
<th>Total Cholesterol</th>
<th>LDL-C</th>
<th>HDL-C</th>
<th>Triglycerides</th>
<th>Non-HDL-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD</td>
<td>151 vs. 154</td>
<td>81.1 vs. 80</td>
<td>41 vs. 40</td>
<td>122 vs. 144</td>
</tr>
<tr>
<td>AIM-HIGH</td>
<td>137 vs. 141</td>
<td>65 vs. 68</td>
<td>44 vs. 39</td>
<td>120 vs. 152</td>
</tr>
<tr>
<td>HPS2-THRIVE</td>
<td>128 vs. 141</td>
<td>63 vs. 44</td>
<td>--</td>
<td>84</td>
</tr>
</tbody>
</table>

Comparison of Niacin Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Max Dose</th>
<th>Risk of Flushing</th>
<th>Risk of Hepatotoxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niacin IR (OTC)</td>
<td>6 g/day</td>
<td>++ ++</td>
<td>+</td>
</tr>
<tr>
<td>Niacin SR (OTC)</td>
<td>2 g/day</td>
<td>+</td>
<td>+++</td>
</tr>
<tr>
<td>Slo-Niacin (OTC)</td>
<td>2 g/day</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Niaspan (RX)</td>
<td>2 g/day</td>
<td>++</td>
<td>+</td>
</tr>
</tbody>
</table>

• Management of flushing:
  - Start at a low dose and titrate over a period of weeks
  - Take with food
  - Take with aspirin 30 minutes before

Niacin Safety

Class I Recommendation

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Base on Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No CV benefit of adding nonstatin cholesterol lowering agent to patients already treated with statin AT GOAL</td>
</tr>
</tbody>
</table>

Class II Recommendation

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Base on Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>No data to support combination lipid therapy proving greater ASCVD risk reduction than statin monotherapy</td>
</tr>
</tbody>
</table>

HPS2-Thrive: ER Niacin + Laropiprant for Vascular Risk Reduction

- 25,673 patients with Prior history of: myocardial infarction; ischaemic stroke or TIA; peripheral arterial disease; or diabetes with other CHD
  - Randomized to ER niacin 2g + laropiprant 40mg daily, or placebo
  - Background simvastatin 40mg or ezetimibe/simvastatin 10/40 mg therapy
- Primary endpoint: time to first major vascular event – composite of CHD death, nonfatal MI, stroke, or arterial revascularization
  - ER Niacin 282 (16.4%) vs. 274 (16.25%)
- Trial was stopped after a mean follow-up period of 3.9 years due to significant adverse events, principally myopathy with niacin

Lipid Measurement

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Mean at 4-years</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL-C</td>
<td>44 mg/dL</td>
<td>50 mg/dL</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>125 mg/dL</td>
<td>94 mg/dL</td>
</tr>
<tr>
<td>LDL-C</td>
<td>63 mg/dL</td>
<td>56 mg/dL</td>
</tr>
</tbody>
</table>

- 25,673 patients with Prior history of: myocardial infarction; ischaemic stroke or TIA; peripheral arterial disease; or diabetes with other CHD
  - Randomized to ER niacin 2g + laropiprant 40mg daily, or placebo
  - Background simvastatin 40mg or ezetimibe/simvastatin 10/40 mg therapy
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  - ER Niacin 282 (16.4%) vs. 274 (16.25%)
- Trial was stopped after a mean follow-up period of 3.9 years due to significant adverse events, principally myopathy with niacin

Niacin–Laropiprant: Serious Adverse Events in HPS2-THRIVE

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Niacin-Laropiprant (N = 12,838)</th>
<th>Placebo (N = 12,835)</th>
<th>Rate Ratio (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious - no. (%)</td>
<td>620 (4.8)</td>
<td>491 (3.8)</td>
<td>1.28 (1.13-1.44)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>481 (3.7)</td>
<td>385 (3.0)</td>
<td>1.26 (1.10–1.44)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>85 (0.7)</td>
<td>51 (0.4)</td>
<td>1.67 (1.20-2.34)</td>
<td>&lt;0.003</td>
</tr>
<tr>
<td>Skin-related</td>
<td>103 (0.8)</td>
<td>85 (0.6)</td>
<td>1.22 (1.12-1.34)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Infection</td>
<td>238 (1.9)</td>
<td>218 (1.7)</td>
<td>1.36 (1.17–1.52)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bleeding</td>
<td>326 (2.5)</td>
<td>238 (1.9)</td>
<td>1.38 (1.17–1.52)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Diabetes - no./total no. (%)

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Niacin-Laropiprant (N = 12,838)</th>
<th>Placebo (N = 12,835)</th>
<th>Rate Ratio (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-onset diabetes w/o diabetes at baseline</td>
<td>494 / 8704 (5.7)</td>
<td>376 / 8670 (4.3)</td>
<td>1.32 (1.16–1.51)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Disturbed diabetes control w/ diabetes at baseline</td>
<td>460 / 4134 (11.1)</td>
<td>311 / 4165 (7.5)</td>
<td>1.55 (1.34–1.78)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

ADA/ACCF Approach to CMR Management: Role of Fibrates

- Fibrates reduce CVD events in some studies but not mortality
  - Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) trial
    - Primary outcome of overall CHD events was not significantly reduced
    - Secondary outcome of nonfatal MI was decreased by 24% (P = 0.01), but fatal MI increased by 19% (P = 0.22)
  - Similar decreases in nonfatal MI, but not fatal MI or total mortality
  - WHO trial with clofibrate
  - Helsinki Heart Study with gemfibrozil
  - VA-HIT trial with gemfibrozil
  - Bezafibrate Infarction Prevention (BIP) trial with bezafibrate

ACCORD Combination Lipid Therapy

- 5518 patients with type 2 diabetes on simvastatin
  - Randomized to simvastatin plus fenofibrate or simvastatin alone
  - Primary composite endpoint: first occurrence of nonfatal MI, nonfatal stroke or death from cardiovascular causes
    - 2.2% in fenofibrate group vs. 2.4% in placebo group

Lipid Measurement

<table>
<thead>
<tr>
<th></th>
<th>Fenofibrate/Simva</th>
<th>Placebo/Simva</th>
<th>Fenofibrate/Simva</th>
<th>Placebo/Simva</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL-C (mean)</td>
<td>38.0 mg/dL</td>
<td>38.3 mg/dL</td>
<td>41.2 mg/dL</td>
<td>40.5 mg/dL</td>
</tr>
<tr>
<td>Triglycerides (median) mg/dL</td>
<td>164 mg/dL</td>
<td>160 mg/dL</td>
<td>102 mg/dL</td>
<td>144 mg/dL</td>
</tr>
<tr>
<td>LDL-C (mean)</td>
<td>100.0 mg/dL</td>
<td>101.1 mg/dL</td>
<td>81.1 mg/dL</td>
<td>80.0 mg/dL</td>
</tr>
</tbody>
</table>

Origin Trial Primary & Secondary Outcomes

- Omega-3 fatty acids 1g for ~6 years
- Decreased triglycerides 23.5%

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Omega-3 (N=281)</th>
<th>Placebo (N=285)</th>
<th>HR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Outcome</td>
<td>CV death</td>
<td>574</td>
<td>581</td>
<td>1.00 (0.87-1.15)</td>
</tr>
<tr>
<td>Secondary Outcomes</td>
<td>Major vascular events</td>
<td>1034</td>
<td>1017</td>
<td>1.01 (0.93-1.10)</td>
</tr>
<tr>
<td></td>
<td>Death</td>
<td>951</td>
<td>259</td>
<td>3.86 (2.89-5.03)</td>
</tr>
<tr>
<td></td>
<td>Amyotrophic death</td>
<td>288</td>
<td>259</td>
<td>1.10 (0.95-1.26)</td>
</tr>
</tbody>
</table>

*These results do not support the routine use of combination therapy with fenofibrate and simvastatin to reduce cardiovascular risk in the majority of high-risk patients with type 2 diabetes.*
**ENHANCE: Effects on Lipoproteins and CIMT**

- **Lipoproteins**
  - Simvastatin 80 mg vs. Placebo
  - No significant change in carotid intima-media thickness (CIMT)
- **CIMT mm**
  - Baseline: 0.70
  - 24 months: 0.70
  - Difference: 0.00

**Potential explanations:**
1. Short trial duration
2. Previous statin use in 80% of patients caused thinner baseline CIMT levels

**CIMT mm**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Baseline</th>
<th>24 months</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simvastatin 80 mg</td>
<td>0.70</td>
<td>0.70</td>
<td>0.00</td>
</tr>
<tr>
<td>Placebo</td>
<td>0.70</td>
<td>0.71</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**IMPROVE-IT: Ezetimibe + Simvastatin vs. Simvastatin for Post-MI Patients**

- 18,144 patients stabilized post ACS ≤10 days
- Randomized to ezetimibe + simvastatin or simvastatin alone
- Baseline LDL-C at time of ACS event was 95 mg/dL
- Primary composite endpoint: CV death, MI, hospital admission for UA, revascularization, or stroke

**IMPROVE-IT: Ezetimibe + Simvastatin vs. Simvastatin for Post-MI Patients**

- **32.7% event rate in the EZ/Simva group vs. 34.7% in the Placebo/Simva group**

**Lipid Measurement (1 Year Mean)**

<table>
<thead>
<tr>
<th>Lipid</th>
<th>Ezetimibe/Simva</th>
<th>Placebo/Simva</th>
<th>Change in mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL-C</td>
<td>48.7 mg/dL</td>
<td>48.1 mg/dL</td>
<td>+0.6 mg/dL</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>120.4 mg/dL</td>
<td>137.1 mg/dL</td>
<td>-16.7 mg/dL</td>
</tr>
<tr>
<td>LDL-C</td>
<td>53.2 mg/dL</td>
<td>69.9 mg/dL</td>
<td>-16.7 mg/dL</td>
</tr>
<tr>
<td>hs-CRP</td>
<td>3.3 mg/dL</td>
<td>3.6 mg/dL</td>
<td>-0.5 mg/dL</td>
</tr>
</tbody>
</table>

**IMPROVE-IT: Key Subgroup and Safety Findings**

- Identical event rates in patients without diabetes, regardless of study group
- Patients with diabetes experienced a 5.5% lower event rate in the EZ/Simva group compared to Placebo/Simva group (p=0.023)
- No statistically significant difference in cancer or muscle- or gallbladder-related adverse events

**Summary of Recent Trials**

- **Background Treatment**
  - Achieved LDL-C
    - IMPROVE-IT (Ezetimibe vs. Placebo)
    - simvastatin 40-80 mg
    - LDL-C: 53 mg/dL
  - ACCORD Trial
    - Niacin ER vs. Placebo
    - simvastatin 40-80 mg
    - LDL-C: 58 mg/dL
  - AHA/ACC (Niacin-Fibrate vs. Placebo)
    - simvastatin 40-80 mg + fenofibrate or niacin
    - LDL-C: 81 mg/dL

**PCSK9 Inhibitor – Mechanism of Action**

- PCSK9 Inhibitor (mAb)
- LDL-R Recycling
PCSK9-Inhibitor: Alirocumab (Praluent®)

- Adjunct therapy to diet and maximally tolerated statin for patients with heterozygous hypercholesterolemia or history of ASCVD.
- Dosing:
  - 75mg SQ injection every 2 weeks (may up to 150mg)
  - No dose adjustment for renal or hepatic impairment
- Side Effects:
  - Nasopharyngitis (11.3%)
  - Injection site reactions (7.2%)
  - Liver enzyme abnormalities (2.5%)
- Storage:
  - Keep refrigerated until ready for use
  - Allow to warm to room temperature 30-40 minutes before injecting


Self-Assessment Question 2:

48-year-old African American man with type 2 diabetes presents for routine follow-up of dyslipidemia.

Meds: metformin 1g twice daily, rosuvastatin 20mg daily
Lisinopril/HCTZ 20/12.5 mg daily
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Non-HDL 169 mg/dL
FBG 116 mg/dL
A1C 7%

10-year ASCVD Risk = 27.9%

Question 2: Which of the following is the most appropriate treatment for this patient?

A. No change
B. Add fish oil
C. Add fenofibrate
D. Add niacin ER

Key Points

- Non-HDL-C is the best predictor of ASCVD risk, especially in patients with diabetes.
- The 2013 ACC/AHA guidelines represent a population approach, while the 2014 NLA guidelines provide the best strategy to tailor care for individual patients with dyslipidemia.
- Treat patients with ASCVD or diabetes + 2 risk factors to a non-HDL-C goal of <100 mg/dL.
- Combination therapy is appropriate for patients who do not achieve their non-HDL-C goal on statin monotherapy.
- Niacin, ezetimibe and PCSK9 inhibitors, such as alirocumab, represent valuable additions to statin therapy in patients who do not achieve their non-HDL-C goals.