LGHP Lipid Management Overview

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Blessing or Curse?

• 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic CV Risk in Adults

• 2014 National Lipid Association Recommendations for Patient-Centered Management of Dyslipidemia
LGHP Lipid Task Force

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- Dr. Gohn
- Dr. Casale
- Dr. Hussar
- Dr. Lake
- Amber Jerauld PhmD
- Tina Davis CRNP
- Dr. Andersen

ACC/AHA Big Changes

- No targets numbers for lipid management (no trials designed around targets)
- Statins, statins, statins (using hard endpoints of large RCT only statins make the grade)
- 4 statin benefit groups identified and moderate or high dose statins recommended based on cardiac risk and side effect risk
- New updated risk calculator

The ACC/AHA task force only used the data from large randomized clinical trials

Pros: the ultimate in evidence based medicine

Cons: genetic/population/mechanistic data not used
large RCT not necessarily designed to answer specific clinical questions or evaluate clinical treatment algorithms
ACC/AHA New Risk Calculator
“Pooled Cohorts”
• Updated using newer studies than Framingham
• Better in predicting risk in African-Americans and women
• Predicts risk for stroke as well as coronary heart disease
• Penn Medicine/LGHealth providers can find it as a dot phrase in Epic: .ascvdrisk
• Others can easily download an app – ASCVD risk calculator

ACC/AHA Pooled Cohorts Calculator

< 7.5% = Low or Moderate Risk

NLA guidelines
• Used large RCT’s as well as genetic, epidemiologic and mechanistic data
• Kept the treatment target goals but non-HDL as the preferred target
• Allowed the use of non-statin agents
• Kept the FRS but allowed that other risk calculators could be used
Similarities in the Guidelines

- Atherosclerotic Cardiovascular Disease (ASCVD) risk factors
- Similar criteria for ASCVD
- Therapeutic Lifestyle Changes as the first-line treatment
- Additional diagnostic tests to determine risk
- Use of moderate and high intensity statins

ASCVD Risk Factors

- Age (Male 45+; Female 55+)
- Family History of premature CHD (Males <55; Females <65)
- Hypertension
- Smoking
- Low HDL (<40 mg/dL)

0-1 = Low Risk
2 risk factors = Moderate Risk

Clinical ASCVD Criteria

- Myocardial infarction or Acute Coronary Syndrome
- Coronary or other revascularization procedure
- Transient ischemic attack
- Ischemic stroke
- Atherosclerotic peripheral arterial disease (includes ankle/brachial index <0.90)
- Documented atherosclerotic diseases such as:
  - Coronary atherosclerosis
  - Renal atherosclerosis
  - Aortic aneurysm secondary to atherosclerosis
  - Carotid plaque, ≥ 50%
Additional Diagnostic Testing to Determine Risk

- HsCRP – determines inflammation and added risk
- Cat Scan Calcium Score – determines calcification in coronary arteries
- Lipoprotein (a) is not evaluated

<table>
<thead>
<tr>
<th>Test</th>
<th>Reference</th>
<th>Consider Treatment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>HsCRP</td>
<td>Jupiter</td>
<td>≥ 2.0 mg/dL</td>
<td>$</td>
</tr>
<tr>
<td>CT Ca Score</td>
<td>Mesa</td>
<td>≥ 300 Agatston Units or 75th percentile for age, sex, and ethnicity</td>
<td>$</td>
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</tbody>
</table>

Cost Key: $ < $100, $$ > $100

Therapeutic Lifestyle Changes – 1st Line Therapy

- Diet: low saturated fat, low sugar
- Exercise: minimum of 30 minutes of moderate intensity exercise 3-5 days weekly
- Weight loss: work on losing weight in increments
- Waist goals:
  - Men < 40 inches
  - Women < 35 inches

Statins According to Intensity

<table>
<thead>
<tr>
<th>Statin Therapy</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Rosuvastatin 5-10mg</td>
<td>$</td>
</tr>
<tr>
<td>Atorvastatin 10-20mg</td>
<td>$</td>
</tr>
<tr>
<td>Pitavastatin 2-4mg</td>
<td>$</td>
</tr>
<tr>
<td>Simvastatin 20-40mg</td>
<td>$</td>
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<tr>
<td>Lovastatin 40mg</td>
<td>$</td>
</tr>
<tr>
<td>Pravastatin 40-80mg</td>
<td>$</td>
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<tr>
<td>Fluvastatin XL 80mg</td>
<td>$</td>
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<tr>
<td>Fluvastatin 40 mg BID</td>
<td>$</td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Rosuvastatin 20-40mg</td>
<td>$$</td>
</tr>
<tr>
<td>Atorvastatin 40-80mg</td>
<td>$</td>
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</table>
### Differences in the Guidelines

<table>
<thead>
<tr>
<th></th>
<th>ACC/AHA</th>
<th>NLA</th>
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</thead>
<tbody>
<tr>
<td>Reduced LDL</td>
<td>Treat to 30-50% reduction in LDL</td>
<td>Treat to specific LDL and NHDL* targets</td>
</tr>
<tr>
<td>Evidence</td>
<td>Used only Randomized controlled trials (RCTs)</td>
<td>Used RCTs + genetic, epidemiologic and mechanistic trials</td>
</tr>
<tr>
<td>Risk Score</td>
<td>Pooled Cohorts Equation Risk Score</td>
<td>Framingham Risk Score (may use others)</td>
</tr>
<tr>
<td>Statins</td>
<td>Statins, statins, statins</td>
<td>Statins plus non-statins</td>
</tr>
<tr>
<td>Age Limit</td>
<td>Age limit 75</td>
<td>No age limit</td>
</tr>
</tbody>
</table>

### Different Treatment Goals

#### ACC/AHA Guidelines
- **50% reduction in LDL**
  - ASCVD
  - LDL >190 mg/dL
- **30% reduction in LDL**
  - Diabetics
  - High risk

#### NLA Guidelines
- Low and Moderate risk
  - NDHL <130, LDL < 100
- High risk
  - More firm goals
  - NHDL <130, LDL <100
- Very High risk
  - NHDL <100, LDL <70

### Different Treatment Goals

#### ACC/AHA 50% Reduction
- **Pros:**
  - Easy
- **Cons:**
  - Who knows where the patient started? Where is it documented?
  - Motivating?
  - What if the LDL begins at 300?

#### NLA NHDL and LDL Goals
- **Pros:**
  - Specific targets known by patient and provider
  - More motivating
  - Drives treatment
  - Studies show lower is better
- **Cons:**
  - Need to know the guidelines
  - Sometimes difficult to reach targets
Treatment Groups

ACC/AHA 4 Statin Benefits Groups
- Clinical ASCVD
- LDL ≥190 mg/dL
- Diabetic, age 40-75 with LDL 70-189 mg/dL
- Pooled cohorts risk score ≥7.5%, age 40-75 with LDL 70-189 mg/dL

NLA Treatment Groups

High Risk:
- ≥3 major ASCVD risk factors
  - Diabetes mellitus (type I or II)
  - 0-1 other major ASCVD risk factors
  - No evidence of end organ damage
  - Chronic kidney disease stage 3B or 4
  - LDL ≥190 mg/dL (severe hypercholesterolemia)
  - Framingham Risk score ≥10%

Very High Risk:
- ASCVD
  - Diabetes mellitus (type 1 or 2) with 2 other major ASCVD risk factors or evidence of end organ damage

Statin vs Non-statins

- ACC/AHA reports that only statins were found to be beneficial in RCTs
- NLA reports that there are studies that show benefit with Non-statins
- More recently 2 occurrences have confounded the ACC/AHA guidelines:
  - The Improve It Study – Ezetimibe (Zetia)
  - PCSK9 use

Lipid Task Force-Hybrid Approach

- Kept treatment target goals
- Patient centered
- Specific LDL and NHDL targets
- NHDL is the primary target
- Used the Pooled Cohorts risk score
- Statins + non statins
- Moderate and high intensity statins
- No age limit
Lipid Task Force - Hybrid Approach

- Non-HDL as primary target
  - No extra cost
  - Includes all atherogenic particles
  - More predictive of ASCVD in observational studies and in RCTs
  - No need to change medicine if patient reaches NHDL but LDL remains slightly elevated
Low Risk Patient
Statin or No Statin?

Discuss Treatment Plan:
1) Ongoing TLC
2) Consider statin therapy
3) Consider additional diagnostic testing

Intensify TLC for 3-12 months and repeat lipid levels.

Low Risk Patient
Statin or No Statin?

Discuss Treatment Plan:
1) Ongoing TLC
2) Consider statin therapy
3) Consider additional diagnostic testing

Check lipid levels in 3-12 months (dependent on use of statin).

Therapeutic Lifestyle Changes (TLC)

NHDL <130
LDL <100

Check lipid levels every 5 years.

Intensify TLC for another 3 months

NHDL <130
LDL <100

First Visit
Second Visit
Third Visit

Moderate Risk Patient Algorithm

High Risk Patient Algorithm

ASCVD Risk Factors
- Smoking
- Hypertension
- Low HDL (<40 mg/dL)
- Family History of premature CHD (<55 years male relative; <65 years female relative)
- Age (>45 years male; >55 years female)

Cost Key: $       <$100        $$     $101-$500       $$$   $501-$1000

DM I or II
LDL ≥190 mg/dL
LDL 70-189 w/pooled cohort risk score ≥7.5%

Goals achieved
Maintain Lipid Levels

NHDL <130
LDL <100

Check lipid levels every year.

Intensify Statin or Add second drug

NHDL <130
LDL <100

Add second drug if not already done
Consider referral to Lipid Specialist

• DM I or II
• LDL ≥190 mg/dL
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  - Carotid plaque, ≥ 50%
**Very High Risk Patient Algorithm**

- Clinical ASCVD
- DM I or II with ≥ 2 ASCVD Risk Factors

Therapeutic Lifestyle Changes (TLC) And High Intensity Statin* for 8-12 weeks

- NHDL <100
- LDL <70

*Use your clinical judgment in determining statin intensity

**Reaching Goals at 2nd Visit?**

- Check lipid levels yearly
  - Goals achieved Maintain Lipid Levels
    - YES NHDL 100 LDL <70
    - NO Add second drug Consider referral to lipid specialist

**3rd Visit or Recurrent Events?**

- Check lipid levels yearly
  - YES NHDL 100 LDL <70
  - NO Recurrent clinical events despite NHDL <100 LDL <70
    - Refer to Lipid Specialist for:
      1. Additional drug therapy including novel drugs
      2. Advanced lipid testing
      3. Lipid apheresis if LDL ≥200 with CAD
The Future?

- Risk calculator and guidelines embedded in the EHR system
- Risk assessment and patient treatment faster, easier and more consistent
- Patient education tools one click away