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Inappropriate statin therapy according to ASCVD risk: Can we do better?

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Inappropriate Statin Therapy According To ASCVD Risk: Can We Do Better?

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Background

- Lipid lowering has been shown to be beneficial for primary and secondary prevention of coronary artery disease in patients with dyslipidemias
  - Statin mechanism of action: competively inhibits HMG CoA reductase (rate limiting step in cholesterol biosynthesis)
- Administration of statin therapy guided primarily by risk of CVD
- Atherosclerotic cardiovascular disease (ASCVD) risk calculation for use only in adult patients without known ASCVD and LDL 70-189 mg/dL

2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk. doi: 10.1161/01.cir.0000437741.48606.98.

2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. doi: 10.1161/01.cir.0000437738.63853.7a.
Heart-healthy lifestyle habits are the foundation of ASCVD prevention (See 2013 AHA/ACC Lifestyle Management Guideline)

Age ≥21 y and a candidate for statin therapy

Clinical ASCVD

LDL-C ≥190 mg/dL

Diabetes

Age ≤75 y
High-intensity statin
(Moderate-intensity statin if not candidate for high-intensity statin)

Age >75 y OR if not candidate for high-intensity statin
Moderate-intensity statin

High-intensity statin
(Moderate-intensity statin if not candidate for high-intensity statin)

Estimated 10-y ASCVD risk ≥7.5%†
High-intensity statin

Definitions of High- and Moderate-Intensity Statin Therapy*
(See Table 5)

High
Daily dose lowers LDL-C by approx. ≥50%

Moderate
Daily dose lowers LDL-C by approx. 30% to <50%

Regularly monitor adherence to lifestyle and drug therapy with lipid and safety assessments
(See Fig 5)

Study Design

- Empiric observational study

- Retrospective chart review of 2,994 patients for information including ASCVD risk determination and active statin prescription
  - Inclusion Criteria: Adult patients visiting the K15 Academic Internal Medicine Clinic of Henry Ford Hospital from January 2017 - December 2017

- Primary objective: to assess appropriateness of statin therapy based on ASCVD risk calculation and ACC/AHA guidelines.

- Secondary objective: to assess correlation between patient demographic and appropriateness of statin therapy according to guidelines.

- Clinical implication: determine proper application of ASCVD guidelines and better improve patient outcomes in the outpatient setting
# Results

<table>
<thead>
<tr>
<th>Description</th>
<th>p-value</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,548 patients were prescribed inappropriate statin dose</td>
<td>p-value &lt; 0.001</td>
<td></td>
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<tr>
<td>- 1,245 patients taking high-intensity statin did not qualify for one based on ASCVD risk</td>
<td>p-value &lt; 0.001</td>
<td></td>
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<tr>
<td>Female patients 81.9% more likely to be on appropriate statin dose vs male patients</td>
<td>OR 1-1.819, 95% CI, 1.559-2.124</td>
<td></td>
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<tr>
<td>Black patients were 32.2% less likely to be on appropriate statin dose vs Caucasian patients</td>
<td>OR 1-0.678, 95% CI, 0.5320-0.864</td>
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<tr>
<td>Patients on appropriate statin dose have a higher family income on average</td>
<td>p-value = 0.020</td>
<td></td>
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<tr>
<td>- Every 10,000-unit increase in income, increases the odds of an appropriate statin dose by 2.4%</td>
<td>OR 1-1.024, 95% CI, 0.990-1.060</td>
<td></td>
</tr>
<tr>
<td>For every 1-unit increase in age, the odds of an appropriate statin dose decrease by 4.8%</td>
<td>OR 1-0.952, 95% CI, 0.04-0.056</td>
<td></td>
</tr>
</tbody>
</table>
Limitations

• Varying demographics specific to location of Henry Ford Hospital
  • Socioeconomic status
  • Lack of access to healthcare and/or medical insight

• Internal validity:
  • Misclassified subgroup: appropriate statin dose misassigned to high
  • Stroke/TIA not considered in risk status determination

• Limitations inherent to observational study design
  • May represent older prescribing practices
  • Not fully reflective of current trends
Looking ahead…

- Treatment according to AHA/ACC guidelines based on ASCVD risk calculation has well documented effect on morbidity and mortality
- Appropriate administration of statins by dose and intensity is a necessary intervention aimed at improving patient outcomes
- HF pilot program promoting pharmacist-driven initiation and dosing of statins
  - Improving adherence
  - Improving administration
  - Improving clinical outcomes
- Assessing clinical outcomes in sites with policies in place for initiation and administration of appropriate dose/intensity statin
Thank you!

Questions?