CARDIOLOGY GRAND ROUNDS

Presentation: **ACC 2015 PREVIEW**

Date: Monday, March 9, 2015, 7:00 – 8:00 AM
Location: ANW Education Building, Watson Room

**Presentation:**
**Elevated Troponin in Patients Presenting to the Emergency Department without Chest Pain**
Alex R. Campbell, MD
Cardiologist, Minneapolis Heart Institute® at Abbott Northwestern Hospital

**"Silent" Atrial Fibrillation Burden in Patients with Hypertrophic Cardiomyopathy**
Ankur Kalra, MD
Chief Cardiology Fellow
Minneapolis Heart Institute® at Abbott Northwestern Hospital and Hennepin County Medical Center

**Low Density Lipoprotein Cholesterol, Cardiovascular Risk, and Utilization of Care Prior to ST-Elevation Myocardial Infarction**
Michael Miedema, MD, MPH
Cardiologist
Minneapolis Heart Institute® at Abbott Northwestern Hospital

**Percutaneous Veno-Arterial ECMO for Patients Presenting with Refractory Cardiogenic Shock Due to STEMI**
Yader Sandoval, MD
Cardiovascular Disease Fellow
Minneapolis Heart Institute® at Abbott Northwestern Hospital

**Treatment and Outcomes of STEMI Patients Presenting >12 Hours After Onset of Chest Pain**
Annie Griffin, BA
Associate Research Coordinator
Minneapolis Heart Institute Foundation
CARDIOLOGY GRAND ROUNDS

OBJECTIVES
At the completion of this activity, the participants should be able to:
1. Summarize emerging research that colleagues will present at upcoming national scientific meeting.
2. Synthesize ideas and input from across disciplines relevant to each presentation.
3. Recommend content revisions or areas of focus to the presenters.

ACCREDITATION
Physicians: This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of Allina Health and Minneapolis Heart Institute Foundation. Allina Health is accredited by the ACCME to provide continuing medical education for physicians.
Allina Health designates this live activity for a maximum of 1.0 AMA PRA Category 1 Credit™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Nurses: This activity has been designed to meet the Minnesota Board of Nursing continuing education requirements for 1.2 hours of credit. However, the nurse is responsible for determining whether this activity meets the requirements for acceptable continuing education.

Others: Individuals representing other professional disciplines may submit course materials to their respective professional associations for 1.0 hours of continuing education credit.

DISCLOSURE STATEMENTS
Speaker(s): All faculty, except for Dr. Campbell, have declared that they do not have any conflicts of interest in making this presentation.
Planning Committee: Dr. Michael Miedema, and Eva Zewdie have declared that they do not have any conflicts of interest associated with the planning of this activity. Dr. Robert Schwartz declared the following relationships - stockholder: Cardiomind, Interface Biologics, Aritech, DSI/Transoma, InstyMeds, Intervalve, Medtronic, Osprey Medical, Stout Medical, Tricardia LLC, CoAptus Inc, Augustine Biomedical; scientific advisory board: Abbott Laboratories, Boston Scientific, MEDRAD Inc, Thomas, McNerney & Partners, Cardiomind, Interface Biologics; options: BackBeat Medical, BioHeart, CHF Solutions; speakers bureau: Vital Images; consultant: Edwards LifeSciences.
Statin Eligibility and Utilization of Care Prior to ST-Elevation Myocardial Infarction

Minneapolis Heart Institute Grand Rounds
Michael Miedema MD MPH
March 9th, 2015

Background

[Diagram]
Cholesterol Levels in the US are declining

![Bar chart showing cholesterol levels declining over time for men and women.]

Carroll et al. JAMA 2012

LDL is a poor discriminator

![ROC curves for laboratory-based and non-laboratory-based methods for prediction of cardiovascular disease.]

The benefit of statins is independent of LDL

Hsia et al. JACC 2011

Statin eligibility in 3,076 patients undergoing CT angiography

Johnson and Rowe – JACC 2014
Aim

• To determine the prevalence of statin eligibility prior to STEMI according to ATP III and ACC/AHA guidelines prior to STEMI

• Guideline implementation requires access to and utilization of healthcare
  – Therefore, we also analyzed utilization of healthcare for the 2 years prior to STEMI

Methods

• We analyzed Level One STEMI’s

• We analyzed
  – LDL-C levels
  – CVD risk factors
  – Pre-STEMI medication use
  – Outpatient physician visits over the 2 years prior to STEMI.

• We calculated pre-STEMI eligibility according to
  – ACC/AHA guidelines
  – ATP III guidelines.
### Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No Prior CVD (n=703)</th>
<th>Prior CVD (n=305)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>62.3 ± 13.4</td>
<td>67.0 ± 12.4</td>
</tr>
<tr>
<td>Gender, % male</td>
<td>488 (69.4)</td>
<td>233 (76.4)</td>
</tr>
<tr>
<td>Smoking, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Smoker</td>
<td>253 (36.5)</td>
<td>69 (22.9)</td>
</tr>
<tr>
<td>Former Smoker</td>
<td>165 (23.8)</td>
<td>121 (40.1)</td>
</tr>
<tr>
<td>Never Smoker</td>
<td>279 (39.8)</td>
<td>112 (37.1)</td>
</tr>
<tr>
<td>Hypertension, %</td>
<td>365 (52.2)</td>
<td>251 (82.6)</td>
</tr>
<tr>
<td>Dyslipidemia, %</td>
<td>293 (42.0)</td>
<td>264 (86.8)</td>
</tr>
<tr>
<td>Diabetes, %</td>
<td>122 (17.5)</td>
<td>92 (30.2)</td>
</tr>
<tr>
<td>Family history of CHD, %</td>
<td>230 (37.9)</td>
<td>98 (38.3)</td>
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</tbody>
</table>

### Medication Use and Lipid Levels prior to STEMI

<table>
<thead>
<tr>
<th>Medication</th>
<th>No Prior CVD (n=703)</th>
<th>Prior CVD (n=305)</th>
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</thead>
<tbody>
<tr>
<td>Aspirin, %</td>
<td>192 (27.8)</td>
<td>221 (74.2)</td>
</tr>
<tr>
<td>Other Antiplatelet, %</td>
<td>13 (1.9)</td>
<td>73 (24.3)</td>
</tr>
<tr>
<td>Dual Antiplatelet, %</td>
<td>7 (1.0)</td>
<td>64 (21.6)</td>
</tr>
<tr>
<td>Antihypertensive, %</td>
<td>256 (36.4)</td>
<td>238 (78.0)</td>
</tr>
<tr>
<td>ACE-I/ARB, %</td>
<td>144 (20.8)</td>
<td>148 (49.5)</td>
</tr>
<tr>
<td>Beta-blocker, %</td>
<td>109 (15.8)</td>
<td>181 (60.3)</td>
</tr>
<tr>
<td>CCB, %</td>
<td>58 (8.3)</td>
<td>44 (14.4)</td>
</tr>
<tr>
<td>Diuretic, %</td>
<td>101 (14.4)</td>
<td>35 (11.5)</td>
</tr>
<tr>
<td>Statin</td>
<td>152 (21.6)</td>
<td>211 (69.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lipid Value</th>
<th>No Statin (n=551)</th>
<th>On Statin (n=152)</th>
<th>No Statin (n=94)</th>
<th>On Statin (n=211)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total-C, mg/dl</td>
<td>175 (148, 202)</td>
<td>154 (131, 178)</td>
<td>173 (140, 197)</td>
<td>139 (120, 167)</td>
</tr>
<tr>
<td>HDL-C, mg/dl</td>
<td>36 (31, 42)</td>
<td>37 (32, 43)</td>
<td>37 (30, 43)</td>
<td>35 (29, 41)</td>
</tr>
<tr>
<td>Triglycerides, mg/dl</td>
<td>123 (90, 169)</td>
<td>115 (84, 157)</td>
<td>113 (85, 150)</td>
<td>122 (89, 176)</td>
</tr>
<tr>
<td>LDL-C, mg/dl</td>
<td>110 (86, 134)</td>
<td>83 (69, 113)</td>
<td>106 (82, 132)</td>
<td>76 (59, 99)</td>
</tr>
</tbody>
</table>
Pre-STEMI statin eligibility according to ATP III and ACC/AHA cholesterol guidelines

Utilization of primary and cardiovascular care over 2 years prior to STEMI

<table>
<thead>
<tr>
<th>Encounter</th>
<th>No Prior CVD (n=703)</th>
<th>Prior CVD (n=305)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care Provider</td>
<td>288 (41.0)</td>
<td>144 (47.2)</td>
</tr>
<tr>
<td>Cardiovascular Medicine</td>
<td>24 (3.4)</td>
<td>126 (41.3)</td>
</tr>
</tbody>
</table>
Conclusions

• In a modern sample of STEMI patients:
  – The majority occurred in individuals without known CVD
  – The majority were not taking a statin prior to their event
  – The mean LDL levels were “normal”
    • 110 mg/dl in those not on statin therapy with no prior CVD

Conclusions

• Pre-STEMI statin eligibility substantially increased with application of the new AHA/ACC guidelines
• Yet, 1 in 5 were not statin-eligible prior to STEMI
• Utilization of healthcare prior to STEMI was suboptimal
Conclusions

• Further improvements in cardiovascular prevention can be achieved through
  – Population-based lifestyle interventions
  – Guideline-based statin therapy in individuals at elevated risk
  – Improved access and utilization of healthcare

Thank You

• Questions?