The Pharmacists Role in Lipid Management

Catherine E. Cooke, PharmD, BCPS, PAHM
Independent Consultant
Clinical Assistant Professor, Univ. of Maryland
Learning Objectives

1. **ENHANCE** your understanding of lipid management to include cardiovascular risks, management, and goals for individual patients

2. **DESCRIBE** the lifestyle changes and pharmaceutical strategies available for reducing Total-C, LDL-C, while raising HDL-C levels

3. **DESCRIBE** the pharmacist’s role in counseling patients on drug treatment strategies for cholesterol management
Overview

- Epidemiology of CHD
- NCEP ATP III Guidelines (May 2001)
- NCEP Update (July 2004)
- Managing Patients with Dyslipidemia
- Case Studies
How would you manage Ms. Gold?

- 32 yo Asian woman

TC = 246, TG = 100, LDL = 176, HDL = 50

1. Dietary therapy
2. Statin therapy
3. Dietary plus statin therapy
4. No intervention at this time
? How would you manage Ms. White?

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What about Mr. Williams?

- 56 yo AA man with CAD (had MI 3 months ago)
  - TC = 155, TG = 125, LDL = 90, HDL = 40

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Coronary Heart Disease (CHD) in the United States

• CHD is the single largest killer of men and women

• ~16 million have CHD

• Of the ~1.5 million who have MI
  – 1/3rd die (about half within 1 hr)
  – 50% of men and 64% of women with sudden death from CHD have no previous symptoms of this disease

AHA. *Heart and Stroke Facts: 2007 Statistics Update*
Coronary Heart Disease (CHD) in Women in the United States

• 1 out of 2 American women die of CHD
  - 1 out of 25 American women die of breast CA

• While strides have been made in reducing CHD, the absolute number of deaths due to CHD is increasing

AHA. Heart and Stroke Facts: 2007 Statistics Update
Annual Incidence of MI in Women and Men in the U.S.

Estimated Number of Persons (1000s)

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<thead>
<tr>
<th>Age</th>
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<th>Women (1000s)</th>
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<tbody>
<tr>
<td>29-44y</td>
<td>0</td>
<td>0</td>
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<tr>
<td>45-64y</td>
<td>450</td>
<td>150</td>
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<tr>
<td>&gt;65y</td>
<td>400</td>
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Age
Plasma Total Cholesterol and 10 Year Risk of CHD

Events in Men and Women Aged 50
Effect of other Risk Factors (Framingham Study)

Plasma Total Cholesterol

10 Year Risk of CHD
Events (%)

5 200
6 250
7 300
8

Men
Women
smoking
SBP 160
mm Hg
no other
risk
factors
smoking
SBP 160
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factors

Preventing Heart Attack & Death In Patients With CAD

- Smoking cessation
- Lipid management
- Physical activity
- Weight management
- Antiplatelet agents
- ACE inhibitors
- Beta-blockers
- Blood pressure control

Regarding Cholesterol, how many are achieving NCEP goals?

Clinical Data Summary

- Several statins shown to be effective in reducing coronary risk in both primary and secondary prevention settings
- How do we use this evidence to manage patients with dyslipidemia?
Assess the patient’s CHD Risk

- Other Clinical Forms of Atherosclerotic Disease
  - Peripheral arterial disease
  - Abdominal aortic aneurysm
  - Symptomatic carotid artery disease
- Diabetes
- Multiple risk factors (10-year risk for CHD >20% CHD)
# Treatment Decisions Based on LDL Cholesterol: Dietary Therapy

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*CHD/CHD Risk Equivalents
### Goals for Drug Therapy Based on NCEP Guidelines

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<td>≥190 mg/dL</td>
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Update to ATP III Guidelines: Rationale

- Since ATP III completion in 2001, 5 large clinical outcome trials of statin therapy have been published
  - Heart Protection Study (HPS)
  - Prospective Study of Pravastatin in the Elderly at Risk (PROSPER)
  - Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial—Lipid-Lowering Trial (ALLHAT-LLT)
  - Anglo-Scandinavian Cardiac Outcomes Trial—Lipid-Lowering Arm (ASCOT-LLA)
  - Pravastatin or Atorvastatin Evaluation and Infection Therapy (PROVE-IT) trial

- ATP III update incorporates information from these trials

Results of 5 trials
- Confirm the benefit of cholesterol-lowering therapy in moderately high and high-risk patients
- Support the ATP III LDL-C goal of <100 mg/dL
- Support the inclusion of patients with diabetes in the high-risk category and confirm the benefits of LDL-lowering therapy in these patients
- Confirm that older persons benefit from therapeutic lowering of LDL-C
- Provide new information on efficacy of risk reduction in high-risk patients with relatively low LDL-C levels

### ATP III: Updated LDL-C Goals, Treatment Cutpoints

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Patient Risk Categories Based on the 10-year Risk Assessment

- **>20%**
  - High risk – risk equivalent

- **10% – 20%**
  - Moderate risk

- **<10%**
  - Low risk

Treatment of LDL-C

High LDL-C

Therapeutic lifestyle change

Drug therapy

Visit 1
Initiate statin therapy
Alternative: BAR or niacin

Visit 2/follow-up
If not at LDL-C goal...
Escalate statin dose
OR add a BAR or niacin

Drug Therapy

- HMG-CoA Reductase Inhibitors (Statins)
  - MOA: interrupt enzyme in rate limiting step for cholesterol formation.
  - S.E. : constipation, LFT inc and myopathies esp w/ fibric acid combination
    - Niacin, cyclosporine, macrolide antibiotics
  - Can use with bile acid sequestrants safely
  - For monotherapy; HMG-CoA reductase inhibitors are the most potent and best tolerated medications for lowering total and LDL chol.

"I feel a lot better since I ran out of those pills that you gave me"
Cholesterol Drugs Work Better in Labs

By DANIEL Q. HANEY
AP Medical Editor

ANAHEIM, Calif. (AP) — Two-thirds of people taking widely prescribed cholesterol-lowering medicines drugs do not get as much benefit as drug company statements suggest they should, a study found. Although the reasons for this are not entirely clear, researchers suspect a simple answer: Patients do not take their pills as diligently as they should.

"It's extremely difficult to get people to do anything on a routine basis," said lead investigator Dr. Dennis L. Sprecher, whether it's taking pills, eating healthier food or getting more exercise.

All of these things can help people bring down dangerously high cholesterol levels. However, over the past decade, cholesterol-lowering drugs have become an increasingly important part of this combination as research demonstrates how they ward off heart attacks and death. These benefits of the pills, known collectively as statins, have been proven in carefully conducted large studies. Sprecher and colleagues at the Cleveland Clinic set out to learn whether they work as well in ordinary practice as they do in formal studies.

He presented his results Sunday at the opening of the American Heart Association's annual scientific meeting in Anaheim. They were based on a follow up of 375 patients who began statin treatment at the Cleveland Clinic. The doctors checked whether the prescriptions had lowered the patients' levels of LDL, the bad kind of cholesterol that increases the risk of heart trouble.

After at least one follow-up visit, they found that 66 percent of them benefitted less than would be predicted by the so-called "package insert," the instructions for doctors that are written by drug makers and approved and edited by the Food and Drug Administration. Parts of these instructions are included in drug advertising. Eighteen percent of patients showed no change in their LDL levels or even had worse readings than when they started.

Dr. Valentin Fuster of Mt. Sinai Medical Center in New York City said the new research "says that those inserts have nothing to do with reality." Predictions in the package inserts are based on the findings of studies in which patients are carefully chosen and frequently reminded to take their pills as instructed. In ordinary life, however, people are typically told once by doctors why they need the medicines and then sent home with their prescriptions.

Sprecher said his research shows that occasional prompting can be helpful. Compliance improved 25 percent when high school students were hired to call patients once a month and remind them to take their statins. He said there is no biological reason to suspect that the drugs fail to lower cholesterol as well in ordinary life as they do in formal studies if they are taken properly.

In May, the federal government's National Cholesterol Education Program issued new guidelines for who should take statins. At the meeting Sunday, Dr. Gilbert J. L'Italine of the University of Maryland said this increases the number of Americans who would benefit from the drugs from about 15 million to 36 million. Sixty percent are men and 40 percent are women.

Dr. Robert Corti of Mt. Sinai also presented new evidence of how statins protect the heart. His group used magnetic imaging scans to look at the same buildups in patients' hearts over two years while on the drugs. He found that these lumps, called plaque, began to shrink after one year and were about one-quarter smaller after two years. Perhaps even more important, however, was evidence that they had grown harder and less likely to break. Experts believe that plaque rupture is the main underlying cause of heart attacks, since this triggers the formation of blood clots that choke off the heart's internal blood supply. Firm lumps are considered much less dangerous than soft, squishy ones.
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All of these things can help people bring down their cholesterol levels. However, over the past decade, cholesterol-lowering drugs have become an increasingly important part of this combination, collectively as statins, known to work as well in ordinary life as they do in large, carefully conducted studies, known as formal experiments. Whether they work as well in ordinary practice as they do in those formal experiments is an important next question for doctors checking whether the prescriptions are working as intended.

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Non-Adherence

- **Types of non-adherence**
  - Improper medication use
    - Over or under use
    - Taking the wrong medicine
    - Not finishing medication
    - Administration errors – wrong time, wrong route, delayed or omitted dose, etc.
    - Using another persons medication
    - Using old, possibly expired medication
  - Intentional vs unintentional
- **Non-Adherence often varies over time**
Adherence Curves for Statins in 3 Cohorts
(n = 143,505 elderly Canadian patients)

~ 70% at 6 months

~55% at 6 months

JAMA 2002;288:462
Solutions

- Self-Management (e.g., blood pressure monitoring, glucose monitoring)
- Refill reminders (e.g., telephone, electronic, mail etc.)
- Adherence aids (e.g., pill boxes, calendars)
- Simplify dosing regimen (e.g., QD drugs, packaging)
- Education on disease and drug (e.g., written and oral information)
Primary prevention

- Evidence is weak for young patients (<40 yo) and women

- Rules of management:
  - Identify risk factors
  - Aggressively treat with lifestyle modification
  - Use statins for “higher risk” patients (CV risk ≥ 10-20% over 10 years)
Statins should be “first-line” therapy for LDL reduction
- Effects seen in men and women < 80 yo
- Optimal LDL goals not established
  - reasonable to treat to < 70 mg/dL
Conclusion

Treatment decisions must be based not only on the level of risk before the initiation of treatment, but also on the anticipated reduction of that risk with a specific therapy.
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