The Wait is Over: Updated Guidelines for Cholesterol, Diabetes, and Blood Pressure

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Pharmacist Objectives

By the end of this presentation, you should be able to:

1. Identify the recommendations from the 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults (JNC 8).

2. Identify the recommendations from the 2013 American College of Cardiology (ACC)/American Heart Association (AHA) Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults.

3. Compare and contrast the recommendations for the treatment of diabetes from the American Diabetes Association (ADA) and American Association for Clinical Endocrinologists (AACE).

4. Discuss some of the controversies surrounding the hypertension and cholesterol guidelines.

5. Design treatment plans for patients with diabetes, hypertension, and hyperlipidemia.
Pharmacy Tech Objectives

By the end of this presentation, you should be able to:

1. **Summarize the recommendations** from the 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults (JNC 8).

2. **Summarize the recommendations** from the 2013 American College of Cardiology (ACC)/American Heart Association (AHA) Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults.

3. **Summarize the recommendations** for the treatment of diabetes from the American Diabetes Association (ADA) and American Association for Clinical Endocrinologists (AACE).

Pre-Test

LP is a 61-year-old newly diagnosed African-American male diabetic with CKD.

- P: 80 bpm
- RR: 16 bpm
- Temp: 98.7 F
- BP: 155/79 mmHg
- LDL-C = 86 mg/dL
- Triglycerides = 109 mg/dL
- Total Cholesterol = 147
- HDL-C = 39
- HbA1c = 8.3%
Pre-Test Question #1

According to JNC 8, what is LP’s blood pressure goal?

A. 120/80 mmHg
B. 130/80 mmHg
C. 140/80 mmHg
D. 140/90 mmHg
E. 150/90 mmHg

Pre-Test Question #2

According to JNC 8, which of the following is a first-line treatment for LP’s blood pressure?

A. Amlodipine
B. Lisinopril
C. Hydrochlorothiazide
D. Metoprolol
Pre-Test Question #3

According to the 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol, which of the following is the appropriate treatment option for LP’s cholesterol?

A. Atorvastatin 10 mg
B. Rosuvastatin 20 mg
C. Simvastatin 40 mg
D. Pitavastatin 4 mg

Pre-Test Question #4

According to the ADA, what is LP’s HbA1c goal?

A. < 5.5%
B. < 6.5%
C. < 7%
D. < 8%
Pre-Test Question #5

According to the AACE, which of the following is the appropriate treatment option for LP?

A. Metformin
B. Insulin
C. Metformin + Glipizide
D. Metformin + Exenatide

Hypertension
Food for Thought

Which one of the following is used to determine first-line treatment for patients with hypertension using JNC 8?

A. Gender  
B. Diabetes  
C. Race  
D. Cardiovascular disease
What’s New in JNC 8?

- Hypertension and prehypertension definitions not addressed
  - Thresholds for pharmacologic treatment were defined

- Similar treatment goals defined for all hypertensive populations EXCEPT when evidence review supports different goals for a particular subpopulation

Recommendations:

- Selection among 4 specific medication classes (ACEI, ARB, CCB, or diuretics)
- Specific medication classes based on evidence review for racial, CKD, and diabetic subgroups

From: 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)
**JNC 8 Summary**

**Blood Pressure Goals**
- 140/90 mmHg
- Persons 60 years or older have a goal of 150/90 mmHg

**Treatment**
- 1st: CKD?
  - ACEI or ARB
- 2nd: Race?
  - Nonblack: ACEI or ARB, CCB, or thiazide diuretic
  - Black: CCB or thiazide diuretic

**What Happens If BP Goals Not Achieved?**

1st: Have you used all the recommended drug classes?

2nd: Antihypertensive from other classes can be used
  - β-blocker, aldosterone antagonist, alpha blocker, etc.

3rd: Refer to a hypertension specialist
Controversies

- Persons age 60 years or older with blood pressure goal > 150/90 mmHg

- Compelling Indications
  - CKD & DM blood pressure goals increased
  - ACEI or ARB not considered as a first-line therapy in all diabetics

Cholesterol
Avoidable Heart Disease & Stroke
per 100,000 (All races & genders)

Think Tank

Based on the 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol, what is the LDL-C goal of a patient with a history of stroke?

A. < 70 mg/dL
B. < 100 mg/dL
C. < 130 mg/dL
D. None of the above
What’s New?

- Initiation of statin therapy based on four criteria
- Statin choice based on intensity
- Primary prevention based on age, LDL-C, diabetic status, & estimated 10-year ASCVD risk
- No treatment goals recommended for LDL-C or non-HDL
- Recommends use of the new Pooled Cohort Equations CV Risk Calculator to estimate 10-year ASCVD risk

Statin Benefit Groups

1. Clinical ASCVD
2. Primary elevations of LDL–C ≥ 190 mg/dL
3. Diabetics aged 40 – 75 years & LDL-C 70-189 mg/dL
4. No clinical ASCVD or diabetes aged 40 – 75 years
   + LDL-C 70-189 mg/dL
   + Estimated 10-year ASCVD risk ≥ 7.5%

Clinical ASCVD

- Acute coronary syndromes
- History of MI
- Stable or unstable angina
- Coronary or other arterial revascularization
- Stroke/TIA
- Peripheral arterial disease presumed to be of atherosclerotic origin

Additional CVD Risk Factors

- Primary LDL–C $\geq 160$ mg/dL or other evidence of genetic hyperlipidemia

- Family history of premature ASCVD with onset
  - <55 years of age in a first degree male relative
  - <65 years of age in a first degree female relative

- High-sensitivity C-reactive protein $>2$ mg/L

- CAC score $\geq 300$ Agatston units

- $\geq 75$ percentile for age, sex, and ethnicity

- Ankle-brachial index $<0.9$

- Elevated lifetime risk of ASCVD

Statin Dosing Summary

**High Intensity**
- Clinical ASCVD
- LDL-C ≥ 190
- DM w/risk ≥ 7.5%

**Moderate Intensity**
- DM w/risk < 7.5%
- Age > 75 years
- Cannot use high intensity statin

Age 40 – 75 years w/ risk ≥ 7.5%

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Statin Adverse Effects Characteristics

- Multiple or serious comorbidities, including impaired renal or hepatic function
- History of previous statin intolerance or muscle disorders
- Unexplained ALT elevations >3 times ULN
- Patient characteristics or concomitant use of drugs affecting statin metabolism
- >75 years of age

Additional characteristics that may modify the decision to use higher statin intensities may include, but are not limited to:

- History of hemorrhagic stroke
- Asian ancestry

### Statin Intensity

#### Low
- (< 30% LDL-C Lowering)
  - Simvastatin 10 mg
  - Pravastatin 10-20 mg
  - Lovastatin 20 mg
  - Fluvastatin 20-40 mg
  - Pitavastatin 1 mg

#### Moderate
- (30 to <50% LDL-C Lowering)
  - Atorvastatin 10 (20) mg
  - Rosuvastatin (5) 10 mg
  - Simvastatin 20-40 mg**
  - Pravastatin 40 (80) mg
  - Lovastatin 40 mg
  - Fluvastatin XL 80 mg
  - Fluvastatin 40 mg BID
  - Pitavastatin 2-4 mg

#### High
- (>50% LDL-C Lowering)
  - Atorvastatin (40*)-80 mg
  - Rosuvastatin 20 (40) mg

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### Pooled Cohort Equations CV Risk Calculator

- Available at [http://my.americanheart.org/cvriskcalculator](http://my.americanheart.org/cvriskcalculator)
- Also available on Google Play and Apple Store for mobile devices

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Statin Safety

Upon Initiation

- **Clinical ASCVD**
  - Fasting lipid panel
  - ALT
  - CK (if indicated)
  - Consider evaluation for other secondary causes or conditions that may influence statin safety

No Clinical ASCVD

- All of the above
  - *HbA1c (if diabetes status unknown)*

During Treatment

- **Fasting lipid panel**
  - 4 – 12 wks after initiation to assess adherence
  - Q3 – 12 mos thereafter

- If Indicated:
  - Hepatic function
  - CK
Role of Biomarkers:
Apolipoprotein B (apo B)

- More predictive than LDL-C
- Not consistently superior to non-HDL
- Costly
- Not widely available

http://www.clevelandheartlab.com/our-science/advanced-lipid-testing/

Controversies

- Pooled Cohort Equations CV Risk Calculator
  - Overestimate ASCVD risk
  - Valid ???

- No LDL-C or non-HDL goals

- Role of non-statin therapy
According to the ADA, which one of the following may be used to treat prediabetes?

A. Glipizide
B. Acarbose
C. Sitagliptin
D. Metformin
## Pre-Diabetes

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>ADA (2014)</th>
<th>AACE (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c (%)</td>
<td>5.7 – 6.4%</td>
<td>✔</td>
</tr>
<tr>
<td>Fasting Blood Glucose (mg/dL)</td>
<td>100 – 125</td>
<td>100 – 125</td>
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<tr>
<td>2 hr OGTT (mg/dL)</td>
<td>140 – 199</td>
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<tr>
<th>Treatment</th>
<th>ADA vs AACE Diabetes Guidelines</th>
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<tbody>
<tr>
<td>Metformin</td>
<td>1 Pre-DM</td>
</tr>
<tr>
<td>• IGT</td>
<td>• Metformin</td>
</tr>
<tr>
<td>• IFG</td>
<td>2+ Pre-DM</td>
</tr>
<tr>
<td>• an A1C 5.7–6.4%*</td>
<td>• All above</td>
</tr>
<tr>
<td></td>
<td>• TZD</td>
</tr>
<tr>
<td></td>
<td>• GLP-1 RA</td>
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## ADA vs AACE Diabetes Guidelines

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<td>≥ 126</td>
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<td>≥ 200</td>
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<td>Other (mg/dL)</td>
<td>Symptoms + ≥ 200</td>
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<td>70 – 130</td>
<td>&lt; 110</td>
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<td>2-hour Postprandial Glucose (mg/dL)</td>
<td>&lt; 180</td>
<td>&lt; 140</td>
</tr>
<tr>
<td>A1C (%)</td>
<td>&lt; 7*</td>
<td>&lt; 6.5*</td>
</tr>
<tr>
<td>LDL (mg/dL)</td>
<td>&lt; 100**</td>
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</tr>
<tr>
<td>Blood Pressure (mmHg)</td>
<td>&lt; 140/80***</td>
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ADA DM Therapy Algorithm

Glycemic Control Algorithm

LIFESTYLE MODIFICATION
(Including Medically Assisted Weight Loss)

ENTRY A1c < 7.5%
ENTRY A1c ≥ 7.5%
ENTRY A1c > 9.0%

MONOTHERAPY*
Metformin
GLP-1 RA
DPP-4i
Agar
SGLT-2i
SGLT-2i

If not at goal in 3 months, add second drug (DUAL THERAPY)

DUAL THERAPY*
GLP-1 RA +
DPP-4i
Agar
SGLT-2i
EGFR

If not at goal in 3 months, add third drug (TRIPLE THERAPY)

TRIPLE THERAPY*
Insulin +
GLP-1 RA
DPP-4i
Agar
SGLT-2i
EGFR

ADD OR INTENSIFY INSULIN

PREDICTION OF DISEASE

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References


- AACE Comprehensive Diabetes Management, Endocr Pract. 2013;19(Suppl 2)


Questions ???

Thank You For Your Attention Any Questions?

http://sd.keepcalm-o-matic.co.uk/i/thank-you-for-your-attention-any-questions-18.png