JNC 8 & Cholesterol

We can get through it together.
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NCEP-III

- Count up the risk factors
- Goal LDL based on risk factors
- Titrate statin up to achieve goal
- Where’d those target LDLs come from?

Where’d those target LDLs come from?

- Epidemiological studies
  - associations between high LDL & CV disease
- Randomized controlled trials...but were they?
  - simvastatin 20mg vs. simvastatin 80mg
  - simvastain 80mg had lower rates of CV disease
  - average LDL 130 vs. average LDL 90
  - Goal LDL is < 100

Lessons from Zetia

- Lowered LDL really well
- Low rate of ADRs
- Don’t increase statin dose, just add ezetimibe to reach LDL goal
- Statin + placebo vs. Statin + Zetia
  - Titrate statin to goal LDL < 100
- Statin + Zetia had more deaths!

Anti-inflammatory & Pleotropic Effects

- Promote plaque stability
- Reduce inflammation at plaque site
- Improve ability of vessels to dilate
- Reduce risk of thrombosis

It’s all about that base-dose!

<table>
<thead>
<tr>
<th>High-Dose Statin</th>
<th>Mod-Dose Statin</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atorvastatin 80 mg</td>
<td>Atorvastatin 10 - 20 mg</td>
<td>Lipitor</td>
</tr>
<tr>
<td>Rosuvastatin 20 - 40 mg</td>
<td>Rosuvastatin 5 - 10 mg</td>
<td>Crestor</td>
</tr>
<tr>
<td></td>
<td>Fluvastatin XL 80 mg</td>
<td>Lescol XL</td>
</tr>
<tr>
<td>Fewer p450 Reactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluvastatin</td>
<td>Pitavastatin 2 - 4 mg</td>
<td>Livaro</td>
</tr>
<tr>
<td>Pravastatin / Pitavastatin</td>
<td>Pravastatin 40 - 80 mg</td>
<td>Pravachol</td>
</tr>
<tr>
<td>Rosuvastatin</td>
<td>Simvastatin 20 - 40 mg</td>
<td>Zocor</td>
</tr>
</tbody>
</table>
New Guidelines...

<table>
<thead>
<tr>
<th>High-Dose Statin</th>
<th>Moderate-Dose Statin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any patient LDL ≥ 190 mg/dL</td>
<td>Any patient who needs high dose but cannot tolerate high dose</td>
</tr>
<tr>
<td>2) With CHD &amp; &lt; 75 y/o</td>
<td>2) With CHD &amp; ≥ 75 y/o</td>
</tr>
<tr>
<td>1) Without CHD, 40-75 y/o + LDL ≥ 70 mg/dL + 10-yr-risk &gt; 7.5%</td>
<td>1) Without CHD, 40-75 y/o + LDL ≥ 70 mg/dL + 10-yr-risk &gt; 7.5% (or moderate dose)</td>
</tr>
<tr>
<td>Grade A</td>
<td>Grade A</td>
</tr>
</tbody>
</table>

When should non-statin therapy be used?

- **Consider**: cannot tolerate statin dose or does not achieve LDL response AND high risk
  - LDL ≥ 190 mg/dL at baseline
  - Diabetic
  - Secondary prevention
  - **TG ≥ 500**: fish oil, niacin, or fibrate

There’s an app for that!

- Ain’t your grandma’s Framingham

There’s a mobile app for that!

Before adding a non-statin...

- Reinforce statin adherence, lifestyle
- Check for other reasons for non-response or non-tolerance
- No proof that adding a non-statin to a statin further reduces CV risk
- Do not add gemfibrozil to statin therapy

AIM-HIGH and THRIVE

- Niacin vs. Placebo
  - But everybody gets a statin now so is this even relevant info?

- High dose statin + Niacin vs. High dose statin + Placebo
  - Does adding niacin to moderate or high dose statin improve outcomes?
  - Fuggedaboutit

Summary of Changes

- No more counting risk factors to set goal LDLs
- Secondary prevention no longer automatically includes diabetes
- Addition of non-statins is further de-emphasized
Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials

Gordon C S Smith, Jill P Poll

Abstract

Objective To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.

Design Systematic review of randomised controlled trials.

Data sources MedLine, Web of Science, Embase, and the Cochrane Library databases; appropriate internet sites and citation lists.

Study selection Studies showing the effects of using a parachute during free fall.

Main outcomes measures Death or major trauma, defined as an injury severity score >15.

Results We were unable to identify any randomised controlled trials of parachute intervention. Conclusions As with many interventions intended to prevent ill health, the effectiveness of parachutes has not been subjected to rigorous evaluation by using randomised controlled trials. Advocates of evidence-based medicine have criticised the adoption of interventions evaluated by using only observational data. We think that everyone might benefit if the most radical proponents of evidence-based medicine organised and participated in a double-blind, randomised, placebo-controlled, crossover trial of the parachute.

Big 4 M&M Superheroes
- Thiazides
- ACE
- ARB
- CCB

β-blockers are a cardiac side-kick
Drugs of Choice

- Thiazide/ACE/ARB/CCB
  - Thiazides no longer given preference over others
- B-blockers drop a notch
- Chlorthalidone or indapamide preferred over HCTZ due to better evidence of benefits
- African-Americans without compelling indications for ACE or ARB, give thiazide or CCB
- CKD: ACE or ARB preferred
- De-emphasis on compelling indications

Case Study 1

LM is a 68 y/o Hispanic female with T2DM & HTN. Non-smoker; NKDA; Ht=5’5”; Wt=75kg
- **Fasting lipid panel**: total cholesterol 215 mg/dL (LDL=137; HDL=42; TG=180)
- **Other Labs**: Scr = 1.0 mg/dL; K+ = 4.5
- **Current Medications**: simvastatin 40 mg po daily
- Lisinopril 10 mg po daily; BP = 120/80 mmHg
- Metformin 1500 mg po daily AC; HgA1c = 8.5%

Case Study 2

JR is a 75 y/o black female with new onset HTN. Her workup for secondary causes was negative and her BP today is 165/90 mmHg. She has been working on lifestyle modifications for the last 8 weeks. She has no history of early CHD in her family.
- **Fasting lipid panel**: total cholesterol 188 mg/dL (LDL=119; HDL=49; TG=140)
- **Other Labs**: ClCr and other labs are within normal limits
- **Current Medications**: None

Case Study 3

VT is a 25 y/o white male who presents because his 45 y/o father just died from a heart attack. He has no known chronic medical conditions and takes no prescription or OTC medications. His BP is 145/100.
- Non-smoker. NKDA
- **Fasting lipid panel**: total cholesterol 310 mg/dL (LDL=180; HDL=50; TG=400)

Cholesterol References

- Cholesterol. Pharmacist’s Letter/Prescriber’s Letter Journal Club. 2014;11(1)

Hypertension References

- O’Riordan M. New European hypertension guidelines released: goal is less than 140 mm Hg for all. Medscape. 6/15/2013.
- Wood S. New analysis questions higher JNC 8’s SBP target for patients over 60: Medscape. 8/19/2014.
- Wright JT, et al. Evidence supporting a systolic blood pressure goal of less than 150 mm Hg in patients aged 60 years or older: The minority view. Am Intern Med. 2014 Jan 14 [pub ahead of print].
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AC; Hg A1c = 8.5%

1. How do her treatment goals differ from ATPIII to the new guidelines?

2. How would you address her lipid treatment? When would you recheck a lipid panel?

3. LM follows up in 4 weeks and her repeat LDL is now 105mg/dL. She is tolerating the statin and it is covered by her insurance plan. How do you proceed with her treatment?

4. How do her treatment goals differ from JNC7 to JNC8?

5. How would you address her HTN treatment?

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**CASE STUDY 2:** JR is a 75 y/o black female with new onset HTN. Her workup for secondary causes was negative and her BP today is 165/90 mmHg. She has been working on lifestyle modifications for the last 8 weeks. She has no history of early CHD in her family. She is negative for DM & smoking history. NKDA

**Fasting lipid panel:** total cholesterol 188 mg/dL (LDL=119; HDL=49; Tg=140)

**Other Labs:** ClCr and other labs are within normal limits

**Current Medications:** None

1. How do her treatment goals differ from JNC7 to JNC8?

2. How would you address her HTN treatment?

3. She adopts lifestyle modifications & is compliant with her medications. Four weeks later her BP is 155/76; K=4.2 and ClCr = 1.0 mg/dL. How would you adjust her antihypertensive regimen?

4. How do her treatment goals differ from ATPIII to the new guidelines?

5. How would you address her cardiovascular risk?

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**CASE STUDY 3:** VT is a 25 y/o white male who presents because his 45 y/o father just died from a heart attack. He has no known chronic medical conditions and takes no prescription or OTC medications. His BP is 145/100. Non-smoker. NKDA

**Fasting lipid panel:** total cholesterol 310 mg/dL (LDL=180; HDL=50; Tg=400)

1. How do his treatment goals differ from ATPIII to the new guidelines?

2. How do his treatment goals differ from JNC7 to JNC8?

3. How would you address his cardiovascular risk?