

# What's New HTN & Lipids

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## objectives

- Hypertension guidelines JNC 8
  - recommendations
  - controversy
  - treatment goals
  - others HYVET, SHEP, ACCORD, SPRINT
- Lipid guidelines ACC/AHA
  - recommendations
  - 4 groups classification
  - treatment
  - controversy

“These guidelines are not a replacement for clinical judgement; they are meant to guide and inform decision-making.”

## Hypertension

- Most common primary dx in USA -Prevalence increases w/ age
  - -50% (60-69 y/o)
  - -75% (>70 y/o)
- Control rates below goals, many undiagnosed
- Benefits of lowering BP in clinical trials - reductions
  - 35-45% less CVAs, 20-25% less MI, 50% less CHF
- New guideline simplified, (prior guideline JNC 7)
  - normal 120/80
  - pre HTN 120-139 / 80-89
  - HTN>140/90
  - Stage 1 140-159/90-99
  - Stage 2 160/100

## Blood Pressure Measurement

- Importance of better technique
- “The measurement of blood pressure is likely the clinical procedure of greatest importance that is performed in the sloppiest manner.”
  - -Norman Kaplan MD
  - Lancet 2007

## BP in clinic setting

- per clinician or trained operator
- average 2+ readings at 2+ visits
- Technique
  - avoid caffeine, nicotine, exercise 30 minutes
  - adequate time to relax (5-10 mins)
  - seated in chair w/ back supported, both feet on floor, arm supported at heart level

## Proper BP reads

- Artificially elevated measurements
  - 10-15 mmHg
    - -pt needs to void / use restroom
  - 5-15 mmHg
    - -back not supported
    - -feet are not flat on floor or legs are crossed
    - -arm is not supported
    - -patient talking
  - 10-40 mmHg....bare skin!
- Proper cuff size
  - Bladder cuff should cover 2/3 patient's arm

## USPSTF 2015

- Recommends screening all adults >18.
- - Ambulatory Blood Pressure Monitoring (ABPM)
    - recommended to confirm high BP before the diagnosis of HTN

## Ambulatory BP Monitoring

- ABPM
  - most accurate, most expensive
  - q 15-20 min during day, q 30 at night
  - determines mean BP and variability
  - nocturnal values (should go down about 20mmHg)\*\*
  - better predictor of clinical outcomes
  - more reproducible
  - **Avoids treatment in the 25% of patients w/ White Coat Syndrome**

## T L C TherapeuticLifestyle Changes

- **Weight loss - BMI <25 (5-20 mmHG)**
- **DASH/Med diet - (8-14 mmHg)**
- **Na+ reduction <2.4g (2-8 mmHg)**
- **exercise 30 min most days (4-9 mmHg)**
- **Limit EtOH male-2, female-1 (2-14 mmHg)**

## JNC 8

- prior recommendations JNC 7 (2003)
  - -part of comprehensive NHLBI Prevention Guidelines
- **JNC 8**
  - -new, more evidence based approach - all RCT data, no observational data
  - -consensus statement **ACC/AHA** (Dec 2013 - released JAMA)
  - (not NHLBI endorsed / sanctioned)
  - cited evidence from **ACCORD BP trial** (Action to Control Cardiovascular Risk in Diabetes)
    - **BP treatment in diabetics at high risk for cardiovascular disease**
    - **ACCORD - targeting SBP <120 mm Hg - NO reduction nonfatal MI, nonfatal CVA, or CV mortality when compared to SBP target SBP 140 mm Hg**
  - JNC 8 - relaxed treatment guidelines
  - minority report - Annals 4/14

## JNC 8

- Initial questions addressed
  - 1) What is the goal BP in adults?
    - Does treatment to goal BP improve outcomes?
      - BP goals (56 trials)
  - 2) At what BP should we initiate pharmacologic treatment?
    - In HTN, does initiating treatment at specific BP threshold improve outcomes?
      - When to initiate therapy (26 trials)
  - 3) Do drugs or drug classes differ in comparative harms/benefits to specific outcomes?
    - Which medications or combination of medications for initial therapy (66 trials)

## JNC 8

- 4 Special populations
  - -General 18-60
  - -Adults >60 y/o
  - -CKD
  - -Diabetes
- 9 major Recommendations

## Evidence Ratings

- A). This is good research-based evidence to support the recommendation, (ie Randomized Controlled Trials)
- B). There is fair research-based evidence to support the recommendation, (ie controlled trials, no randomization)
- E). The recommendation is based on expert opinion and panel recommendations

## Recommendation 1

- **Adults > 60 y/o**
  - Goal <150/90 \*\*
  - initiate treatment at SBP>150 or DBP>90
- Grade **A** evidence - strong recommendation
- treat to goal SBP <150 mmHg or DBP < 90 mmHg
- less CHF, CVA, CHD
- **\*\*game changer**
  - new paradigm for treatment older patients
  - controversial - other data to consider published after JNC 8 recommendation

## Recommendation 1

- Corollary Recommendation 1
  - Achieved BP <140mmHg already achieved
    - reasonable if well-tolerated and safe
    - no adverse effects on health or QOL
    - treatment does not need to be adjusted
- (*Expert Opinion - Grade E*)

## Recommendation 1

- ▷ **Controversy - Minority Report**
  - ▷ -regarding treatment adults >60
- ▷ 4 concerns
  - ▷ liberal targets sufficient for high risk patients over 60?
  - ▷ Reduction of intensity current treatment?
  - ▷ high target not consistent with some prior evidence
  - ▷ concern - higher goals for "older" patients may reverse downward trends of cardiovascular M/M, CVA mortality
- ▷ other data in support from HYVET (Hypertension in the Very Elderly Trial) patients over 80, treatment to 150/80

## **Recommendations 2 & 3**

- ▷ General population <60
  - ▷ Goal <140/90
  - ▷ initiate treatment for goals <SBP 140, DBP <90
- ▷ **Recommendation #2 - DBP < 90**
  - ▷ age 30-59 Grade A
  - ▷ age 18-29 Grade E
- ▷ **Recommendation #3 - SBP <140**
  - ▷ Grade E — (not good evidence SBP goal)

## Recommendation 4

- ▷ **CKD Goal < 140/90\***
  - ▷ {GFR < 60 and/or albuminuria}
- ▷ General population
- ▷ Grade E
  - ▷ no trials showed lowered renal or cardiac endpoints w/ lower targets

## Recommendation 5

- ▷ **Diabetes Goal 140/90\*\***
  - ▷ no RCT evidence for lower target
  - ▷ age 18 - and up, (even if over 60 years of age)
- ▷ Grade E

- ▷ BP goals and when to start therapy:
  - ▷ General <140/90
  - ▷ Established CVD <140/90
  - ▷ Diabetes <140/90
  - ▷ Established CKD <140/90
  - ▷ Age >60 years of age <150/90

## Treatment Recommendations JNC 8

## Recommendation 6

- ▷ Initial therapy - general \***NON-black** population
  - ▷ [includes Diabetics]
- ▷ initial treatment should include
  - ▷ thiazide
  - ▷ CCB
  - ▷ ACE / ARB
    - ▷ Grade B - moderate recommendation

## Recommendation 7

- ▷ General **black** population
  - ▷ —(including diabetics)—
- ▷ initial treatment
  - ▷ thiazide
  - ▷ CCB
- ▷ Grade B non-diabetic blacks
- ▷ Grade C - black diabetics
  - ▷ **\*\*note: initial treatment not ACE in Black Diabetics**

## Recommendation 8 C K D

- initial treatment should include **ACE or ARB**
  - improved kidney outcomes (DM & non-DM)
  - Regardless of race
    - \*- including blacks \*\* diabetes different!
- *Grade B*
- \_\_\_\_\_
- remember - with ACE/ARB Cr- may increase 30-35% above baseline
  - follow K+ and Cr-

## Recommendation 9

- Continue to intensify therapy until BP controlled
- i.e. -if goal not attained in one month
  - increase dose or
  - add 2nd drug (thiazide, CCB, ACE/ARB)
  - may need 3rd drug
- NOT ACE & ARB together
- less B-blockers (unless CAD, CHF)
- can use other classes if needed
- consider specialist referral if needed

## Early combination Anti-hypertensive Therapy

- Antineurohumeral Agent
  - ACE or ARB
    - plus
- Blood Volume Reducer or Vasodilator
  - Thiazide-Type Diuretic or CCB

## BP goals and when to start therapy

- General <140/90
- Established CVD <140/90\*
- Diabetes <140/90\*
- CKD <140/90\*
- age 60+ <150/90\*
  - (no diabetes or CKD)
- \*game changers

## Resistant Hypertension

- BP that remains >140/90 despite adherence to triple drug regimen (including a diuretic), where all drugs are prescribed at near- maximum recommended doses
- or
- BP that is controlled but requiring 4 medications
- Maximize diuretic therapy
  - chlorthalidone should be preferentially used in patients with resistant HTN
  - In patients with CKD (Cr Cl <30 ml/min) consider adding Loop diuretic
- Consider adding mineralocorticoid receptor agonist, such as spironolactone 25-50mg) or alpha blocker

## Take home points JNC 8

- Initiation of Therapy and BP Goals
  - <140/90 for most
  - <150/90 - if >60 y/o (no CKD or DM)
- Choice of Initial Medications
  - Blacks: CCB or thiazide
  - Non-Blacks: CCB, thiazide or ACE/ARB
  - CKD: ACE/ARB (including blacks)
- Early Combination Therapy
  - ACE/ARB + CCB or thiazide diuretic
- Other Issues related to pharmacologic therapy
  - Less use of B-blockers (unless CAD or CHF)
  - Do not use multiple blockers of RAAS together

## Remember

- Proper measurement !
- Confounders
  - NSAIDS
  - OCPs
    - Decongestants
    - Steroids
    - TCAs
    - Illicit
      - Herbs - alternative, OTC
      - EtOH
      - Na+

## Always think of Secondary Causes

- OSA -
- CKD
- Thyroid/parathyroid disease
- Renal artery disease
- Cushing's syndrome
- Primary aldosteronism
- Pheochromocytoma
- Coarctation
  - When to evaluate for secondary causes-
    - unusual presentation: sudden, severe
    - very young or very old,
    - resistant

already waiting for new  
'guidelines'

## Sprint Trial - Systolic BP Interventional Trial

- Sponsored by the NHLBI
- released after JNC8 - stopped early 3.3 yr / 5 yr - large press release
- Objective - whether treating to Lower BP goal - 120 vs 140
  - decreased risk CVD, CKD or Cognitive Decline
- 9,400 pts - > **age 50**
- **High risk patients**- history of CAD, CKD, >50% 10 yr mortality
- **\*\*NON-Diabetics, NO Prior CVA**
  - (ACCORD BP trial - no benefit 120 vs 140 in DM)
- VERY select patient population
  - - non-diabetic high risk patients over 50
- good benefits balanced with significant harms

## Sprint Trial

- **benefits**
  - -intensive group treated with 3-4 meds
  - -decreased all-cause mortality NNT 80 / 3yr
  - -decreased CV death NNT 167
  - -decreased CHF NNT 125
  - no change AMI, CVA
- **harms**
  - -hypotension NNH 100
  - -syncope NNH 160
  - -AKI/ARF NNT 60
  - -abnormal electrolytes NNT 125
  - Caution with the elderly!
  - \*balance benefits, harms - individualize treatment (one more drug)
  - Benefit may be overblown..

## Low, Almost SPRINT-like BP Targets Best in Huge Meta-Analysis

- network meta-analysis of 42 RCTs
- >140,000 patients, included diabetics, followed 3.6 yr
- patients classified into 10 levels of BP control, ranging from 120-160 mmHG
- results support more aggressive BP control
- linear association between the achieved BP and risk of CVD and total mortality
- lowest risk SBP 120-124 mmHg
  - lowest risk for CVD, CHD, CVD mortality, all-cause mortality
  - SBP <120 was associated with lowest risk for CVA
- suggests clarity for updated guideline statements
- "There is poor consensus and worrisome uncertainty" about "the ideal target for one of the most important risk factors for CVD" JAMA editor



"Not much - just flushing out my arteries."

lipids

In 2013 American College of Cardiology / American Heart Association (ACC/AHA) Task Force on Practice Guidelines released new Guidelines on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Disease (ASCVD) Risk in Adults

- Evidence-based - Randomized clinical data to guide decision making
  - also a tad controversial..

## Cholesterol Guidelines

- 3 Critical Questions
- 1) What is the evidence for LDL levels and risk assessment for initiation of treatment
  - (who to treat)
- 2) Should we use LDL goals or targets for treatment?
- 3) What medications have evidence for use in the treatment of cholesterol (including harm)

# Cholesterol Guidelines

- ▷ **4 groups** patients to benefit from treatment
- ▷ Changes -transitioning away from targets for LDL
  - ▷ (no more goals of NCEP-ATP3, i.e. LDL 100, or 60)
  - ▷ There is no RCT data to support targets
- ▷ Focus - Statins
  - ▷ only class proven to reduce heart disease
- ▷ **....Always stress diet / exercise / weight loss.... TLC**

# Cholesterol Guidelines Statin Therapy

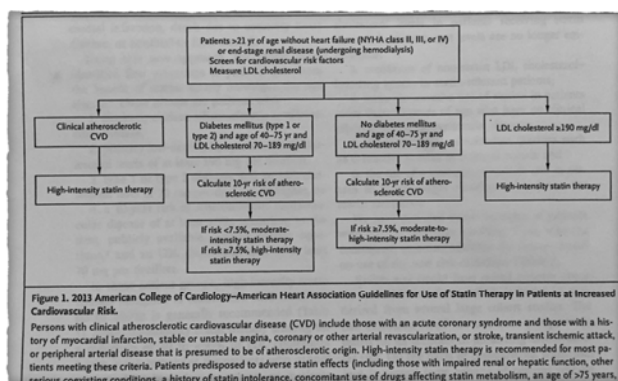
- ▷ **4 Groups** to benefit from treatment
- ▷ **1)-Clinical atherosclerotic CVD (ASCVD)**
- ▷ **2)-LDL >190**
- ▷ **3)-Diabetes 40-75 y/o**
- ▷ **4)-High risk 40-75 y/o (without ASCVD or DM)**

## ASCVD Risk

- ▷ Get the calculator for your phone - 10 year risk
- ▷ **Sex**
- ▷ **Age**
- ▷ **Race**
- ▷ **TC**
- ▷ **HDL**
- ▷ **BP**
- ▷ **Tobacco**
- ▷ **DM**

Classify Statin Treatment  
-High intensity  
or  
-Moderate Intensity

## ACC / AHA - NEJM



## High-Intensity and Moderate-Intensity Statin Therapy, According to the 2013 ACC/AHA Cholesterol Guidelines

- ▷ **High-Intensity Statin Therapy**
  - ▷ Daily dose lowers LDL by approximately 50% on average
  - ▷ Recommended:
    - ▷ atorvastatin, 40-80 mg
    - ▷ rosuvastatin, 20 - 40 mg
- ▷ **Moderate-Intensity Statin Therapy**
  - ▷ Lowers LDL 30-50%
    - ▷ atorvastatin 10-20mg, rosuvastatin 5-10 mg, simvastatin 20-40mg, pravastatin 40-80mg, lovastatin 40mg, etc

## Group 1

- ▷ Clinical atherosclerotic CVD (ASCVD)
  - ▷ CAD, AMI, PAD, CVA/TIA
- ▷ treat high/moderate potency statin based **on age**
- ▷ **<75 y/o** - high-intensity statin
- ▷ **>75 y/o** - moderate-intensity statin

## Group 2

- ▷ **LDL > 190 mg/dL**
  - ▷ high risk for cardiovascular disease
    - ▷ high-intensity statins
    - ▷ -expected 50% decrease LDL
  - ▷ no target goal - just intensity

## Group 3

- ▷ **Diabetes** 40-75 y/o
  - ▷ calculate 10-year ASCVD risk score
- ▷ **>7.5%** - *high-potency* statin
- ▷ **<7.5%** - *moderate-potency* statin

## Group 4

- ▷ High risk patients without ASCVD or DM
  - ▷ 10 year risk >7.5%
- ▷ **\*\*consider moderate-high intensity statin**

### ASCVD Risk

- ▷ Get the calculator for your phone - 10 year risk
- ▷ **Sex**
- ▷ **Age**
- ▷ **Race**
- ▷ **TC**
- ▷ **HDL**
- ▷ **BP**
- ▷ **Tobacco**
- ▷ **DM**

### 10 year risk

- ▷ **>7.5% risk**
  - ▷ recommendation *moderate or high-intensity* statin
  - ▷ higher risk score = higher intensity statin
  - ▷ presumed higher benefit..
- ▷ **except >75 y/o**
  - ▷ highest risks adverse effects
  - ▷ less time to benefit from therapy?

### 10 year risk

- ▷ Even lower - Risk score 5% - 7.5%
- ▷ **controversial** management (to say the least)
- ▷ shared decision making
- ▷ consider other risk factors:
  - ▷ Family History
  - ▷ hsCRP >2
  - ▷ CAC score >300
  - ▷ ABI <.9
- ▷ Before treating: discuss *potential* for ASCVD risk reduction benefits, *potential* for adverse effects, medication interactions and patient preferences

### Guideline Scope (not replacement for clinical judgement)

- ▷ Focus on treatment to reduce ASCVD risk
- ▷ **Emphasize lifestyle guidelines**
- ▷ Identify patients most likely to benefit
- ▷ Identify safety issues

### Statins reduce CVD Risk

- ▷ **Cholesterol Treatment Trialists (CTT) Collaborators**
  - ▷ prospective meta-analysis of RCTs
  - ▷ 129,526 subjects 1994-2009
- ▷ Improved CVD outcomes with decreased LDL
- ▷ reductions in
  - ▷ all-cause mortality, including coronary mortality
  - ▷ major CVD events
  - ▷ MI or CHD death
  - ▷ PCI/CABG
  - ▷ CVA

### Side effects..not rare

- ▷ No baseline, ongoing measures ALT, CK unless risks
- ▷ **Mild-moderate myalgias** - hold statin
  - ▷ evaluate clinically
- ▷ **Severe myalgia/fatigue**
  - ▷ d/c statin
  - ▷ rhabdo eval - CK, creatinine, myoglobinuria

## New Lipid Guideline Summary

- Simpler Approach
- Focus on ASCVD risk and statins
- For primary prevention: “patient-centered”
- Guidelines will change with more data and new more expensive meds on the horizon
- PCSK-9 inhibitors (Proprotein Convertase Subtilizing kexin type 9)
  - inhibits PCSK-9 binding to LDL receptors, decreases LDL receptor degradation, increases LDL clearance (monoclonal antibody)

## Beyond the Guidelines

- Did not review evidence for treatment -
  - Low HDL (good data Framingham)
  - Hypertriglyceridemia
  - Combined dyslipidemias
  - Lipoprotein evaluation/treatment
- Limited information/recommendations
  - biomarkers (hs-CRP >2)
  - atherosclerosis imaging (CAC >300, ABI <.9)

## Implications

- Many, many eligible for treatment -14 mil
- men age 60-75 (30% - 87%)
- women age 60-75 (21%-54%)
- 28% adults over age 40 are eligible for treatment, could increase to 36%
- put it in the water?

## TLC - Therapeutic Lifestyle Changes

### ➤ **Healthy habits / Lifestyle**

- Mediterranean diet / DASH diet
- Healthy weight
- Exercise
- Stress Reduction

“It is much more important to know what sort of a patient has a disease than what sort of a disease a patient has.”

—William Osler

