

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
 - Illicits
 - Herbals - 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

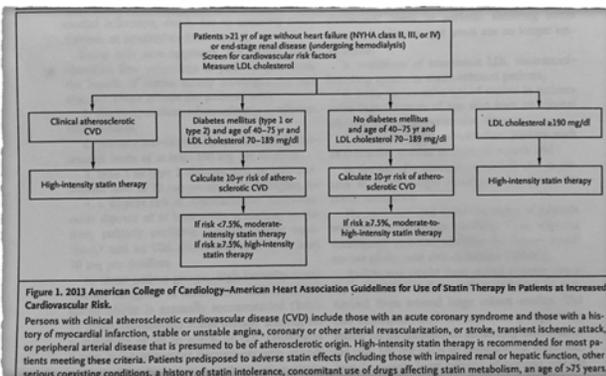
- **4 Groups** to benefit from treatment
- **1)-Clinical atherosclerotic CVD (ASCVD)**
- **2)-LDL >190**
- **3)-Diabetes 40-75 y/o**
- **4)-High risk 40-75 y/o (without ASCVD or DM)**

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

