Clinical Updates in the Treatment of Hypertension
JNC 7 vs. JNC 8

Lauren Thomas, PharmD
PGY1 Pharmacy Practice Resident
South Pointe Hospital
Objectives

• Review the Eighth Joint National Committee (JNC 8) guideline recommendations for management of high blood pressure

• Discuss major differences between JNC 7 and JNC 8 guidelines
JNC 8

• Evidence-based recommendations for the treatment of hypertension including:
  – Treatment thresholds
  – Treatment goals
  – Medications

• Evidence drawn from randomized controlled trials

• Recommendations meet clinical needs for most patients but are not a substitute for clinical judgment
<table>
<thead>
<tr>
<th>Topic</th>
<th>JNC 7</th>
<th>2014 Hypertension Guideline</th>
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</thead>
<tbody>
<tr>
<td>Methodology</td>
<td>Nonsystematic literature review by expert committee including a range of study designs Recommendations based on consensus</td>
<td>Critical questions and review criteria defined by expert panel with input from methodology team Initial systematic review by methodologists restricted to RCT evidence Subsequent review of RCT evidence and recommendations by the panel according to a standardized protocol</td>
</tr>
<tr>
<td>Definitions</td>
<td>Defined hypertension and prehypertension</td>
<td>Definitions of hypertension and prehypertension not addressed, but thresholds for pharmacologic treatment were defined</td>
</tr>
<tr>
<td>Treatment goals</td>
<td>Separate treatment goals defined for “uncomplicated” hypertension and for subsets with various comorbid conditions (diabetes and CKD)</td>
<td>Similar treatment goals defined for all hypertensive populations except when evidence review supports different goals for a particular subpopulation</td>
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<tr>
<td>Lifestyle recommendations</td>
<td>Recommended lifestyle modifications based on literature review and expert opinion</td>
<td>Lifestyle modifications recommended by endorsing the evidence-based recommendations of the Lifestyle Work Group</td>
</tr>
<tr>
<td>Drug therapy</td>
<td>Recommended 5 classes to be considered as initial therapy but recommended thiazide-type diuretics as initial therapy for most patients without compelling indication for another class Specified particular antihypertensive medication classes for patients with compelling indications, ie, diabetes, CKD, heart failure, myocardial infarction, stroke, and high CVD risk Included a comprehensive table of oral antihypertensive drugs including names and usual dose ranges</td>
<td>Recommended selection among 4 specific medication classes (ACEI or ARB, CCB or diuretics) and doses based on RCT evidence Recommended specific medication classes based on evidence review for racial, CKD, and diabetic subgroups Panel created a table of drugs and doses used in the outcome trials</td>
</tr>
<tr>
<td>Scope of topics</td>
<td>Addressed multiple issues (blood pressure measurement methods, patient evaluation components, secondary hypertension, adherence to regimens, resistant hypertension, and hypertension in special populations) based on literature review and expert opinion</td>
<td>Evidence review of RCTs addressed a limited number of questions, those judged by the panel to be of highest priority.</td>
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<tr>
<td>Review process prior to publication</td>
<td>Reviewed by the National High Blood Pressure Education Program Coordinating Committee, a coalition of 39 major professional, public, and voluntary organizations and 7 federal agencies</td>
<td>Reviewed by experts including those affiliated with professional and public organizations and federal agencies; no official sponsorship by any organization should be inferred</td>
</tr>
</tbody>
</table>

Abbreviations: ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; CCB, calcium channel blocker; CKD, chronic kidney disease; CVD, cardiovascular disease; JNC, Joint National Committee; RCT, randomized controlled trial
Recommendations

1. In the general population aged ≥60 years, initiate treatment at BP ≥150/90 and treat to a goal of <150/90

—Corollary Recommendation: If current treatment results in a lower achieved systolic blood pressure (SBP) (e.g. <140) and treatment is well tolerated without adverse effects, treatment does not need to be adjusted
Treatment of Hypertension in Patients 80 Years of Age and Older

• Treatment to a target BP <150/80 resulted in reduced risk of death from stroke, heart failure, any cardiovascular (CV) event, and all-cause mortality
# Moderate vs. Strict BP Control

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Population</th>
<th>Intervention</th>
<th>Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Hokkaido, et. al. 2008 (JATOS)</td>
<td>4418</td>
<td>65-85 years of age&lt;br&gt;SBP ≥ 160</td>
<td>Strict control (SBP &lt; 140) vs. mild control (SBP &lt; 160 but &gt; 140)</td>
<td>No difference in incidence of cerebrovascular disease, CV disease, or renal failure between groups</td>
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<tr>
<td>Ogihara, et. al. 2010 (VALISH)</td>
<td>3260</td>
<td>≥70 and &lt; 85 years of age&lt;br&gt;SBP &gt; 160 and DBP &lt; 90</td>
<td>Strict control (SBP &lt; 140) vs. moderate control (140 to 149)</td>
<td>No difference in CV events (sudden death, fatal or nonfatal stroke or myocardial infarction (MI), death due to heart failure, other CV death, unplanned hospitalization for CV disease, and renal dysfunction) as a composite endpoint or as individual components between groups</td>
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</tbody>
</table>
Recommendations

2. In the general population aged < 60 years, initiate treatment at diastolic blood pressure (DBP) ≥90 and treat to a goal DBP <90

3. In the general population aged < 60 years, initiate treatment at SBP ≥140 and treat to a goal SBP <140
4. In the general population ≥18 years with chronic kidney disease (CKD), initiate treatment at BP ≥140/90 and treat to a goal <140/90

5. In the general population ≥18 years with diabetes, initiate treatment at BP ≥140/90 and treat to a goal <140/90
Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus

- Intensive blood pressure therapy (target SBP < 120) vs. standard therapy (SBP < 140)

- No difference in the primary outcome of prevention of composite outcome of nonfatal MI, nonfatal stroke, or CV death

Recommendations

6. In the general nonblack population, including those with diabetes, initial antihypertensive treatment should include:
   – Thiazide-type diuretic
   – Calcium channel blocker (CCB)
   – Angiotensin-converting enzyme inhibitor (ACEI)
   – Angiotensin receptor blocker (ARB)
Cardiovascular morbidity and mortality in the Losartan Intervention For Endpoint reduction in hypertension study (LIFE): a randomised trial against atenolol

- ARB vs. β-blocker in patients with hypertension and left ventricular hypertrophy (LVH)

- Higher rate of the primary composite outcome of CV death, MI, or stroke was seen with use of a β-blocker compared to use of an ARB
Recommendations

7. In the general black population, including those with diabetes, initial antihypertensive treatment should include:
   – Thiazide-type diuretic
   – Calcium channel blocker (CCB)

8. In the population aged ≥18 years with CKD (regardless of race or diabetes status), initial (or add-on) antihypertensive treatment should include and ACEI or ARB to improve kidney outcomes
9. If goal blood pressure is not reached within one month of treatment initiation increase the dose of the initial drug or add a second drug from the recommended classes
   – If goal is not reached with 2 drugs add a third drug from the list provided
   – Do NOT use ACEI or ARB together
   – If goal is not reached using only the recommended drug classes, other drug classes may be utilized
Take Home Points

• In patients 60 years of age and older, goal BP < 150/90
• In all other patient populations, goal BP <140/90
• Four recommended initial treatment options:
  – Thiazide-type diuretic
  – CCB
  – ACEI
  – ARB
• If inadequate response to initial agents, add an agent from an additional drug class
References


QUESTIONS?