

# Case Studies in Hypertension: Medication Options

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**CME Disclosure Statement: F. Strait Fairey, MD – Primary Care  
Symposium 2026**

Dr. Scott Bragg, speaker has no financial relationships with ineligible companies whose primary business is producing, marketing, selling re-selling, or distributing healthcare products used by or on patients.

# Objectives

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- 1) Recall 3 new recommendations from the ACC/AHA guidelines on antihypertensive drug treatments
- 2) Evaluate the drawbacks of various antihypertensive treatments
- 3) Adapt an antihypertensive regimen for specific patient scenarios

# Building on Drs. Lyons and Woodfield's Foundation

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## **Prior talks provided excellent coverage of:**

- BP measurement and diagnosis
- Primary aldosteronism screening
- Risk assessments
- First-line agent selection
- Renal vein denervation

## **Today we'll focus on:**

- Complex and resistant HTN cases
- Advanced med strategies
- New therapeutic options
- Practical 'Hot Takes' for difficult scenarios



# ACC/AHA Strength of Recommendations and Level of Evidence

Writing Committee Members; Hypertension. 2025 Oct;82(1):e212-e316.

CLASS (STRENGTH) OF RECOMMENDATION	LEVEL (QUALITY) OF EVIDENCE <sup>‡</sup>
<p><b>Class 1 (STRONG) Benefit &gt;&gt;&gt; Risk</b></p> <p><b>Suggested phrases for writing recommendations:</b></p> <ul style="list-style-type: none"> <li>• Is recommended</li> <li>• Is indicated/useful/effective/beneficial</li> <li>• Should be performed/administered/other</li> <li>• Comparative-Effectiveness Phrases<sup>†</sup>:               <ul style="list-style-type: none"> <li>- Treatment/strategy A is recommended/indicated in preference to treatment B</li> <li>- Treatment A should be chosen over treatment B</li> </ul> </li> </ul>	<p><b>Level A</b></p> <ul style="list-style-type: none"> <li>• High-quality evidence<sup>‡</sup> from more than 1 RCT</li> <li>• Meta-analyses of high-quality RCTs</li> <li>• One or more RCTs corroborated by high-quality registry studies</li> </ul>
<p><b>Class 2a (MODERATE) Benefit &gt;&gt; Risk</b></p> <p><b>Suggested phrases for writing recommendations:</b></p> <ul style="list-style-type: none"> <li>• Is reasonable</li> <li>• Can be useful/effective/beneficial</li> <li>• Comparative-Effectiveness Phrases<sup>†</sup>:               <ul style="list-style-type: none"> <li>- Treatment/strategy A is probably recommended/indicated in preference to treatment B</li> <li>- It is reasonable to choose treatment A over treatment B</li> </ul> </li> </ul>	<p><b>Level B-R (Randomized)</b></p> <ul style="list-style-type: none"> <li>• Moderate-quality evidence<sup>‡</sup> from 1 or more RCTs</li> <li>• Meta-analyses of moderate-quality RCTs</li> </ul>
<p><b>Class 2b (WEAK) Benefit ≥ Risk</b></p> <p><b>Suggested phrases for writing recommendations:</b></p> <ul style="list-style-type: none"> <li>• May/might be reasonable</li> <li>• May/might be considered</li> <li>• Usefulness/effectiveness is unknown/unclear/uncertain or not well-established</li> </ul>	<p><b>Level B-NR (Nonrandomized)</b></p> <ul style="list-style-type: none"> <li>• Moderate-quality evidence<sup>‡</sup> from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies</li> <li>• Meta-analyses of such studies</li> </ul>
<p><b>Class 3: No Benefit (MODERATE) Benefit = Risk (Generally, LOE A or B use only)</b></p> <p><b>Suggested phrases for writing recommendations:</b></p> <ul style="list-style-type: none"> <li>• Is not recommended</li> <li>• Is not indicated/useful/effective/beneficial</li> <li>• Should not be performed/administered/other</li> </ul>	<p><b>Level C-LD (Limited Data)</b></p> <ul style="list-style-type: none"> <li>• Randomized or nonrandomized observational or registry studies with limitations of design or execution</li> <li>• Meta-analyses of such studies</li> <li>• Physiological or mechanistic studies in human subjects</li> </ul>
<p><b>Class 3: HARM (STRONG) Risk &gt; Benefit</b></p> <p><b>Suggested phrases for writing recommendations:</b></p> <ul style="list-style-type: none"> <li>• Potentially harmful</li> <li>• Causes harm</li> <li>• Associated with excess morbidity/mortality</li> <li>• Should not be performed/administered/other</li> </ul>	<p><b>Level C-EO (Expert Opinion)</b></p> <ul style="list-style-type: none"> <li>• Consensus of expert opinion based on clinical experience</li> </ul>

COR and LOE are determined independently (any COR may be paired with any LOE).

A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

\* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

† For comparative-effectiveness recommendations (COR 1 and 2a; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

‡ The method of assessing quality is evolving, including the application of standardized, widely-used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

# ACC/AHA Hypertension Categories and Goals

**Table 4. Categories of Blood Pressure in Adults\***

	SBP		DBP
<b>BP Category</b>			
<b>Normal</b>	<120 mm Hg	and	<80 mm Hg
<b>Elevated</b>	120 to 129 mm Hg	and	<80 mm Hg
<b>Hypertension</b>			
<b>Stage 1</b>	130 to 139 mm Hg	or	80 to 89 mm Hg
<b>Stage 2</b>	≥140 mm Hg	or	≥90 mm Hg

Benefits of a goal < 130/80:

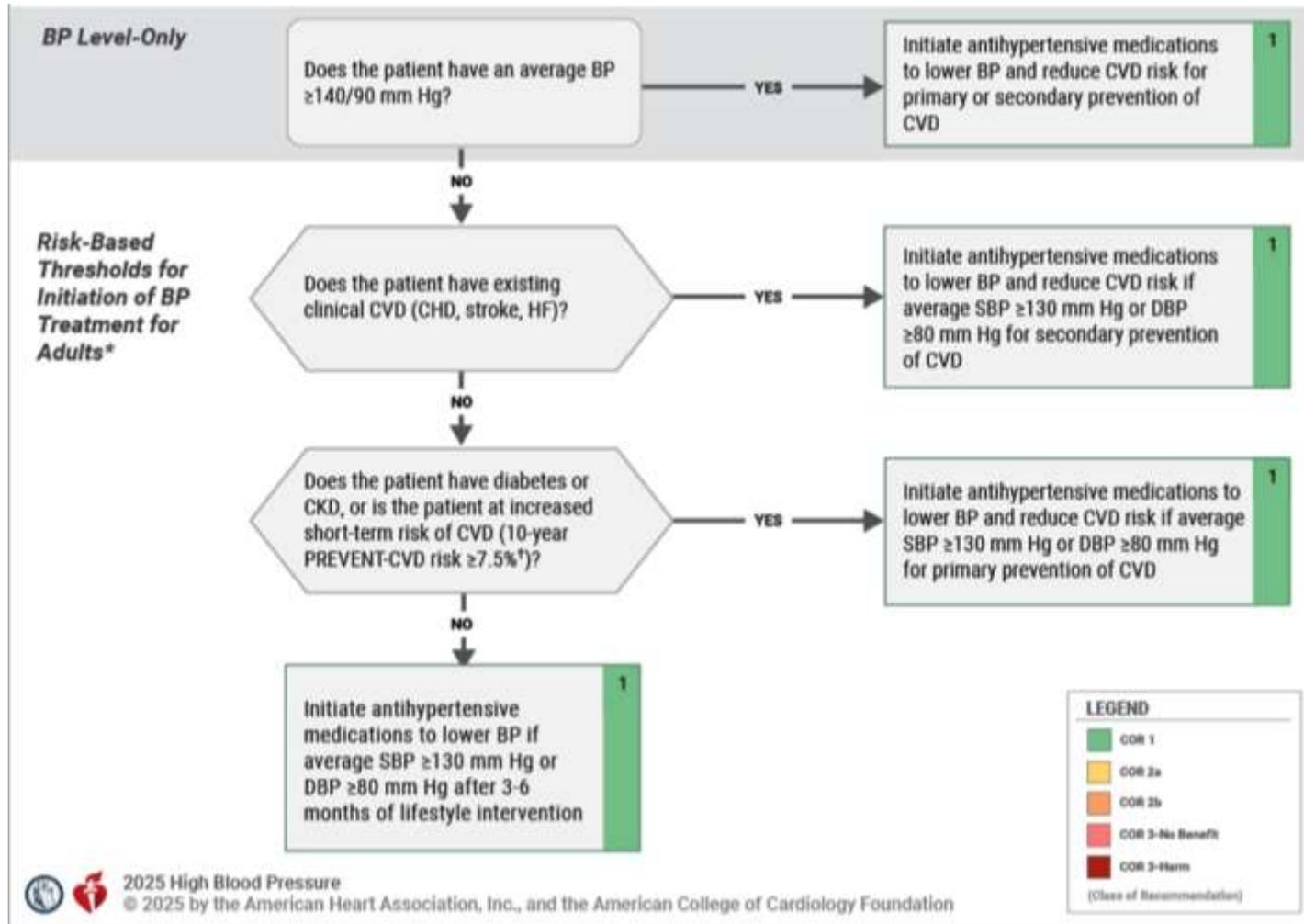
- CV benefits (e.g., MI, stroke, heart failure)
- CKD progression
- Dementia

## 5.2.7. BP Goal for Patients With Hypertension

Recommendations for BP Goal for Patients With Hypertension Referenced studies that support recommendations are summarized in the Evidence Table.		
COR	LOE	Recommendations
1	A	1. In adults with confirmed hypertension who are at increased risk* for CVD, an SBP goal of at least <130 mm Hg, with encouragement to achieve SBP <120 mm Hg, is recommended to reduce the risk of cardiovascular events and total mortality. <sup>1-4</sup>
2b	B-NR	2. In adults with confirmed hypertension who are not at increased risk* for CVD, an SBP goal of <130 mm Hg, with encouragement to achieve SBP <120 mm Hg, may be reasonable to reduce risk of further elevation of BP. <sup>5</sup>
1	B-R	3. In adults with confirmed hypertension who are at increased risk* for CVD, a DBP target of <80 mm Hg is recommended to reduce the risk of cardiovascular events and total mortality. <sup>5</sup>
2b	B-NR	4. In adults with confirmed hypertension who are not at increased risk* for CVD, a DBP target of <80 mm Hg may be reasonable to reduce the risk of cardiovascular events. <sup>5</sup>

\*Increased risk is defined as a 10-year predicted risk for CVD events of ≥7.5% using PREVENT.

# Risk-Based Thresholds for Starting BP Treatment in Adults



You are considering a workup for resistant hypertension in a 58-year-old male due to a lack of response to medication therapy. Which one of the following is the most common cause of uncontrolled hypertension?

- A) Hyperaldosteronism
- B) Increased salt intake
- C) Medication nonadherence
- D) Obstructive sleep apnea
- E) Renal artery stenosis >75%



# Treatment-Resistant Hypertension

- Medication nonadherence: rates range from 50–68%
- If having nonadherence: 70% partial & 30% complete

Causes	Prevalence	Indications
OSA	25-50%	Snoring, choking, gasping during sleep; daytime sleepiness; resistant HTN
CKD	14%	DM, hematuria, urinary frequency changes, ↑ Scr, abnormal UA, family hx of PKD; analgesic abuse
Primary aldosteronism	5-25%	Resistant HTN; HTN with hypokalemia/muscle cramps/weakness; adrenal mass; HTN + OSA; HTN and family hx of early HTN or stroke
Drug or alcohol	2-20%	Social hx of alcohol or illicit drugs; specific meds
Renovascular HTN	0.1-5%	Resistant HTN; abrupt onset; flash pulmonary edema

de Jager RL, et al. Br J Clin Pharmacol. 2018 Jan;84(1):18-24.

Rossignol P, et al. Lancet. 2015 Oct 17;386(10003):1588-98.

Writing Committee Members; Hypertension. 2025 Oct;82(1):e212-e316.

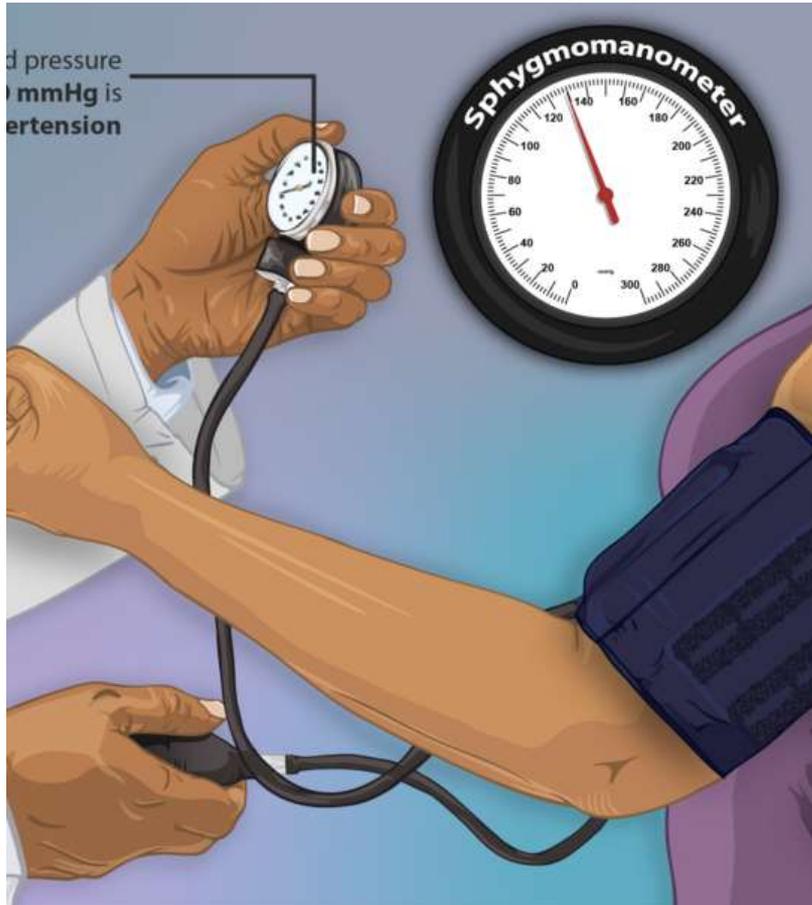
# When to Refer to a Hypertension Specialist

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- Resistant HTN after optimization
- Age < 30 with HTN (suspect secondary cause)
- Confirmed primary aldosteronism needing subtype testing
- Consider renal denervation



# General BP Med Tips



- Confirm accurate BP and address lifestyle factors
- Prioritize combo pills, less frequent dosing, long half-life drugs
- Far from goal (e.g.,  $> 20/10$ ): start 2 drugs
- Close to goal (e.g.,  $\sim 10/5$ ): start 1 drug
- Really close to goal (e.g.,  $\sim 3-5/2$ ): titrate

AFP YouTube Clinic BP Measurement:  
<https://www.youtube.com/watch?v=ubxnKhsatBw>

# Bragg's Stepwise Approach



- 1) First line ARB > ACEI (better tolerated & similar benefit) vs. amlodipine vs. combo ARB/amlodipine
- 2) Thiazide diuretic: HCTZ (lower risk of hypokalemia) vs. indapamide vs. chlorthalidone (higher risk of hypokalemia)
- 3) Aldosterone antagonist (e.g., eplerenone, spironolactone, finerenone) vs. potassium sparing diuretic (e.g., amiloride)
- 4) Beta Blocker (e.g., carvedilol, metoprolol succinate, bisoprolol) vs. diltiazem

# Prefer ARB > ACEI 1<sup>st</sup> Line?

- Historically, ACEI touted as better for reducing CV events
- However, contemporary trials show ARBs have comparable CV benefits and fewer side effects



ORIGINAL ARTICLE

## Angiotensin-Converting Enzyme Inhibitors or Angiotensin Receptor Blockers in Patients Without Heart Failure? Insights From 254,301 Patients From Randomized Trials



Sripal Bangalore, MD, MHA; Robert Fakhri, MD; Bora Toklu, MD; Gbenga Ogedegbe, MD; Howard Weintraub, MD; and Franz H. Messerli, MD

**Conclusion:** In patients without heart failure, evidence from placebo-controlled trials (restricted to trials after 2000), active controlled trials, and head-to-head randomized trials all suggest ARBs to be as efficacious and safe as ACEIs, with the added advantage of better tolerability.

# Which Thiazide to Prefer?

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

## Chlorthalidone vs. Hydrochlorothiazide for Hypertension–Cardiovascular Events

Areef Ishani, M.D., William C. Cushman, M.D., Sarah M. Leatherman, Ph.D., Robert A. Lew, Ph.D., Patricia Woods, M.S.N., R.N., Peter A. Glassman, M.B., B.S., Addison A. Taylor, M.D., Cynthia Hau, M.P.H., Alison Klint, M.S., Grant D. Huang, Ph.D., M.P.H., Mary T. Brophy, M.D., M.P.H., Louis D. Fiore, M.D., M.P.H., and Ryan E. Ferguson, Sc.D., M.P.H., for the Diuretic Comparison Project Writing Group<sup>#</sup>

- CV benefits are similar
- Pick based on potassium value and available combos
- Hypokalemia risk: chlorthalidone > indapamide > HCTZ

Agarwal R, et al. NEJM. 2021;385:2507–19.

Ishani A, et al. NEJM. 2022;387:2401–10.

### CONCLUSIONS

In this large pragmatic trial of thiazide diuretics at doses commonly used in clinical practice, patients who received chlorthalidone did not have a lower occurrence of major cardiovascular outcome events or non–cancer-related deaths than patients who received hydrochlorothiazide. (Funded by the Veterans Affairs Cooperative Studies Program; ClinicalTrials.gov number, NCT02185417.)

# Use Agents with Long Half-Life and Good Combos

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## **Preferred ARBs: olmesartan, telmisartan, valsartan**

- Olmesartan combos: Azor (w/ amlodipine), Benicar HCT (w/ HCTZ), Tribenzor (w/ amlodipine + HCTZ)
- Telmisartan combos: Micardis HCT (w/ HCTZ), Widaplik (w/ amlodipine + indapamide)
- Valsartan combos: Exforge (w/ amlodipine), Diovan HCT (w/ HCTZ), Exforge HCT (w/ amlodipine + HCTZ)

## **Unique issues with these ARBs:**

- Olmesartan: rare severe sprue-like enteropathy
- Telmisartan: diarrhea and moisture sensitivity
- Valsartan: shorter half-life and possibly ↑ MI vs. telmisartan

# Resistant Hypertension: Patient Case #1

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68 y/o male with HFpEF (EF 58%) presents with persistent dyspnea on exertion and B/L LE edema despite taking meds

PMH: DM2, OSA (non-adherent), CKD stage 2, HFpEF

CV meds: lisinopril 20 mg daily, HCTZ 25 mg daily, furosemide 40 mg daily, metoprolol succinate 50 mg daily

Vitals and physical exam: BP 162/88, HR 68, BMI 34, 2+ B/L pitting edema to mid-shin, elevated JVP, lungs clear

Labs: K<sup>+</sup> 4.2 mEq/L, Scr 1.2 mg/dL, BNP 425 pg/mL, others WNL

**What changes would you make to improve BP?**

# Patient Case #1: Changes to Consider

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Verify technique, improve CPAP adherence



Use combo meds (e.g., Benicar HCT 40/25 mg or Micardis HCT 80/25 mg)



Consider spironolactone 25 mg daily, dapagliflozin 10 mg daily, switching metoprolol to carvedilol

# Compelling Indications: Part 1

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- Post-MI: ACEI, BB?
- **HFpEF: spironolactone, SGLT-2**
- HFrEF: ARB/nephrilysin inhibitor, ACEI or ARB, BB, aldosterone antagonist, nitrate/hydralazine, SGLT-2
- Pregnant patients: labetalol, nifedipine, methyldopa
- Stable CAD: ARB or ACEI



# Bragg's Hot Take #1: Diltiazem

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Under used HTN option and has **added** benefit with amlodipine

Advantages over beta blockers:

- May preserve kidney function if unable to use ACEI/ARB
- No masking hypoglycemia or causing hyperglycemia
- Better exercise tolerance

Concerns with diltiazem:

- Constipation and avoid post MI and HFrEF
- Drug interactions (bradycardia/heart block, CYP interactions)



# Resistant Hypertension: Patient Case #2

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A 65-year-old male with a history of resistant hypertension is admitted to the hospital with a BP of 180/120 mmHg. PMH: HTN, DM2, and stage 2 CKD. His current medication regimen includes losartan 100 mg daily, amlodipine 10 mg daily, and HCTZ 25 mg daily. He claims to be adherent to this regimen. Work-up reveals severe hypertension without hypertensive emergency.

**What represents the most appropriate management?**

- A) Continue his home meds and add spironolactone 25 mg daily
- B) Start nicardipine 5 mg/hour with goal BP reduction 10–20% in 24 hours
- C) Continue his home regimen and add hydralazine 10 mg IV every 6 hours for BP > 180/100

# Patient Case #2: Avoid As Needed BP Meds in Hospitalized Noncardiac Patients w/o Emergency

Findings from studies in this population:

- No reductions in CV outcomes
- Higher likelihood of outpatient adverse effects
- Higher risk of overcorrection and ischemia while inpatient

Writing Committee Members;  
Hypertension. 2025 Oct;82(1):e212-e316.

Recommendations for Hypertensive Emergencies and Severe Hypertension in Nonpregnant and Nonstroke Patients*		
References that support recommendations are summarized in the Evidence Table.		
COR	LOE	Recommendations
1	B-NR	1. In adults with a hypertensive emergency (BP >180 and/or >120 mm Hg and evidence of acute target organ damage), admission to an intensive care unit is recommended for continuous monitoring of BP and target organ damage and for consideration of parenteral administration of appropriate therapy (Tables 26 and 27, Figure 9). <sup>1-3</sup>
1	C-LD	2. For adults with a hypertensive emergency related to a compelling condition (eg, acute aortic syndrome or acute aortic dissection), SBP should be reduced to <140 mm Hg for most conditions and to <120 mm Hg in aortic dissection during the first hour, while monitoring for other target organ dysfunction. <sup>4-7</sup>
1	C-LD	3. For adults with a hypertensive emergency but without a compelling condition, SBP should be reduced with oral or parenteral therapy by no more than 25% within the first hour; then, if stable, to <160/100 mm Hg within the next 2 to 6 hours; and then cautiously to 130 to 140 mm Hg during the next 24 to 48 hours to limit target organ injury. <sup>2,8,9</sup>
3: Harm	B-NR	4. For adults with severe hypertension (>180/120 mm Hg) who are hospitalized for noncardiac conditions without evidence of acute target organ damage, intermittent use of additional IV or oral antihypertensive medications are not recommended to acutely reduce BP. <sup>8,10,11</sup>

# Resistant Hypertension: Patient Case #3

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64 y/o female with BP of 180/110 and HR 70

PMH: HTN, DM2, CKD stage 3, OA, obesity, HLD, COPD

Social history: former smoker 30 pack year hx; gambling addition; poor medication adherence

Labs: Na 135, K+ 5.2, Scr 1.6, BUN 32, A1c 9.0%

Meds: empagliflozin 10 mg daily, insulin glargine 12 units daily, HCTZ 25 mg daily, lisinopril 40 mg daily, carvedilol 12.5 mg twice daily, amlodipine 10 mg daily, ibuprofen 600 mg TID prn

**What changes would you make to improve BP?**

# Patient Case #3: Changes to Consider

- Verify technique, social factors, adherence
- Stop ibuprofen (reduces effect of ACEI/ARB, BB, MRA, thiazides)
- Use triple combo meds (e.g., Tribenzor 40/10/25 mg or Widaplik 40/5/2.5 mg)
- Consider finerenone 10 mg daily, Lokelma 10 mg daily, stop insulin, start weekly GLP-1

## 8 Lifestyle Changes for Lower Blood Pressure

- 1 Get Moving**  
with regular physical activity.  

- 2 Focus on Nutrition**  
by making healthy food choices and minding your portion sizes.
- 3 Cut the Salt**  
Read food labels and aim for 1,500 mg of sodium or less per day.
- 4 Take Your Meds**  
If you are prescribed medicine for high blood pressure, take it every day.  

- 5 Check Your Blood Pressure**  
as often as your doctor recommends.
- 6 Lose Weight**  
Losing just 10 pounds can make a big difference.  

- 7 Cut Back Alcohol/ Don't Smoke**  
For men, not more than two drinks a day; for women, one. If you smoke, stop.
- 8 De-stress and Sleep Well**  
Relaxation can lower blood pressure, and quality sleep ups your energy.  


# Compelling Indications: Part 2

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- A fib: BB, non-dihydropyridine CCBs
- Angina: BB, CCB, long-acting nitrate
- **CKD with albuminuria: ARB or ACEI, diltiazem (if unable to do ARB/ACEI), SGLT-2, finerenone**
- CVA: thiazide + ACEI
- DM: ARB or ACEI
- Gout: CCB, losartan



# Bragg's Hot Take #2: Amiloride

- Good alternative to spironolactone for resistant HTN
- Possibly a lower hyperkalemia risk
- Less data in patients w/ CKD, heart failure, diabetes



JAMA | **Original Investigation**

## Spironolactone vs Amiloride for Resistant Hypertension A Randomized Clinical Trial

Chan Joo Lee, MD; Sang-Hyun Ihm, MD; Dong-Ho Shin, MD; Jin-Ok Jeong, MD; Ju Han Kim, MD;  
Kyeong-Hyeon Chun, MD; JiWung Ryu, MD; Hae-Young Lee, MD; Seonghoon Choi, MD; Eun Mi Lee, MD;  
Jung Hyun Choi, MD; Kwang-Il Kim, MD; Jinho Shin, MD; Wook Bum Pyun, MD; Dae-Hee Kim, MD;  
Sungha Park, MD; Bryan Williams, MD

**CONCLUSIONS AND RELEVANCE** Amiloride was noninferior to spironolactone in lowering home SBP, suggesting that it could be an effective alternative for treatment of resistant hypertension.

Lee CJ, et al. JAMA. 2025;333(23):2073–82.

# Resistant Hypertension: Patient Case #4

A 62-year-old male with a history of resistant hypertension presents for evaluation. His current medication regimen includes: lisinopril 40 mg daily, amlodipine 10 mg daily, chlorthalidone 25 mg daily, and spironolactone 25 mg daily. Despite adherence to this regimen, his BP remains elevated (~155/95 mm Hg) and HR is 84. He has a BMI of 32 kg/m<sup>2</sup>, a history of type 2 diabetes mellitus, and chronic kidney disease stage 3 (eGFR 45 mL/min/1.73 m<sup>2</sup>). His urine ACR is 250 mg/g and other labs are WNL. What are the best BP meds to add for this patient?



# Patient Case #4: Aprocitentan (Tryvio)?

First in class option for resistant hypertension

MOA: blocks endothelin (ET)-1 from binding endothelin receptors ET<sub>A</sub> and ET<sub>B</sub> to cause vasodilation

Roles

- Resistant HTN not controlled on other options
- Different side effect potential and serious ADEs

Schlaich MP, et al.  
Lancet. 2022;  
400(10367):1927–1937.

## Efficacy

TRYVIO significantly reduced systolic blood pressure by targeting the endothelin pathway<sup>1</sup>

In patients taking TRYVIO and at least 3 blood pressure medications (n=243), TRYVIO demonstrated statistically superior blood pressure reductions vs placebo<sup>1</sup>

Primary endpoint: change in sitting SBP (SiSBP) from baseline to week 4<sup>1</sup>

WEEK 4 SITTING TROUGH SBP



**15.4** mm Hg<sup>a</sup>

97.5% CL, (-17.5, -13.3)

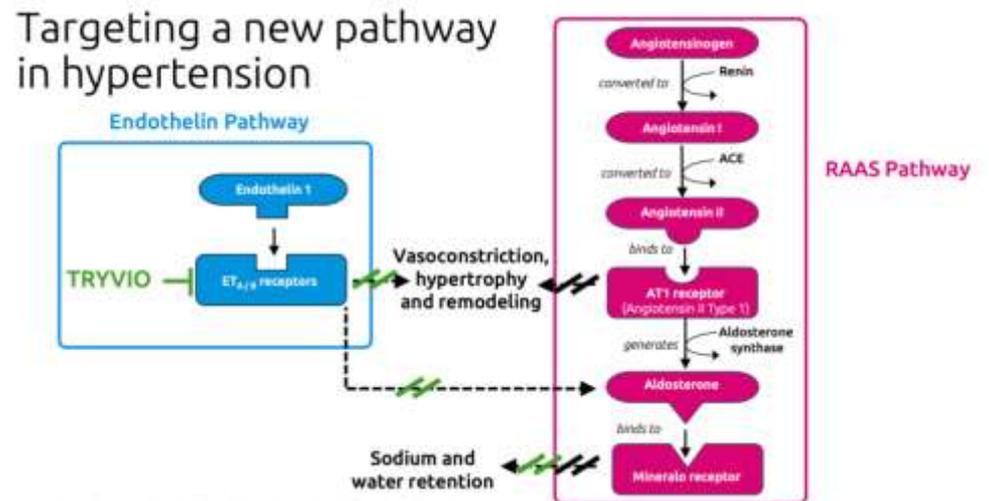
- Reduction in sitting trough SBP for the placebo with antihypertensive background therapy group (n=244) was 11.6 mm Hg for a difference of 3.8 vs TRYVIO (97.5% CL, [-6.8, -0.8]; P=0.0043).<sup>1,b</sup>

# Aprocitentan (Tryvio): Endothelin Receptor Antagonist

Aprocitentan works similarly to ambrisentan (Letairis) used for PAH

Aprocitentan blocks  $ET_A$  (lung) and  $ET_B$  (systemic) receptors vs. ambrisentan which selectively blocks  $ET_A$  receptors

Dosing: 12.5 mg daily



Schlaich MP, et al. Lancet. 2022; 400(10367):1927–1937.

# Aprocitentan (Tryvio): STEPS

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Safety: common ADEs (e.g., fluid retention, peripheral edema); serious ADEs (e.g., hepatotoxicity, decreased Hgb, embryo-fetal toxicity)

Tolerability: generally tolerable more ADEs at higher doses so only recommended to use 12.5 mg daily

Effectiveness: mean systolic BP lowering of 15.4

Price: expensive (> \$700); poor insurance coverage

Simplicity: simple with daily use with or w/o food

Tryvio has Unrestricted Access for 6% of Commercial lives in Charleston, SC

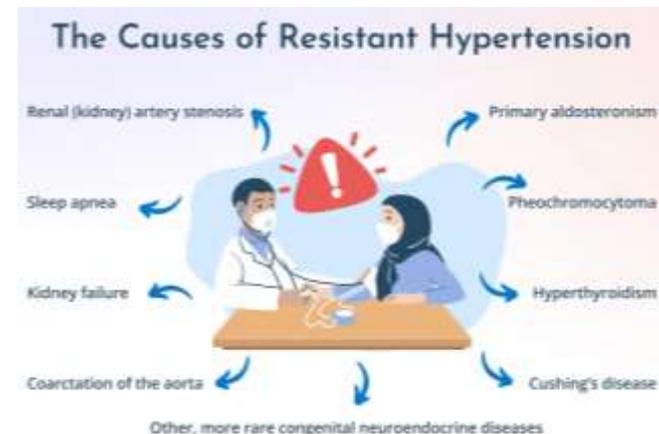


# Patient Case #4: Resistant HTN Considerations

A 62-year-old male with a history of resistant hypertension presents for evaluation. His current medication regimen includes: lisinopril 40 mg daily, amlodipine 10 mg daily, chlorthalidone 25 mg daily, and spironolactone 25 mg daily. Despite adherence to this regimen, his BP remains elevated (~155/95 mm Hg) and HR is 84. He has a BMI of 32 kg/m<sup>2</sup>, a history of type 2 diabetes mellitus, and chronic kidney disease stage 3 (eGFR 45 mL/min/1.73 m<sup>2</sup>). His urine ACR is 250 mg/g and other labs are WNL.

## Consider Tryvio, but likely pick other options

- Carvedilol 6.25 mg twice daily
- Guanfacine 1 mg daily
- Hydralazine 25 mg 2–3 x day
- Renal denervation



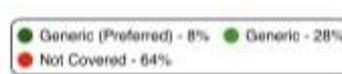
# Daily Carvedilol ER vs. Twice Daily IR?

- Carvedilol ER (carvedilol phosphate) is probably underused
- May improve adherence provided its covered-on insurance
- Not well covered by Medicare

Carvedilol Phosphate has Unrestricted Access for 85% of Commercial lives in Charleston, SC



Carvedilol Phosphate has Unrestricted Access for 36% of Medicare lives in Charleston, SC



Carvedilol	
Immediate (IR)	Extended (CR)
3.125 mg BID	10 mg daily
6.25 mg BID	20 mg daily
12.5 mg BID	40 mg daily
25 mg BID	80 mg daily
Mixed alpha/beta blocker	

# Bragg's Hot Take #3: Oral Clonidine

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Never use oral clonidine (short half-life leads to rebound HTN)

Prefer guanfacine if needing an alpha-2 agonist

- Longer half-life with less rebound HTN
- Similar BP lowering (start 1 mg, titrate to 2 mg)
- Fewer side effects (dose at bedtime)



Consider topical clonidine if oral access is an issue

# References

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- Agarwal R, et al. NEJM. 2021;385:2507–19.
- Bangalore S, et al. Mayo Clin Proc. 2016;91(1):51–60.
- de Jager RL, et al. Br J Clin Pharmacol. 2018 Jan;84(1):18-24.
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- Writing Committee Members; Hypertension. 2025 Oct;82(1):e212-e316.

# Questions?

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# Bonus: Patient Case #5



**HPI:** A 32-year-old female presents 8 months postpartum. She had gestational hypertension treated with nifedipine during pregnancy. She stopped all medications after delivery as instructed. Now has persistent BP averaging 145/92 at home. She stopped breastfeeding 2 months ago.

**PMH:** gestational HTN (this pregnancy), adiposity-based chronic disease (BMI 33)

**FH:** mother with HTN, father with DM2

**Labs:** Scr 0.9, eGFR 95, K+ 4.1, A1c 5.9%, urine ACR 45 mg/g (H), TC 205, LDL 130, HDL 42, TG 165

**Questions:** What's her long-term CV risk? How does gestational HTN affect management? What would you start?

# Patient Case #5: Postpartum HTN Long-Term Risk

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## Long-term risk implications:

- Gestational HTN → 2–3 x ↑ risk future chronic HTN
- 2x ↑ risk of CVD
- Urine ACR 45 mg/g (CKD?)
- Now a “high risk” patient

## PREVENT risk assessment:

- Age 32, but multiple risks
- ABCD (BMI 33)
- Albuminuria (ACR 35)
- Pre-DM (A1c 5.9%)



## Results for CVD

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Estimated **10-year**  
risk of CVD

**1.7%**

Estimated **30-year**  
risk of CVD

**10.3%**

# Patient Case #5: Postpartum HTN Treatment

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## Strategies to reduce CV risk:

- Start Olmesartan 20 mg daily vs. telmisartan 40 mg daily
- Add amlodipine vs. thiazide in a combo med if not at goal
- Considerations: statin, aspirin 81 mg daily, 10% weight loss, contraception prevention

## Preconception counseling:

- Stop ARB/ACEI before attempting pregnancy and restart nifedipine and/or labetalol
- Aspirin 81 mg at 12 weeks



## Bonus: Patient Case #6



**HPI:** A 38-year-old male attorney presents requesting an annual well check. Feels healthy but anxious about health. Clinic BP 118/76 mmHg (correct technique) but home readings 130–135/80–85.

**PMH:** anxiety (takes escitalopram 10 mg), ABCD (BMI 31)

**FH:** mom with HTN and stroke at 62, dad with DM2 and MI at 58

**SH:** attorney at high-stress firm working 60–70 hours/week, sleeps 5–6 hours/night, 2–3 glasses of wine nightly to unwind, no exercise

**Patient question:** My BP is fine in clinic, but I'm worried about my home readings and family history. Should I be on medication?

# Patient Case #6: Masked Hypertension

Estimated **10-year**  
risk of CVD

**1.7%**

Estimated **30-year**  
risk of CVD

**11.5%**

## Strategies to reduce CV risk:

- Confirm BP with 24-hour ambulatory BP monitoring
- If average  $> 130/80$ , CV risk 2x higher vs. normal BP plus family history further elevates risk
- Likely prioritize aggressive lifestyle + meds: start olmesartan 20 mg daily vs. telmisartan 40 mg daily
- Add amlodipine vs. thiazide in a combo med if not at goal
- Considerations: stress management, increase sleep, reduce alcohol, exercise, weight loss