Hypertension 2026: Incorporating ACC/AHA guidelines into practice

Wendy L. Wright,
DNP, ANP-BC, FNP-BC, FAANP, FAAN, FNAP

1

Wendy L. Wright
DNP, ANP-BC, FNP-BC, FAANP, FAAN, FNAP

Adult/Family Nurse Practitioner
Owner – Wright & Associates Family Healthcare Amherst, NH
Owner – Partners in Healthcare Education, LLC
Faculty, Fitzgerald Health Education Associates, Lawrence, MA

2

2

Disclosures

- Sanofi, Pfizer, Moderna, Seqirus, and Merck:
  - Advisory Board and Speaker bureau
  - Vaccines
- AstraZeneca
  - Advisory Board and Speaker bureau
  - Asthma and COPD
- Exact Sciences
  - Advisory Board and Speaker bureau
  - Colorectal cancer
- Axsome
  - Speaker bureau
  - Migraines and Major Depressive Disorder
- AbbVie
  - Advisory Board
  - Migraines
- Pfizer
  - Speaker bureau
  - Migraines
- GSK
  - Consultant
  - OA and Pain; and Vaccines

All relevant financial disclosures have been mitigated.

3

3

Objectives

- At the end of this presentation, the participant will be able to:

1. Identify complications associated with hypertension.
2. Discuss the newest JNC VIII vs. AHA/ACC hypertension guidelines as they pertain to pharmacologic treatment options.
3. Review the pharmacologic treatment options for patients with hypertension.

4

4

Tips

- References
  - Listed throughout and at the end of the presentation

5

5

Impact of Hypertension[1]

- Hypertension is the most common condition seen in primary care.
- **119.9 million** American adults (**47.7**%) have high blood pressure – that's 1 of every 2 adults/
- Only 1 out 4 Americans have their blood pressure under control.
- 500,000 deaths annually in the U.S. due to hypertension

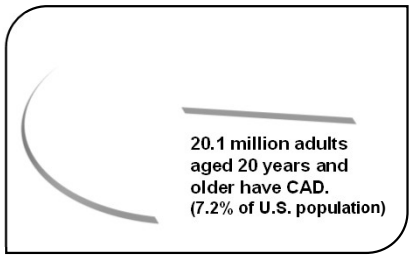
https://www.cdc.gov/high-blood-pressure/data-research/facts-stats/index.html accessed 01-15-2026

Image source: From PNGWING. Com. BP sphygmomanometer. (https://www.pngwing.com/en/free-png-njyuf) In the public domain

6

6

CVD is the most common health problem in the United States.[1,2]



7

7

Evolution in Understanding Cardiovascular Disease: Total Risk Perspective[3, 4]

Cardiovascular disease is an interplay of risk factors.

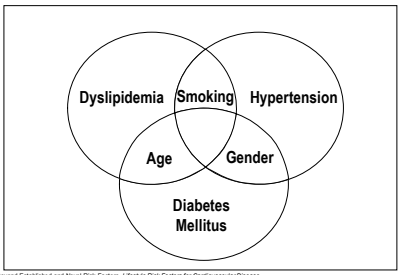


Image source: Adapted from Mozaffarian, D., Wilson, P, and Kannel, WB. (2008, June) Beyond Established and Novel Risk Factors. *Lifestyle Risk Factors for Cardiovascular Disease* https://doi.org/10.1161/CIRCULATIONAHA.107.738733Circulation. 2008;117:3031–3038; Koene, RJ., Prizment, AE., Blaes, A, and Konety, SH. Shared Risk Factors in Cardiovascular Disease and Cancer. https://doi.org/10.1161/CIRCULATIONAHA.115.020406Circulation. 2016;133:1104–1114; Donald, M., Lloyd-Jones, Schl., Nam, B-H. et al. Author Affiliations. Parental Cardiovascular Disease as a Risk Factor for Cardiovascular Disease in Middle-aged Adults A Prospective Study of Parents and Offspring.JAMA. 2004;291(18):2204-2211. doi:10.1001/jama.291.18.2204

8

8

It is currently estimated that…

- For a 45-year-old adult without hypertension, 40-year risk for developing is…
  - 93% for Black individuals
  - 92% for Hispanic individuals
  - 86% for White individuals
  - 84% for Asian individuals

9

9

Hypertension remains one of the most important multipliers of CV risk.

- Hypertension is the most prevalent cause of stroke worldwide.[3]
- Studies show a positive linear relationship between blood pressure and incidence of cardiovascular disease.[4]
- Hypertension is a leading risk factor for kidney disease.[5]

10

10

Case Study – MS

62-year-old female – **PE 3 months ago**

Vital signs

- Temp: 97.9°F (36.6 °C)
- Pulse: 84 bpm
- RR: 16 bpm
- BP:142/94 mm Hg
- BMI: 32 kg/m^2
- Eye: Retinal examination normal
- AAO, smiling, conversant
- Carotids: 2+ bilaterally, no bruits
- Heart: S_1S_2, RRR, no S_3, S_4, murmurs
- PV: DPPT – 2+ bilaterally without edema

11

11

Case Study – MS (continued)

62-year-old female – **Today's visit**

Vital signs

- Pulse: 88 bpm
- BP:160/94 mm Hg
- BMI: 32 kg/m^2
- Eye: Retinal examination normal
- AAO, smiling, conversant
- Carotids: 2+ bilaterally, no bruits
- Heart: S_1, S_2, RRR, no S_3, S_4, murmurs
- PV: DPPT – 2+ bilaterally without edema

12

12

2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

https://www.ahajournals.org/doi/10.1161/HYP.0000000000000249

13

13

Diagnosis

Use the average of 2 or more readings obtained on 2 or more occasions to estimate the individual's BP.

14

14

Selection Criteria for BP Cuff Size for Measurement of BP in Adults

Arm Circumference	Usual Cuff Size
22–26 cm	Small adult
27–34 cm	Adult
35–44 cm	Large adult
45–52 cm	Adult thigh

15

15

Additional Recommendations

- Out of the office and self-monitoring of BP are recommended to confirm the diagnosis and for titration of BP-lowering medications.
- For adults with untreated systolic BP of >130 mm Hg but <160 mm Hg or diastolic BP >80 mm Hg but <100 mm Hg, it is reasonable to screen for white coat hypertension using ABPM or HBPM prior to diagnosis.

16

16

Corresponding Values of SBP/DBP for Clinic, HBPM, Daytime, Nighttime, and 24-Hour ABPM Measurements*

Clinic	HBPM	Daytime ABPM	Nighttime ABPM	24-Hour ABPM
120/80	120/80	120/80	100/65	115/75
130/80	130/80	130/80	110/65	125/75
140/90	135/85	135/85	120/70	130/80
160/100	145/90	145/90	140/85	145/90

Measurement of units: mm Hg
*Ambulatory blood pressure monitoring (ABPM); blood pressure (BP); DBP diastolic blood pressure; home blood pressure monitoring (HBPM); and systolic blood pressure (SBP).

17

17

Categories of BP in Adults*

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

*Individuals with SBP and DBP in 2 categories should be designated to the higher BP category. Blood pressure (BP) based on an average of ≥2 careful readings obtained on ≥2 occasions, as detailed in diastolic blood pressure (DBP); and systolic blood pressure (SBP).

18

18

Case Study – MS (continued)

- ≥60 years of age
- 2 readings confirm diagnosis.
- Benign essential hypertension
  - Stage 2
  - What does this mean for treatment?

19

19

Basic and Optional Laboratory Tests for Primary Hypertension

Basic Testing	**Fasting blood glucose or A1C**
	Complete blood count
	Lipid profile
	Serum creatinine with eGFR*
	Serum sodium, potassium, calcium*
	Urine albumin creatinine ratio (UACR)
	Urinalysis
	Electrocardiogram
	TSH
Optional	Echocardiogram

*May be included in a comprehensive metabolic panel.
Estimated glomerular filtration rate (eGFR)

20

20

Treatment of Hypertension

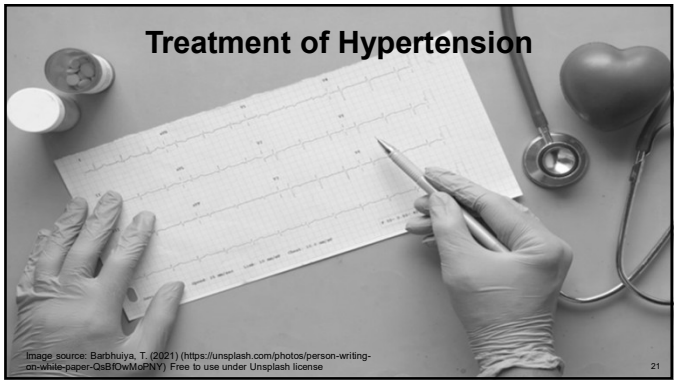
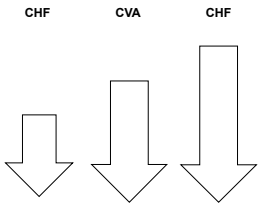


Image source: Barbhuiya, T. (2021) (https://unsplash.com/photos/person-writing-on-white-paper-QsBfOwMoPNY) Free to use under Unsplash license

21

21

Benefits of Lowering Blood Pressure[6]



Average Percent Reduction

CVA: 26%
CV events/MI: 41%
CHF: 37%
Renal failure: 28%
All cause mortality: 35%

22

22

Case Study – MS (continued)

How should she be treated?

23

23

Lifestyle modification is important!

- DASH diet
- Weight loss
- Low sodium
- Exercise
- Quitting smoking
- Alcohol modification

24

24

Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension*[7, 8, 9]

	Nonpharmacological Intervention	Dose	Approximate Impact on SBP	
			Hypertension	Normotension
Weight loss	Weight/body fat	Best goal is ideal body weight but aim for at least a 1 kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1 kg reduction in body weight.	-5 mm Hg	-2/3 mm Hg
Healthy diet	DASH dietary pattern	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat.	-11 mm Hg	-3 mm Hg
Reduced intake of dietary sodium	Dietary sodium	Optimal goal is <2300 mg/d; ideal is < 1500 mg/d	-5/6 mm Hg	-2/3 mm Hg
Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg

*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension.; Dietary Approaches to Stop Hypertension (DASH); and systolic blood pressure (SBP).

25

25

Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension* [7, 8, 9](cont.)

	Nonpharmacological Intervention	Dose	Approximate Impact on SBP	
			Hypertension	Normotension
Physical activity	Aerobic	• 90–150 min/wk • 65%–75% heart rate reserve	-5/8 mm Hg	-2/4 mm Hg
	Dynamic resistance	• 90–150 min/wk • 50%–80% 1 rep maximum • 6 exercises, 3 sets/exercise, 10 repetitions/set	-4 mm Hg	-2 mm Hg
	Isometric resistance	• 4 × 2 min (hand grip), 1 min rest between exercises, 30%–40% maximum voluntary contraction, 3 sessions/wk • 8–10 wk	-5 mm Hg	-4 mm Hg
Moderation in alcohol intake	Alcohol consumption	In individuals who drink alcohol, reduce alcohol† to: • Men: ≤2 drinks daily • Women: ≤1 drink daily	-4 mm Hg	-3 mm

*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension.
†In the United States, one "standard" drink contains roughly 14 g of pure alcohol, which is typically found in 12 oz (0.35 L) of regular beer (usually about 5% alcohol), 5 oz (0.15 L) of wine (usually about 12% alcohol), and 1.5 oz (0.04 L) of distilled spirits (usually about 40% alcohol).

26

26

When to initiate pharmacologic therapy

- All individuals with blood pressure of ≥140/90
- All individuals with a blood pressure of ≥130/80 with any of the following:
  - Cardiovascular disease, previous CVA, CHF
  - Diabetes
  - CKD
  - 10-year predicted cardiovascular risk of ≥ 7.5% defined by PREVENT (this can be found in MD Calc app)

27

27

Important to Note

- In adults with average blood pressure ≥ 130/80 mm Hg and at lower 10-year cardiovascular disease risk defined by PREVENT of < 7.5%, blood pressure medication should be initiated if blood pressure remains ≥ 130/80 mm Hg after 3-6 months of lifestyle modification.

28

28

Treatment and Follow-up Recommendations

SBP ≥160 mm Hg or DBP ≥100 mm Hg

- Initiate nonpharmacologic and 2 antihypertensives out of the gate.
- Careful monitoring; within days

29

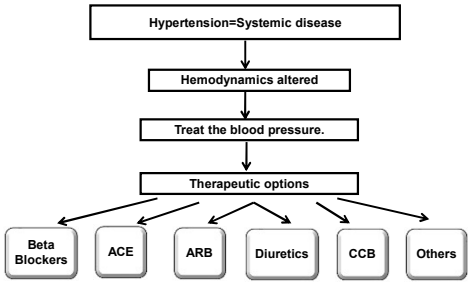
29

Treatment Options

30

30

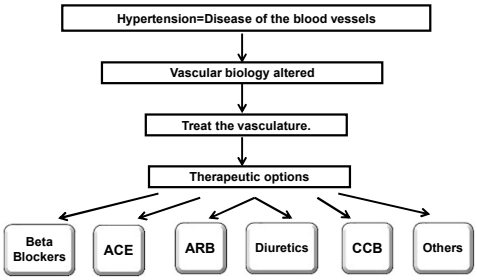
Hypertension and Management: Old School



31

31

Hypertension and Management: New School



32

32

Medications for Hypertension Treatment

- Generally accepted that the first **three medication classes** are…
  1. ACE or ARB**
  2. Long acting dihydropyridine CCB
  3. Thiazide diuretic (HCTZ vs. chlorthalidone)

**First line option for patient with DM + HTN +CKD; or HTN + CKD

33

33

Thiazide Diuretics

Dosing
- Start @ 12.5 mg of HCTZ.
- Increase to 25 mg at 6 weeks.

- Benefits
  - 55% reduction in CHF
  - 37% reduction in CVA
  - 27% reduction in cardiac events
- If not adequately controlled, add additional agents.

34

34

Chlorthalidone

- Making a come back into thiazide arena; preferred in 2017 guidelines
- Dosage: 25 mg once daily
- Longer half life and more potent than HCTZ
- Chlorthalidone and thiazide diuretics
  - May be associated with a 21% decrease in fracture risk compared with lisinopril and amlodipine[4]

35

35

Decreased Efficacy

- When GFR decreases below 30 mL/min, thiazide diuretics are likely ineffective.
- Consider changing to loop diuretic at that time
  - Torsemide is the preferred loop diuretic

36

36

Diuretic Precautions

- Electrolyte imbalances
- Syncope/presyncope when combined with ACE/ARB
- Hemoconcentration
- Decrease in urate excretion
- Worsening of insulin resistance at higher doses
- Fatigue

37

37

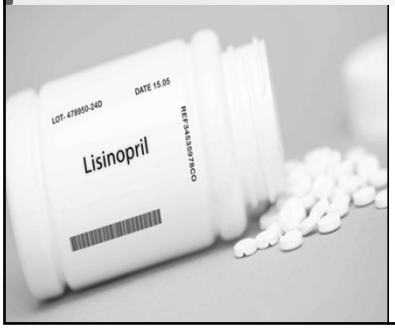
Diuretic Guidance: Resistant Hypertension

- Maximize diuretic therapy
- Use loop diuretics in individuals with CKD ***+/or*** those receiving potent vasodilators.

38

38

Angiotensin Converting Enzyme (ACE) Inhibitors[5]



- Increased nitrous oxide at vessel for vasodilatation
- Improved glucose disposal
- Reduction in LV geometry changes
- Reduction in inflammation

39

39

Angiotensin Converting Enzyme (ACE) Inhibitors[5] (continued)

- Stabilization of fibrous cap of lipid lesion
- Decreased proteinuria
- Improves endothelial function
- Reduced mortality in patients with CHF
- Decreases post-MI mortality

40

40

ACE Inhibitors Precautions[6]

- Hyperkalemia
- Increase in creatinine
- May improve insulin sensitivity
- Decrease in serum Na+ may result in syncope and dizziness when used with diuretics

- Angioedema
- Cough
- Category D in pregnancy

41

41

Angioedema

- New statement in ACC guideline:
  - If the patient has history of angioedema to ACEi, wait 6 weeks after the ACEi is discontinued and then, an ARB may be initiated.

42

42

Angiotensin Receptor Blockers

43

43

Angiotensin Receptor Blockers (ARBs)

- Utilized since April 1995
- Blocks uptake at receptor site
- Angiotensin II produced in locations other than in the lungs
- BP decreased by reducing vascular tone and enhancing NA+ and water clearance

44

44

Metabolic Effects of ARBs[7]

Angiotensin II Receptor Blockers

Metabolically neutral	No impact on lipids
No impact on insulin	No impact on K+
Lowers uric acid levels	Minimal adverse effect profile

45

45

ACE vs. ARB ONTARGET Trial[8]

Goal:	**1. Assess the effects of ACE vs. ARB in terms of efficacy.** **2. Assess if the combination ACE and ARB was superior.**
Results:	Telmisartan was found to be "noninferior" to ramipril in patients with vascular disease or high-risk diabetes.
	Combination of these two agents was associated with more adverse events without an increase in benefit.

46

46

Long-acting Calcium Channel Blockers

47

47

Calcium Channel Blockers[9, 10]

- Effectively treat systolic hypertension
- May be superior to other antihypertensives for stroke prevention
- Effective in patients with comorbid conditions (i.e., Raynaud's)
- Particularly effective in older adults and individuals of color

48

48

The Calcium Blockers (continued)

- LA-Dihydropyridines (DPH): considered first line
  - Studies of DPHs effect on proteinuria have produced conflicting results.
  - NKF recommends that in patients who have diabetes and kidney disease, DPHs should only be used in combination with and ACE or ARB.
  - Dose dependent edema; > in women than men

49

49

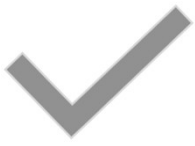
The Calcium Blockers (continued)

- Non-dihydropyridines
  - Regression of proteinuria
  - Combination of verapamil + ACE, reduction in proteinuria can be greater than achievable with verapamil alone
  - Do not use with beta blockers
  - Do not use in patient with HFrEF
  - CYP450 interactions

50

50

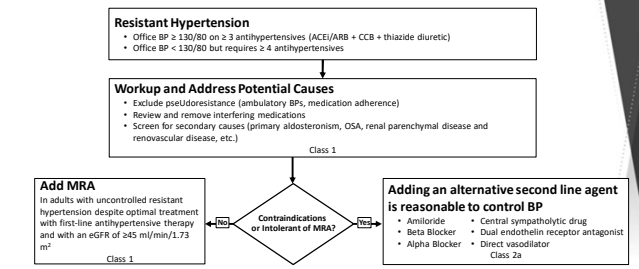
What is next?



51

51

Management of Resistant Hypertension



Abbreviations: ACEi indicates Angiotensin Converting Enzyme inhibitors; ARB, Angiotensin Receptor Blocker; BP, blood pressure; CCB, Calcium Channel Blocker; eGFR, estimated glomerular filtration rate; MRA, mineralocorticoid receptor antagonist; and OSA, obstructive sleep apnea.

Jones, D.W., et al. (2025). 2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. *Circulation*.

52

52

Most Common Secondary Causes

Lifestyle issues (substance use disorder)	Medications which interfere with antihypertensive efficacy (NSAIDS)	Sleep apnea	Pheochromocytoma
Hyperthyroidism	Cushing's syndrome	Chronic kidney disease (CKD), polycystic kidney disease	Hyperaldosteronism

53

53

2025: Updates

- In adults with resistant hypertension, screening for primary hyperaldosteronism is important and recommended

54

54

Laboratory Tests

- Check aldosterone level via plasma or 24-hour urine.
- Check plasma renin activity (PRA).
  - Primary hyperaldosteronism will have increased aldosterone production associated with a decreased PRA.
  - Patients with secondary hyperaldosteronism (that is, caused by kidney disease or renal vascular disease) will have increased plasma levels of renin and aldosterone.
- 24-hour urinary metanephrines or plasma free metanephrines (normetanephrine and metanephrine) if a pheochromocytoma is suspected.

55

55

National Institute for Health and Care Excellence (NICE) Guidelines[12]

- Spironolactone therapy as a fourth-line agent in patients with potassium of <4.5 mmol/L who are likely to respond to a mineralocorticoid receptor blocker.
- For patients with potassium of >4.5 mmol/L, it is recommended that the existing diuretic (thiazide or thiazide-like) be doubled.

56

56

Add a mineralocorticoid.

Options

- Spironolactone
- Eplerenone
- Finerenone

57

57

Aldosterone Antagonists

- Spironolactone (Aldactone®)
- HCTZ/spironolactone (Aldactazide®)
- Eplerenone (Inspra®)

58

58

Aldosterone Antagonists (continued)

- Spironolactone or eplerenone is preferred in treatment of primary aldosteronism and in resistant hypertension.

- May be recommended in the following individuals:[13, 14]
  - Post MI
  - NYHA Class III or IV
  - Ejection fraction of <35%
  - Serum creatinine of <2.5 mg/dL (221 µmol/L)
  - K+ <5.0 mEq/L (5 mmol/L)

59

59

Resistant Hypertension

- Once these agents have been used, then consider other classes of medications with different mechanism of action.
  - Amiloride
  - Beta blockers
  - Alpha blockers
  - Central sympatholytic drug
  - Dual endothelin receptor antagonist
  - Direct vasodilator

60

60

Amiloride

- Class: diuretic, potassium-sparing
  - Inhibits sodium reabsorption at distal convoluted tubule, cortical collecting tubule and collecting duct
    - Reduces water reabsorption and increases potassium retention
  - Dosage: 5 – 10 mg once daily with food. Maximum: 20 mg daily
  - Important:
    - Hyperkalemia and hyponatremia
    - Can decrease renal perfusion

61

61

Beta Blockers

- More cardioselective beta blockers are preferred.
  - Bisoprolol and metoprolol succinate
  - Carvedilol (alpha and beta receptor activity) preferred in HFrEF.
  - Monitor heart rate.

- Not first-line unless CAD or HFrEF
  - Do not use with non-dihydropyridine CCBs.
  - Should not be abruptly discontinued

62

62

Alpha Blockers

63

63

Alpha Blockers

- End in -azosin
- Block postsynaptic alpha-1 receptors
- Results in vasodilatation and can cause orthostatic hypotension
- Relatively inexpensive

- Additive agent for older men to decrease BPH symptomatology
- Add-on agent only
- Should never be used as monotherapy due to increased risk of stroke and CHF

64

64

Central Agonists

65

65

Centrally Acting Agents

- Prevent vasoconstriction
- Can cause orthostatic hypotension, sedation, dry mouth
- Examples
  - Alpha methyldopa (Aldomet®)
  - Clonidine hydrochloride (Catapres®): taper off – rebound hypertension
  - Guanfacine hydrochloride (Tenex®*)

66

66

Centrally acting sympatholytic drug

- Reduce blood pressure by decreasing the activity of the sympathetic (adrenaline-producing) portion of the involuntary nervous system.
- Methyldopa is considered a first-line antihypertensive during pregnancy because adverse effects are infrequent for the pregnant woman or the developing fetus.

67

67

Aprocitentan (Tryvio)

- Name: aprocitentan (Tryvio)
- Class:
  - Endothelin receptor antagonist (ERA) which inhibits the binding of endothelin (ET)-1 to ETA and ETB receptors.
    - ET-1, via its receptors (ETA and ETB), causes a variety of effects such as vasoconstriction, fibrosis, cell proliferation, and inflammation.
    - In hypertension, ET-1 can cause endothelial dysfunction, vascular hypertrophy and remodeling, sympathetic activation, and increased aldosterone synthesis.
  - This medication will inhibit the effect of ET-1

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024

68

68

Aprocitentan

- Indication:
  - Endothelin receptor antagonist indicated for the treatment of hypertension in combination with other antihypertensive drugs, to lower blood pressure in adult patients who are not adequately controlled on other drugs.
- Dosage: 12.5 mg once daily with or without food
  - 25 mg dose WAS STUDIED BUT NOT APPROVED
    - No benefit over the 12.5 mg dose; but did show higher edema and fluid retention

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024

69

69

Aprocitentan

- Efficacy
  - Precision trial
  - Inclusion criteria: Adults with SBP ≥140 mmHg who were prescribed at least three antihypertensive medications
  - 15.4 mm drop in systolic blood pressure at week 4
  - 10.4 mm drop in diastolic blood pressure at week 4
- Drug/drug interactions:
  - No significant drug/drug interactions were seen nor expected

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024[70]

70

Aprocitentan

- Warnings and Precautions
  - ERAs cause hepatotoxicity and liver failure
    - Measure serum aminotransferase levels and total bilirubin prior to initiation of treatment and repeat periodically during treatment
  - Fluid retention may require intervention
  - Decreases in hemoglobin
  - Decreased sperm counts
  - Avoid in end stage liver and kidney disease (has not been studied)

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024[71]

71

Aprocitentan

- Contraindications
  - Pregnancy: can cause major birth defects
    - If capable of pregnancy, obtain negative pregnancy test before initiating medication
    - Should be on a very reliable form of contraception
    - Female rats given macitentan (for which aprocitentan is a major metabolite) from late pregnancy through lactation showed reduced pup survival and impairment of the male fertility of the offspring at all doses
  - REMS PROGRAM HAS BEEN REMOVED
  - PACKAGE INSERT IS COMPREHENSIVE ENOUGH FOR PRESCRIBERS

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024[72]

72

Aprocitentan

- Adverse reactions
  - Edema and fluid retention (drug vs. placebo)
    - 9.1% vs. 2.1%
  - Anemia:
    - 3.7% vs. 0%
- Cost:
  - 775.00 for 30 pills

https://www.idorsia.us/dam/jcr:d834ee09-2e6c-443d-b3ac-c111e38f0990/tryvio_pi.pdf accessed 08-01-2024[73]

73

Vasodilators

- Examples: Hydralazine and minoxidil
- Hydralazine can cause headaches, edema, palpitations.
- Minoxidil should only be used for resistant hypertension and in men due to hair growth.
  - Associated with edema

74

74

Hypertensive Urgency vs. Hypertensive Emergency[16]

Urgency

- BP >180/120 mm Hg
- No TOD
- Often asymptomatic but may have headache
- Adjust oral medications and follow-up within one to a few days

Emergency

- BP >180/120 mm Hg
- + TOD
- IV medication indicated
- Goal: Reduce mean arterial pressure by 25% in 1-hour.
- Monitored in ICU

75

75

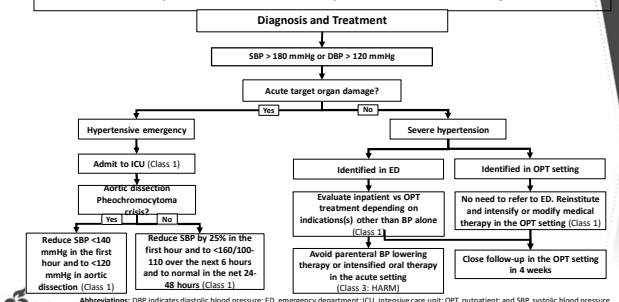
New Terminology: 2025

- Severe hypertension now replaces the term hypertensive urgency

76

76

Severe Hypertension and Hypertensive Emergencies



Abbreviations: DBP indicates diastolic blood pressure; ED, emergency department; ICU, intensive care unit; OPT, outpatient; and SBP, systolic blood pressure.

Jones, D.W., et al. (2025). 2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. Circulation.

77

77

2025: Renal Denervation

- This should be considered when other therapies are ineffective in patients with resistant hypertension
- Prior to procedure, they should be evaluated by a multidisciplinary team who specializes in resistant hypertension and this procedure

78

2017 Hypertension Guidelines

Special Patient Groups

79

79

Pregnancy

- Women with hypertension who are or plan to become pregnant should be transitioned to one of the following:
  - Methyldopa
  - Nifedipine
  - Labetalol
- Women with hypertension who become pregnant should not be treated with ACE inhibitors, ARBs, or direct renin inhibitors.

80

80

Combination Therapy

Image source:Pixabay. (https://www.pexels.com/photo/close-up-photo-of-medicinal-drugs-159211/) Free to use CCO

81

81

Choice of Initial Monotherapy Versus Initial Combination Drug Therapy

- Initiation of antihypertensive drug therapy with 2 first-line agents of different classes, either as separate agents or in a fixed-dose combination, is recommended in adults with stage 2 hypertension and an average BP more than 20/10 mm Hg above their BP target.

- Initiation of antihypertensive drug therapy with a single antihypertensive drug is reasonable in adults with stage 1 hypertension and BP goal <130/80 mm Hg with dosage titration and sequential addition of other agents to achieve the BP target.

82

82

Sprint Trial[19]

- Compares standard hypertensive treatment vs. intensive treatment
- 9300+ patients
- Goal
  - Standard <140 mm/Hg
  - Intensive <120 mm/Hg

- Primary end point – MI, CVA, CHF, death
- Stopped early at 3.26 years
  - 1.65% /year vs. 2.19% /year
  - All cause mortality decreased as well

83

83

Medication Adherence

- Significant problem in United States
- Factors which affect adherence rates…
  - Uninsured
  - Cost of medication
  - Multiple pills vs. one combined medication
  - Number of pharmacy visits
  - Patients who do not monitor BP at home

84

84

Hypertension is more than a number!

85

85

Target Organ Damage[20]

- Heart
  - LVH, angina, CHF, MI
- Brain
  - Stroke or TIA
  - Dementia
- Chronic kidney disease
- Peripheral vascular disease
- Retinopathy

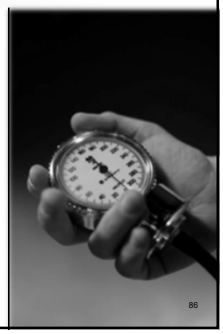


Image source: Cottonbro. (https://www.pexels.com/photo/close-up-photo-of-a-person-holding-a-sphygmomanometer-gauge-6203474/) Pexels license

86

86

BP Thresholds for and Goals of Pharmacological Therapy in Patients With Hypertension According to Clinical Conditions[9]

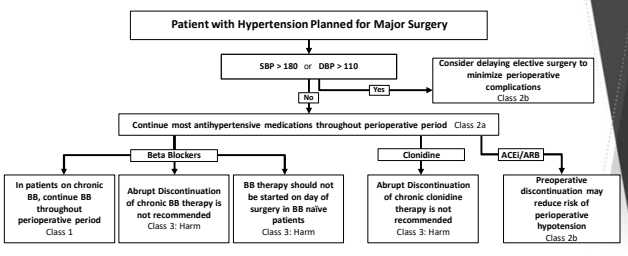
Clinical Condition(s)	BP Threshold, mm Hg	BP Goal, mm Hg
General		
Clinical CVD or 10-year ASCVD risk ≥10%	≥130/80	<130/80
No clinical CVD and 10-year ASCVD risk <10%	≥140/90	<130/80
Older persons (≥65 years of age; noninstitutionalized, ambulatory, community-living adults)	≥130 (SBP)	<130 (SBP)
Specific comorbidities		
Diabetes mellitus	≥130/80	<130/80
Chronic kidney disease	≥130/80	<130/80
Chronic kidney disease after renal transplantation	≥130/80	<130/80
Heart failure	≥130/80	<130/80
Stable ischemic heart disease	≥130/80	<130/80
Secondary stroke prevention	≥140/90	<130/80
Secondary stroke prevention (lacunar)	≥130/80	<130/80
Peripheral arterial disease	≥130/80	<130/80

ASCVD indicates atherosclerotic cardiovascular disease; BP, blood pressure; CVD, cardiovascular disease; and SBP, systolic blood pressure.

87

87

Patients Scheduled for Surgical Procedures



Abbreviations: ACEi indicates Angiotensin Converting Enzyme inhibitors; ARB, Angiotensin Receptor Blocker; BB, beta blocker; DBP, diastolic blood pressure; and SBP, systolic blood pressure.

Jones, D.W., et al. (2025). 2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. *Circulation*.

88

Refer to specialty if still not controlled.

89

Questions?

90

Thank you for your time and attention.

Wendy L. Wright,
DNP, ANP-BC, FNP-BC, FAANP, FAAN, FNAP
WendyARNP@aol.com

91

91

References

1. Centers for Disease Control and Prevention (CDC) (2023). *High Blood Pressure*. https://www.cdc.gov/bloodpressure/facts.htm
2. Whelton, P.K., Carey, R.M., Aronow, W.S., Casey, D.E. Jr., Collins, K.J., Dennison Himmelfarb, C., DePalma, S.M., Gidding, S., Jamerson, K.A., Jones, D.W., MacLaughlin, E.J., Muntner, P., Ovbiagele, B., Smith, S.C. Jr., Spencer, C.C., Stafford, R.S., Taler, S.J., Thomas, R.J., Williams, K.A. Sr., Williamson, J.D., Wright, J.T. Jr. (2018). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/ APhA/ASH/ASPC/NMA/PCNA. Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guideline. Hypertension, 71(6):1269-1324. https://www.acc.org/guidelines/hubs/high-blood-pressure

92

92

References (continued)

3. Carey, R.M., Calhoun, D.A., Bakris, G.L., Brook, R.D., Daugherty, S.L., Dennison-Himmelfarb, C.R., Egan, B.M., Flack, J.M., Gidding, S.S., Judd, E., Lackland, D.T., Laffer, C.L., Newton-Cheh, C., Smith, S.M., Taler, S.J., Textor, S.C., Turan, T.N., White, W.B.; American Heart Association Professional/Public Education and Publications Committee of the Council on Hypertension;…Stroke Council. (2018). Resistant Hypertension: Detection, Evaluation, and Management: A Scientific Statement From the American Heart Association. *Hypertension*, 72(5):e53-e90. https://www.ahajournals.org/doi/10.1161/HYP.0000000000000084
4. Putnam, R., Davis, B.R., Pressel, S., Whelton, P.K., Cushman, W.C., Louis, G.T., Margolis, K.L., Oparil, S., Williamson, J. Ghosh, A., Einhorn, P.T., Barzilay, J. for the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) Collaborative Research Group (2016). Association of 3 Different Antihypertensive Medications With Hip and Pelvic Fracture Risk in Older Adults: Secondary Analysis of a Randomized Clinical Trial. *JAMA Internal Medicine*. https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2587085

93

93

References (continued)

5. Krysiak, R., Okopień, B. (2008). Pleiotropic effects of angiotensin-converting enzyme inhibitors in normotensive patients with coronary artery disease. *Pharmacol Rep.*, 60(4):514-23. https://pubmed.ncbi.nlm.nih.gov/18799820/
6. Herman, L.L., Padala, S.A., Ahmed, I., Bashir, K. Angiotensin Converting Enzyme Inhibitors (ACEI) [Updated 2023]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK431051
7. Hill, R.D., Vaidya, P.N. Angiotensin II Receptor Blockers (ARB) [Updated 2022]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK537027/
8. ONTARGET Investigators; Yusuf, S., Teo, K.K., Pogue, J., Dyal, L., Copland, I., Schumacher, H., Dagenais, G., Sleight, P., Anderson, C. (2008). Telmisartan, ramipril, or both in patients at high risk for vascular events. *N Engl J Med.*, 358(15):1547-59. https://pubmed.ncbi.nlm.nih.gov/18378520/

References (continued)

9. Materson, B.J., Reda, D.J., Cushman, W.C., Massie, B.M., Freis, E.D., Kochar, M.S., Hamburger, R.J., Fye, C., Lakshman, R., Gottdiener, J., Ramirez, E.A., Henderson, W.G for the Dept. of Veterans Affairs Cooperative Study Group on Antihypertensive Agents. (1993). Single-drug therapy for hypertension in men. A comparison of six antihypertensive agents with placebo. The Department of Veterans Affairs Cooperative Study Group on Antihypertensive Agents. *N Engl J Med.*, 328(13):914-21. https://www.nejm.org/doi/full/10.1056/NEJM199304013281303
10. Tuomilehto, J., Rastenyte, D., Birkenhäger, W.H., Thijs, L., Antikainen, R., Bulpitt, C.J., Fletcher, A.E., Forette, F., Goldhaber, A., Palatini, P., Sarti, C., Fagard, R. (1999). Effects of calcium-channel blockade in older patients with diabetes and systolic hypertension. Systolic Hypertension in Europe Trial Investigators. *N Engl J Med.*, 340(9):677-84. https://pubmed.ncbi.nlm.nih.gov/10053176/
11. Thornley-Brown, D., Wang, X., Wright, J.T. Jr., Randall, O.S., Miller, E.R., Lash, J.P., Gassman, J., Contreras, G., Appel, L.J., Agodoa, L.Y., Cheek, D. (2006). Differing effects of antihypertensive drugs on the incidence of diabetes mellitus among patients with hypertensive kidney disease. *Arch Intern Med.*, 166(7):797-805. https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/410094

References (continued)

12. National Institute for Health and Care Excellence (NICE). *Hypertension in adults: diagnosis and management.* (2022). https://www.nice.org.uk/guidance/NG136
13. Gomberg-Maitland M, Baran DA, Fuster V. (2001). Treatment of congestive heart failure: guidelines for the primary care physician and the heart failure specialist. *Arch Intern Med.*, 161(3):342-52. https://pubmed.ncbi.nlm.nih.gov/11176759/
14. Hunt, S.., et al. (2005). ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult—Summary Article. *J Am Coll Cardiol.*, 46 (6) 1116–1143. https://doi.org/10.1016/j.jacc.2005.08.023
15. Bayer Healthcare Pharmaceuticals, Inc. (2022). *Finerenone (Kerendia®) Prescribing information*. https://labeling.bayerhealthcare.com/html/products/pi/Kerendia_PI.pdf
16. Marhefka, G. (2016). *Acute Hypertension: Hypertensive Urgency and Hypertensive Emergency*. Consultant360 website. http://www.consultant360.com/articles/acute-hypertension-hypertensive-urgency-and-hypertensive-emergency