Management of Adult Hypertension

Purpose

To identify and promote the essential elements of management of adult hypertension.

Key Recommendations

- Treat to blood pressure (BP) target levels:
  - <140/90 mm Hg
  - <130/80 mm Hg with diabetes, known clinical cardiovascular disease or kidney disease[1]
- Prescribe life style modifications (https://healthmetrics.heart.org/detailed-summary/, *page 6, bottom*
- Initial antihypertensive treatment:
  - In general, nonblack population, including those with diabetes, initial antihypertensive treatment should include thiazide diuretics, calcium channel blockers, ACE or ARBs
  - In the general black population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic (especially chlorthalidone) or CCB.[3]
  - In the population aged ≥ 18 years with CKD (including all CKD patients with hypertension regardless of race or diabetes status), initial (or add-on) antihypertensive treatment should include an ARB or ACEI to improve kidney outcomes. An ACE inhibitor (or an ARB if ACE inhibitor is not tolerated) is a preferred drug for treatment of hypertension for those with chronic kidney disease stage 3, or for stage 1 or 2 with albuminuria (300 mg/d or higher, or 300 mg/g albumin-to-creatinine ratio or higher or the equivalent in the first morning void). Combining an ARB with a direct renin inhibitor is contraindicated because of a greater risk for hyperkalemia and hypotension and lack of demonstrated benefit. (https://healthmetrics.heart.org/detailed-summary/), *page 10, left side column*

High Risk Populations/Disparities

- In Blacks, hypertension is more common, more severe, develops at an earlier age and leads to more clinical sequelae than in age-matched non-Hispanic Whites. (https://www.ahajournals.org/doi/10.1161/HYPERTENSIONAHA.116.07553)
- In Monroe County, in 2016, 30% of all adults have hypertension (41% of those ages 35 and older). Differences by residence (city/suburbs) and race/ethnicity: City/Suburbs - 50% vs. 39%; Black/White - 64% vs. 39%; Latino/White - 42% vs. 39%.

During 2011–2014, 15.9% of adults aged 18 and over with hypertension were unaware of their hypertension (https://www.cdc.gov/nchs/data/databriefs/db278.pdf):

● A higher percentage of men (19.2%) than women (12.9%) with hypertension were unaware of their hypertension status.
● The percentage of adults with hypertension who were unaware of their status decreased with increasing age (30.8% for adults aged 18–39, 17.4% for adults aged 40–59, and 12.5% for adults aged 60 and over).
● A higher percentage of non-Hispanic Asian (24.7%) and Hispanic (20.2%) adults with hypertension were unaware of their hypertension compared with non-Hispanic white (14.9%) and non-Hispanic black (14.7%) adults with hypertension.
● In contrast to 2003 JNC-7 guideline, the report of the panel of JNC-8 was never endorsed by NHLBI, AHA, or ACC. At the same time, the NIH indicated that blood pressure guidelines should subsequently be made by professional societies, and the most recent guideline was made in 2017 by the ACC/AHA Foundation through a process similar to other guidelines they construct for cardiovascular health.

Footnotes:

1. 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 Task Force on Clinical Practice Guidelines. 2017;Nov 13

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.

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Identification and Evaluation

Blood Pressure Measurement Techniques	
Method	Notes
In-Office	Two readings, 5 minutes apart, sitting in chair. Confirm elevated reading in contralateral arm. Ensure proper cuff size and measurement at heart level.
Ambulatory BP Monitoring	Option as a diagnostic approach in patients with apparent drug resistance, hypotensive symptoms while on treatment, labile or episodic hypertension, or autonomic dysfunction, when self-measured blood pressure readings have not provided sufficient clinical information for treatment and when results will impact treatment decisions.
Patient Self -Check	Provides information on response to therapy. May help improve adherence to therapy and is useful for evaluating "white coat hypertension." Validate patient technique and cuff accuracy with home cuff in office.
https://healthmetrics.heart.org/detailed-summary (page 5, Masked & White Coat Hypertension)	
https://www.acc.org/~/media/Non-Clinical/Files-PDFs-Excel-MS-Word-etc/Guidelines/2017/Guidelines_Made_Simple_2017_HBP.pdf (Page 5, Figure 1)	

Causes of Resistant Hypertension

• Improper BP measurement
• Excess sodium intake
• Inadequate diuretic therapy
• Medication
  ○ Inadequate doses
  ○ Drug actions and interactions (e.g., nonsteroidal anti-inflammatory drugs (NSAIDs), illicit drugs, sympathomimetics, oral contraceptives)
  ○ Over the counter (OTC) drugs and herbal supplements
• Excess alcohol intake
• Identifiable causes of hypertension

Compelling Indications for Individual Drug Classes	
Compelling Indication	Initial Therapy Options
Heart Failure	THIAZ, BB, ACEI / ARB, ALDO ANT
Post myocardial infarction	BB, ACEI / ARB, ALDO ANT
High CVD risk	THIAZ, ACEI / ARB, CCB
Diabetes	THIAZ, ACEI / ARB, CCB
Chronic kidney disease	ACEI / ARB
Recurrent stroke prevention	THIAZ, ACEI / ARB
Key: THIAZ= thiazide diuretic, ACEI= angiotensin converting enzyme inhibitor, ARB= angiotensin receptor blocker, BB = beta blocker, CCB = calcium channel blocker, ALDO ANT = aldosterone antagonist	

Strategies for Improving Adherence to Therapy
• Clinician empathy increases patient trust, motivation, and adherence to therapy. • Physicians should consider their patients' cultural beliefs and individual attitudes in formulatingtherapy.

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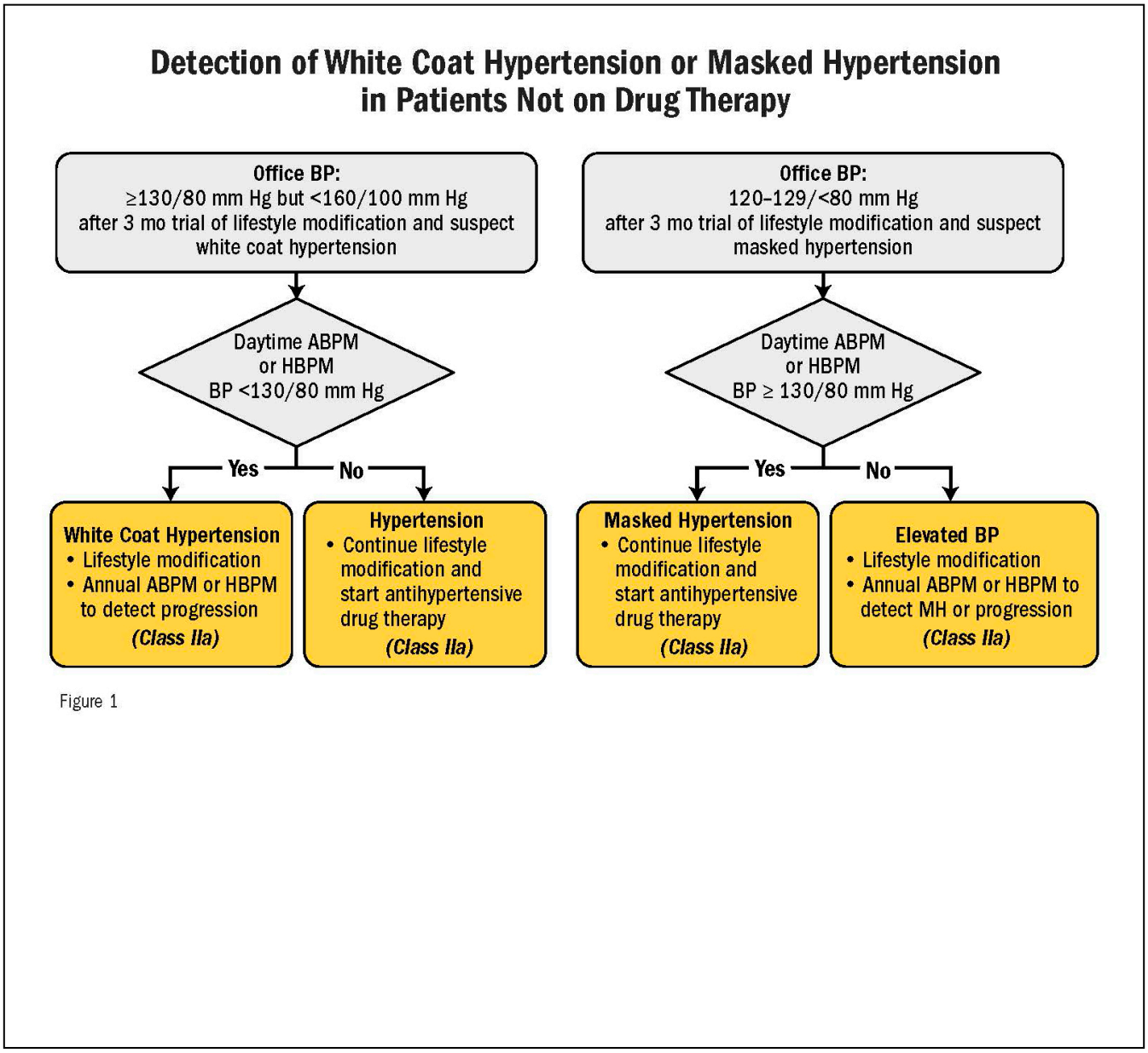

Figure 1

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.

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Detection of White Coat Hypertension or Masked Hypertension in Patients on Drug Therapy

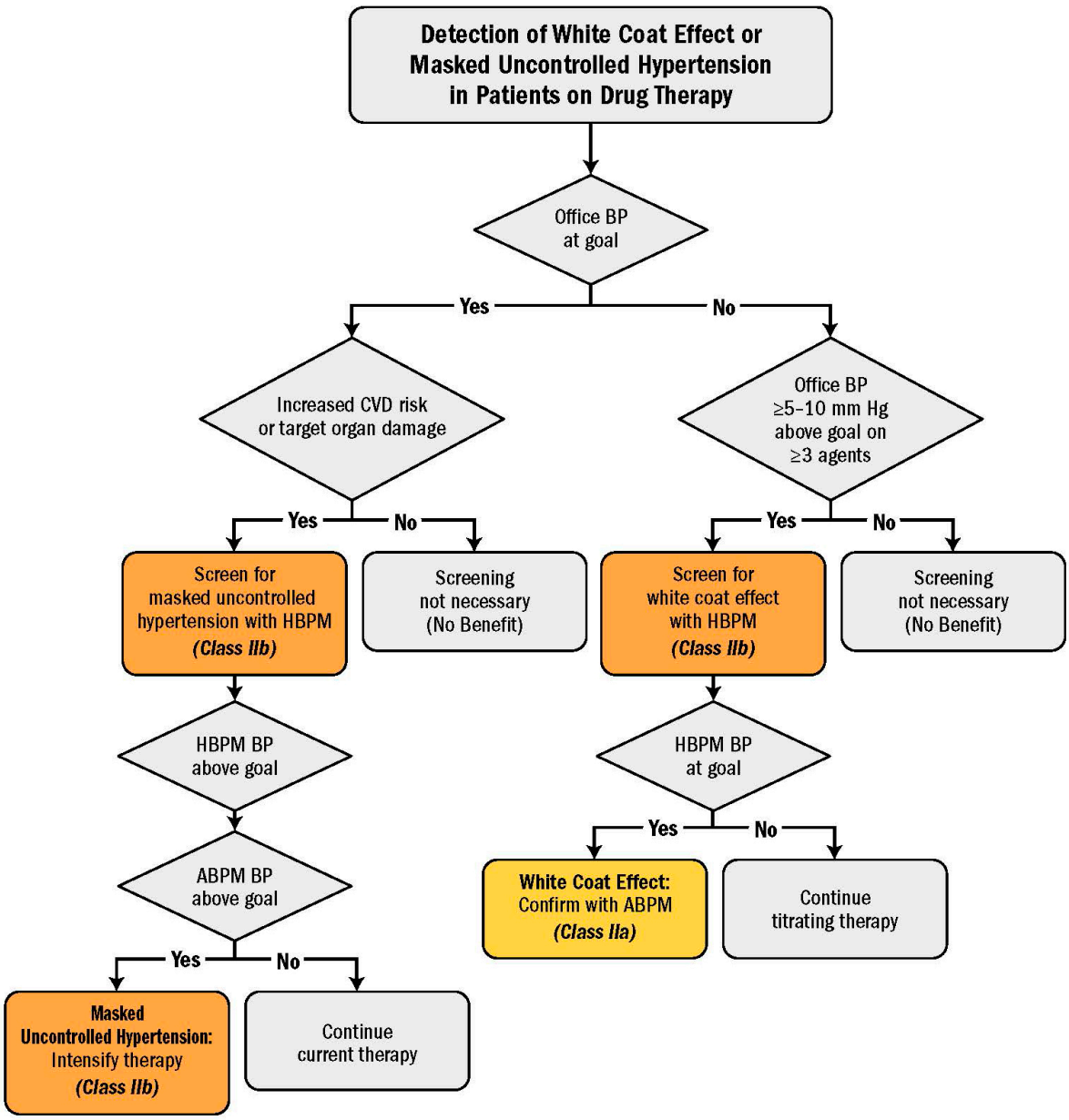

Figure 2

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.

Lifestyle Modification

https://healthmetrics.heart.org/detailed-summary/ (page 9, table 6)

Treatment Algorithm

https://healthmetrics.heart.org/detailed-summary (page 6, Figure 1)

Oral Antihypertensive Drugs (including class, dose, frequency, comments)

https://healthmetrics.heart.org/detailed-summary (pages 7-8)

Physician Resources for Patients

Academy of Nutrition and Dietetics
https://www.eatright.org/find-an-expert
- Find a registered dietician in your area.

American Heart Association
http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/FindHBPToolsResources/Find-High-Blood-Pressure-Tools-Resources_UCM_002055_Article.jsp#.W0OE7m8rKAZ

Center for Disease Control and Prevention
- https://millionhearts.hhs.gov/learn-prevent/index.html Provides resources to help individuals,health care professionals, and organizations to help prevent and control high blood pressure.
- Sodium Intake Widget - a CDC.gov application that displays content directly on your physician practice websites. There's no technical maintenance. CDC.gov will update the content automatically. Widget helps patients discover how much salt is in their food and the effect on their health.
- Translating the Dietary Approaches to Stop Hypertension (DASH) Diet for Use in Underresourced, Urban African American Communities, 2010

Dietary Approaches to Stop Hypertension (DASH) – A flexible and balanced eating plan endorsed by the National Heart, Lung, and Blood Institute to help lower blood pressure.
- Electronic Version of DASH Guide
- Electronic Version of Wallet Card The card helps patients monitor their blood pressure readings and reminders about medication and lifestyle changes.

Wegmans Eat Well Live Well program
https://www.wegmans.com/health-nutrition/eat-well-live-well.html

Measures Commonly Used by National Organizations

Controlling High Blood Pressure: Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period (MIPS) Patients 18–85 years of age who had a diagnosis of hypertension (HTN) and whose Blood Pressure (BP) was adequately controlled during the measurement year based on the following criteria: Members 18–59 years of age whose BP was <140/90 mm Hg. (HEDIS)

Improvement in Blood Pressure: Percentage of patients aged 18-85 years of age with a diagnosis of hypertension whose blood pressure improved during the measurement period. (CMS)

References

Centers for Medicare & Medicaid Services (CMS) Quality Payment Program
https://qpp.cms.gov/

Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA. 2003 Jul 9;290(2):197

Healthcare Effectiveness Data and Information Set (HEDIS) (A tool used by 90% of health plans to evaluate quality of care.). Washington DC. http://www.ncqa.org/HEDISQualityMeasurement.aspx

James P, Oparil S, Carter B, Cushman W, Dennison-Himmelfarb C, Handler J, et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8). JAMA. 2014;311(5):507-520. Available from: http://jama.jamanetwork.com/article.aspx?articleid=1791497

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https://www.commongroundhealth.org/data/monroe-county