KP National Adult Hypertension Guideline

CLINICIAN GUIDE

AUGUST 2014

Introduction

This Clinician Guide is based on the 2014 KP National Hypertension Guideline. It was developed to assist Primary Care physicians and other health care professionals in the outpatient treatment of hypertension in nonpregnant adults aged 18 and older. The drug treatment algorithm excludes patients with known stage 4-5 chronic kidney disease, coronary artery disease, and heart failure. The KP National Hypertension Guideline has adopted the new recommendations from the 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) with minor modifications. It is not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by practitioners.

Definitions

The KP National Hypertension Guideline Team uses the JNC 7 classification of hypertension, which is based on the mean of two or more properly-measured seated BP readings on each of two or more office visits.

TABLE 1. **Definition of Hypertension (JNC 7)**

The JNC 7 Report defines blood pressure (BP) as:	Systolic Blood Pressure (SBP) mmHg	Diastolic Blood Pressure (DBP) mmHg
Normal	<120	<80
Prehypertension	120 – 139	80 – 89
Stage I Hypertension	140 – 159	90 – 99
Stage II Hypertension	≥160	≥100

Key Points

- **Hypertension is an important and modifiable risk factor for atherosclerotic cardiovascular disease (ASCVD).**
- **For all adults, encourage a heart-healthy lifestyle to reduce the risk of ASCVD.** This includes regular physical activity, weight reduction and maintenance, smoking cessation, and controlling blood pressure, cholesterol and diabetes.
- **For adults aged 60 and older without diabetes or CKD, treat to a goal systolic blood pressure (SBP) <150 mmHg and goal diastolic blood pressure (DBP) <90 mmHg.**
- **For all adults aged under 60, treat to a goal SBP <140 mmHg and goal DBP <90 mmHg.**

Screening for Hypertension

- **Screen all adults aged 18 and older for hypertension.**
- **Screen adults with normal blood pressure (<120/<80) every two years.**
- **Screen adults with pre-hypertension or cardiovascular risk factors annually.**

Treatment Initiation and BP Targets

GENERAL POPULATION

In addition to lifestyle interventions, the following are recommendations for the general population *without* diabetes or chronic kidney disease (CKD):

- Aged ≥60 years:
  - **Initiate pharmacologic treatment to lower blood pressure (BP) when systolic blood pressure (SBP) ≥150 mmHg or diastolic blood pressure (DBP) ≥90 mmHg.**
  - **Treat to a goal SBP <150 mmHg and goal DBP <90 mmHg.**
  - If pharmacologic treatment for high BP results in lower achieved SBP (e.g., <140 mmHg) and treatment is well-tolerated and without adverse effects on health or quality of life, treatment does not need to be adjusted.
- Aged <60 years:
  - **Initiate pharmacologic treatment to lower BP when SBP ≥140 or DBP ≥90 mmHg.**
  - **Treat to a goal SBP <140 mmHg and goal DBP <90 mmHg.**

Treatment Initiation & BP Targets (cont.)

CHRONIC KIDNEY DISEASE (CKD)

- **Initiate pharmacologic treatment to lower BP in all adults with CKD when SBP ≥140 mmHg or DBP ≥90 mmHg.**
- **Treat to a goal SBP <140 mmHg and goal DBP < 90 mmHg.**
- *NOTE: When weighing the risks and benefits of a lower BP goal for people aged 70 years or older with estimated GFR less than 60 mL/min/ 1.73 m2, antihypertensive treatment should be individualized, taking into consideration factors such as frailty, comorbidities, albuminuria, and estimation of non-age-related eGFR decline (e.g., if eGFR + ½ age is <85).*

DIABETES

- **Initiate pharmacologic treatment to lower BP in all adults with diabetes when SBP ≥140 mmHg or DBP ≥90 mmHg.**
- **Treat to a goal SBP <140 mmHg and goal DBP <90 mmHg.**

RISK OF POSTURAL HYPOTENSION IN THE ELDERLY

- **Because elderly patients are at higher risk of side effects of treatment, including risk of postural hypotension, check standing blood pressures to guide treatment decisions.**

First-Line Drug Treatment for Hypertension

(See Figure 1 on Page 4)

- **In the general nonblack population, including those with diabetes, initial antihypertensive treatment includes a thiazide-type diuretic, calcium channel blocker (CCB), angiotensin-converting enzyme inhibitor (ACEI), or angiotensin receptor blocker (ARB).**
- **In the general black population, including those with diabetes, initial antihypertensive treatment includes a thiazide-type diuretic or CCB.**
- **In the population aged ≥18 years with CKD, initial (or add-on) antihypertensive treatment includes an ACEI or ARB to improve kidney outcomes.** This applies to all CKD patients with hypertension, regardless of race or diabetes status.

INITIAL COMBINATION TREATMENT OF HYPERTENSION

- **The main objective of hypertension treatment is to attain and maintain goal BP.**
- **If goal BP is not reached within a month of treatment, increase the dose of the initial drug or add a second drug from one of the classes listed for first-line treatment (thiazide-type diuretic, CCB, ACEI, or ARB).**
- **Continue to assess BP and adjust the treatment regimen until goal BP is reached.** If goal BP cannot be reached with 2 drugs, add and titrate a third drug from the list provided. Do not use an ACEI and ARB together in the same patient.
- **If goal BP cannot be reached using only the drugs listed for first-line treatment due to a contraindication or need to use more than 3 drugs to reach goal BP, use antihypertensive drugs from other classes.**
- Consider referral to a hypertension specialist for patients in whom goal BP cannot be attained using the above strategy or for the management of complicated patients for whom additional clinical consultation is needed.

STEP-CARE THERAPY

Because most people with hypertension will need more than one drug to control their hypertension effectively:

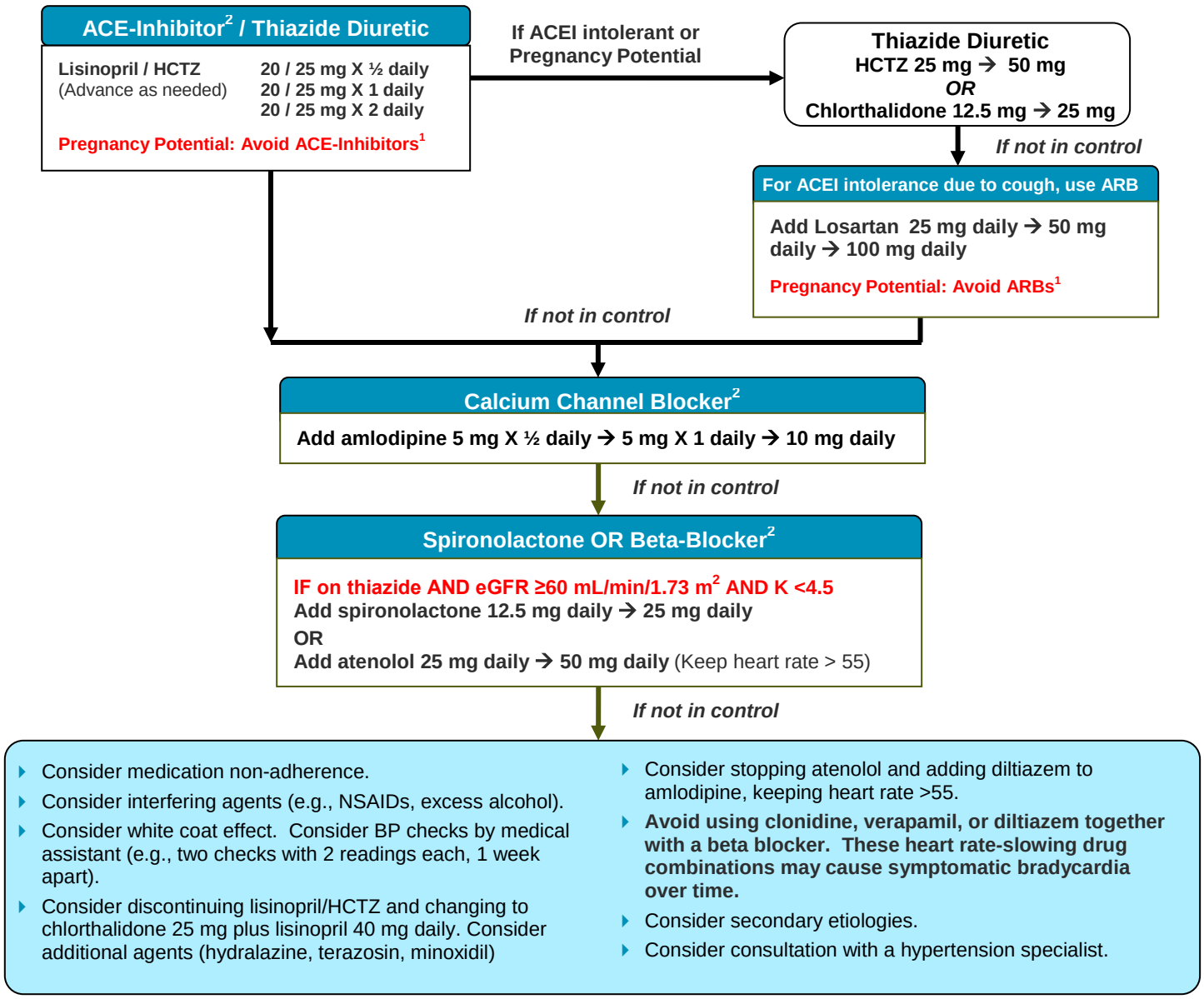
- **Initial single-pill combination therapy with lisinopril-hydrochlorothiazide is preferred.**
- **For three drugs**: If blood pressure is not controlled on a thiazide-type diuretic + ACEI, then use a thiazide-type diuretic plus ACEI plus dihydropyridine calcium channel blocker.
- **For four drugs**: If blood pressure is not controlled on a thiazide-type diuretic plus ACEI plus dihydropyridine calcium channel blocker, then use thiazide-type diuretic plus ACEI plus dihydropyridine calcium channel blocker plus spironolactone or beta-blocker.

HYPERTENSION TREATMENT FOR WOMEN OF CHILDBEARING POTENTIAL	▸ **Because half of all pregnancies are unplanned, unless there is a compelling indication, do not prescribe medications contraindicated in pregnancy, such as ACEIs/ARBs, to women of childbearing potential.** ▸ **For women of childbearing potential taking medications contraindicated in pregnancy, such as ACEIs/ARBs:** o Discuss the potential risks to the fetus should they become pregnant. o Discuss practicing contraceptive measures with extremely low failure rates (sterilization, implant, or IUD). ▸ **Advise women using ACEIs/ARBs to stop these medications** and contact their OB/GYN provider immediately if they become pregnant.
Lifestyle Modifications	▸ Supplement treatment of uncomplicated hypertension with lifestyle modifications: • **Consume a diet that is moderately low-sodium, low-fat with a high intake of fruits and vegetables** (DASH diet) • **Weight reduction** - for patients with a BMI ≥25 kg/m^2 • **Limit alcohol consumption** - no more than one alcoholic drink (for women) or two alcoholic drinks (for men) daily • **Exercise** - at a moderate pace to achieve 150 min./week (i.e., 30 min./ 5 days/week) • **Stop smoking or use of tobacco products** ▸ Encourage adherence to medications and lifestyle modifications: • **Assist patients to achieve medication and lifestyle adherence** by means of a vigorous step-care approach to therapy and an organized system of regular medical follow-up and review. • **Prescribe once-daily medication and combination therapy,** whenever possible. • **Address depression and anxiety issues** in order to maximize patient adherence. See KP National Depression Guideline at: http://cl.kp.org/pkc/national/cmi/programs/depression/guideline/index.html • **Use patient education in conjunction with other strategies**, particularly in the context of team care utilizing nurses and pharmacists. • **Educate patients about their goal blood pressure,** because patients who are knowledgeable about their goal BP are more likely to achieve it.
Lipid Therapy in Patients Taking Hypertension Medications	▸ **Evaluate patients with hypertension for dyslipidemia and initiate or continue statin treatment according to their total cardiovascular risk profile.** ▸ Refer to the KP National Cardiovascular Risk and Dyslipidemia Clinician Guide at: http://cl.kp.org/pkc/national/cmi/programs/dyslipidemia/guideline/index.html
Aspirin Therapy in Patients Taking Hypertension Medications	▸ **Evaluate patients with hypertension for aspirin use and initiate or continue statin treatment according to their total cardiovascular risk profile and risk of adverse events..** ▸ Refer to the KP National Aspirin Clinician Guide at: http://cl.kp.org/national/cmi/programs/cvd_risk_reduction/guideline/index.html

Figure 1. Management of Adult Hypertension

BLOOD PRESSURE (BP) GOALS

- **≤139/89 mmHg: Aged 18-59, and aged 60 and over with Chronic Kidney Disease (CKD)[1] or Diabetes**
- **≤149/89 mmHg: Aged 60 and over in the absence of Chronic Kidney Disease (CKD)[1] or Diabetes**



1. CKD is defined as albuminuria (>30 mg of albumin/g of creatinine) at any age and any level of GFR, or an estimated GFR or measured GFR <60 mL/min/1.73 m^2 in people aged <70 years. When weighing the risks and benefits of a lower BP goal for people aged 70 years or older with estimated GFR < 60 mL/min/1.73 m^2, antihypertensive treatment should be individualized, taking into consideration factors such as frailty, comorbidities, albuminuria, and estimation of non-age-related eGFR decline (e.g., if eGFR + ½ age is <85).

2. ACE-inhibitors and ARBs are contraindicated in pregnancy and not recommended in most women of childbearing age. Calcium Channel Blockers and Spironolactone (Pregnancy Risk Category C), and Beta-Blockers (Pregnancy Risk Category D) should only be used in pregnancy when clearly needed and the benefits outweigh the potential hazard to the fetus.

Hypertension Medication Management (cont.):

- **Medication up-titrations are recommended at intervals of 2-4 weeks (for most patients) until control is achieved. Consider follow-up labs when up-titrating or adding lisinopril, lisinopril/HCTZ, chlorthalidone, HCTZ, or spironolactone.**
- **Determine the need to initiate or continue lipid lowering therapy based on ASCVD risk assessment using the AHA/ACC Pooled Cohort Equations:** http://my.americanheart.org/cvriskcalculator **and** http://tools.cardiosource.org/ASCVD-Risk-Estimator/
- **Advise women using ACEI/ARB to stop these medications and contact their OB/GYN provider immediately if they become pregnant.**
- **Advise women using ACEIs/ARBs for heart failure or cardiomyopathy and become pregnant to contact their obstetrician immediately. Their obstetrician, in consultation with cardiology, will substitute a suitable alternative to avoid decompensation.**

Recommended lifestyle changes for all patients:

- DASH diet
- Sodium restriction (≤2.4 gm sodium daily)
- Weight reduction if BMI ≥25 kg/m^2
- Exercise at a moderate pace to achieve 150 min/week (i.e., 30 min/5 days per week).
- Limit daily alcohol to no more than 1 drink (women) or 2 drinks (men)
- Smoking cessation is strongly recommended; counsel tobacco users on the health risks of smoking and the benefits of quitting.

Recommendations for patients with ACEI intolerance due to cough:

- HCTZ 25 mg, then 50 mg to achieve BP goal
- Add losartan 25 mg, then 50 mg, then 100 mg to achieve BP goal
- Add amlodipine 2.5 mg, then 5 mg, then 10 mg to achieve BP goal

Table 2: Dosage Range for Selected Antihypertensive Medications*

SELECTED ANTIHYPERTENSIVE MEDICATION **		USUAL DOSAGE RANGE
Thiazide-type Diuretics	Chlorthalidone (Hygroton) Hydrochlorothiazide (HCTZ) (Esidrix)	12.5 – 25 mg daily 25 – 50 mg daily
Thiazide-type diuretic single pill combinations	Lisinopril/HCTZ (Prinzide) Spironolactone/HCTZ (Aldactazide)	20/25 mg, ½-2 tabs daily 25/25 mg daily
ACE Inhibitors (ACEI)	Lisinopril (Zestril, Prinivil) Captopril (Capoten)	10 – 40 mg daily 12.5 – 50 mg BID
Long-Acting Dihydropyridine Calcium Channel Blockers (CCB)	Amlodopine (Norvasc) Felodipine ER (Plendil) Nifedipine ER (Nifedipine XL)	2.5 – 10 mg daily 2.5 – 20 mg daily 30 – 90 mg daily
Angiotensin II Receptor Blockers (ARB)	Losartan (Cozaar)	25 – 100 mg daily
Aldosterone Receptor Blocker	Spironolactone (Aldactone)	12.5 – 25 mg daily
Beta-Blockers (BB)	Atenolol (Tenormin) Bisoprolol (Zebeta) Carvedilol (Coreg) Metoprolol (Lopressor) Metoprolol ER (Toprol XL)	25 – 100 mg total, taken daily or BID 5 – 10 mg daily 3.125 mg – 37.5 mg BID 25 – 100 mg BID 25 – 200 mg daily

*Availability of medications may vary depending on regional formularies.