

Special situations

1) White-coat hypertension and masked hypertension

White-coat hypertension should be excluded before initiating drug therapy and it is generally not indicated for drug therapy. However, but it should be regularly followed up for developing as they are at increased risk of developing sustained hypertension. Masked hypertension should be treated with antihypertensive drug therapy upon diagnosis.

2) Metabolic syndrome

For all patients, lifestyle change should be performed. No drug therapy is recommended in prehypertension. ACE-I/ARB or calcium antagonist are favored for BP control in hypertensive patients.

3) Diabetes mellitus

All classes of antihypertensive agents are recommended primarily to control BP level. In diabetes with cardiovascular diseases, i.e., CAD, PAD, aortic diseases. Heart failure, and/or LVH, BP should be lowered below 130/80 mmHg, otherwise, the target BP is below 140/85 mmHg. For diabetes with microalbuminuria or albuminuria, ACE inhibitor or ARB is the first choice.

4) Elderly hypertension

BP in healthy community living elderly should be lowered below 140 mmHg unless they are frail and/or extremely old. White-coat effect and orthostatic hypotension should be excluded routinely.

5) Cardiovascular diseases

BP should be lowered close to 130 mmHg in CAD, PAD, aortic disease, heart failure and/or LVH. BP lowering below < 130 mmHg is not supported by clinical trial evidence. J curve phenomenon should be considered when BP is lowered close to 130 mmHg in the elderly, multi-vessel CAD without revascularization therapy, and diabetes with multiple cardiovascular risk factors. Beta blocker is favored in acute myocardial infarction or symptomatic angina.

6) Chronic kidney disease

For CKD with (micro)albuminuria, ACE inhibitor or ARB should be the first choice agent and target BP is below 130/80 mmHg, otherwise BP should be lowered below 140/90 mmHg using drugs of any class regardless of concomitant diabetes.

7) Cerebrovascular diseases

For acute ischemic stroke, BP control is not recommended within the first 3 days unless BP is > 220/120 mmHg or there is specific indication for thrombolysis. Nevertheless when BP is attempted to be lowered, only 15% lowering within 24 hours is allowed. For hemorrhagic stroke, BP between 150 and 220 mmHg within the first 6 hour could be lowered favorably in ICU setting by using IV drug as long as BP is maintained above 140 mmHg. Target BP for secondary prevention is below 140/90 mmHg but target BP below 130 mmHg can be considered for lacunar infarction with limited clinical trial evidence.

8) Pregnancy and hypertension

BP 160/110 mmHg or higher should be lowered below 150/100 mmHg but diastolic BP should be maintained above 80 mmHg. ACE inhibitor or ARB is forbidden.



Essentials of 2018 Korean Society of Hypertension Guideline for Management of Hypertension

Definition of Hypertension

Hypertension is defined as the blood pressure threshold above which antihypertensive drug therapy has shown to have clinical benefit in reducing cardiovascular events based on the evidence of randomized clinical trials. Blood pressure (BP) in the non-hypertensive range is classified according to the epidemiological risk from cohort data.

Classification of blood pressure

Category		Systolic BP (mmHg)	AND	Diastolic BP (mmHg)
Normal blood pressure		< 120	AND	< 80
Elevated blood pressure		120~129	AND	< 80
Prehypertension		130~139	OR	80~89
Hypertension	Stage 1	140~159	OR	90~99
	Stage 2	≥160	OR	≥100
Isolated systolic hypertension		≥140	AND	< 90

BP measurement

Office BP is the standard method to manage hypertension. Home and ambulatory BP measurements are recommended before 1) initiation of antihypertensive drug therapy to confirm hypertension, 2) before titrating anti hypertensive medications and 3) screening for masked hypertension in risk groups such as prehypertension, metabolic syndrome, diabetes mellitus, chronic kidney disease (CKD), smoker, and occupational stress situation. Threshold BP levels for hypertension at home, 24 hour, daytime are 135/85, 130/80, and 135/85 mmHg.

Six lifestyle changes to lower BP

1) Salt restriction < 6 g/day, 2) Weight reduction < 25 kg/m², 3) Moderation of alcohol < 20~30 g/day for men and 10~20 g/day for women, 4) Aerobic exercise > 30 min, 5-7 times/week and additional isometric or isotonic exercise, 5) Stop smoking, 6) Healthy dietary patterns underscoring vegetables and fruit, fish, bean and nut, whole grain, and unsaturated fat.

Initial drug therapy

ACE inhibitor or angiotensin receptor blocker (ARB), beta blocker, calcium antagonist, and diuretics can be chosen for initial drug therapy primarily to lower BP level below target BP. Vasodilating beta blockers among beta blockers are favored to avoid side effects in some patients. Chlorthalidone or indapamide among diuretics are favored for greater efficacy.

Initial therapeutic strategies for prehypertension and hypertension

Risk \ BP(mmHg)	Prehypertension (130~139/80~89)	Hypertension I (140~159/90~99)	Hypertension II (≥160/100)
Risk factor 0	Lifestyle changes	Lifestyle changes* or drug therapy	Lifestyle changes and drug therapy
Risk factor 1~2	Lifestyle changes	Lifestyle changes and drug therapy	Lifestyle changes and drug therapy
Risk factor 3, DM, Sub-clinical organ damage	Lifestyle changes or drug therapy†	Lifestyle changes and drug therapy	Lifestyle changes and drug therapy
Cardiovascular diseases, Chronic kidney disease	Lifestyle changes or drug therapy†	Lifestyle changes and drug therapy	Lifestyle changes and drug therapy

* Lifestyle changes are recommended for 3 month period.

† Drug therapy can be indicated according to the target BP. DM; diabetes mellitus.

Risk factors include male aged > 45 or female aged > 55, elderly aged > 65, family history of premature CV disease, smoking, obesity, dyslipidemia, and prediabetes. Subclinical organ damages include left ventricular hypertrophy (LVH), (micro)albuminuria, atherosclerotic plaque, increased carotid intima media, arterial stiffness, and grade III or IV retinopathy. Cardiovascular diseases include coronary artery disease (CAD), peripheral artery disease (PAD), aortic diseases, and heart failure. Cerebrovascular diseases include stroke, transient ischemic attack, and vascular dementia.

10 year cardiovascular disease risk

<5%	Low risk (5~10%)	Medium risk (10~15%)	High risk (>15%)
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Target blood pressures

Conditions	Systolic BP (mmHg)	Diastolic BP (mmHg)
In general	<140	<90
Elderly (age > 65 years)	<140	<90
Diabetes mellitus		
Without cardiovascular diseases	<140	<85
With cardiovascular diseases	<130	<80
High risk patients	130	80
Cardiovascular diseases	130	80
Stroke/cerebrovascular diseases	<140	<90
Chronic kidney disease		
Without albuminuria	<140	<90
With albuminuria	<130	<80