

# **Hypertension Management Based on 2019 Indonesian Society of hypertension Consensus**

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**Erwinanto MD**

**Board Member of the Indonesian Society of Hypertension**

# **Definition and classification of chronic hypertension**

# Classification of office blood pressure and definitions of hypertension grade

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Optimal	<120	and	<80
Normal	120-129	and/or	80-84
High normal	130-139	and/or	85-89
Grade 1 hypertension	140-159	and/or	90-99
Grade 2 hypertension	160-179	and/or	100-109
Grade 3 hypertension	≥180	and/or	≥110
Isolated systolic hypertension	≥140	and	<90

The same classification is used for all ages from 16 years

Category	Systolic BP		Diastolic BP
Office BP	≥140	and/or	≥90
Ambulatory BP			
Daytime (or awake)	≥135	and/or	≥85
Nighttime (or asleep)	≥120	and/or	≥70
24-h	≥130	and/or	≥80
Home BP	≥135	and/or	≥85

## **White-coat hypertension**

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**BP is elevated in the office, but is normal when measured by ABPM or HBPM**

## **Masked hypertension**

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**BP is normal in the office, but is elevated when measured by ABPM or HBPM**

# Conclusion

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## 1. Definition of chronic hypertension:

- Hypertension
- Isolated systolic
- White-coat
- Masked

## 2. Classification of hypertension

Grade 1 through grade 3

## 3. HBPM or ABPM is especially required to confirm the diagnosis of white-coat and masked hypertension

# **Management of Hypertension**

## **STEP 1**

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**Screening and diagnosis of  
hypertension**

# What to screen?

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- **Blood pressure**
- **Hypertension mediated organ  
damage (HMOD)**



# How to perform screening on first office visit?

Screening	Activity
Blood pressure	Office and/or out-of-office BP measurement (HBPM or ABPM)
HMOD	<ul style="list-style-type: none"><li>• Minimal: <ul style="list-style-type: none"><li>- ECG (LVH)</li><li>- Urine (protein)</li><li>- Fundoscopy (retinopathy)</li></ul></li><li>• Optimal: <ul style="list-style-type: none"><li>- Transthoracic echocardiography (LVH)</li><li>- Carotid ultrasound (IMT)</li><li>- Kidney function (serum creatinine, ACR, eGFR)</li><li>- MRI (brain damage)</li></ul></li></ul>

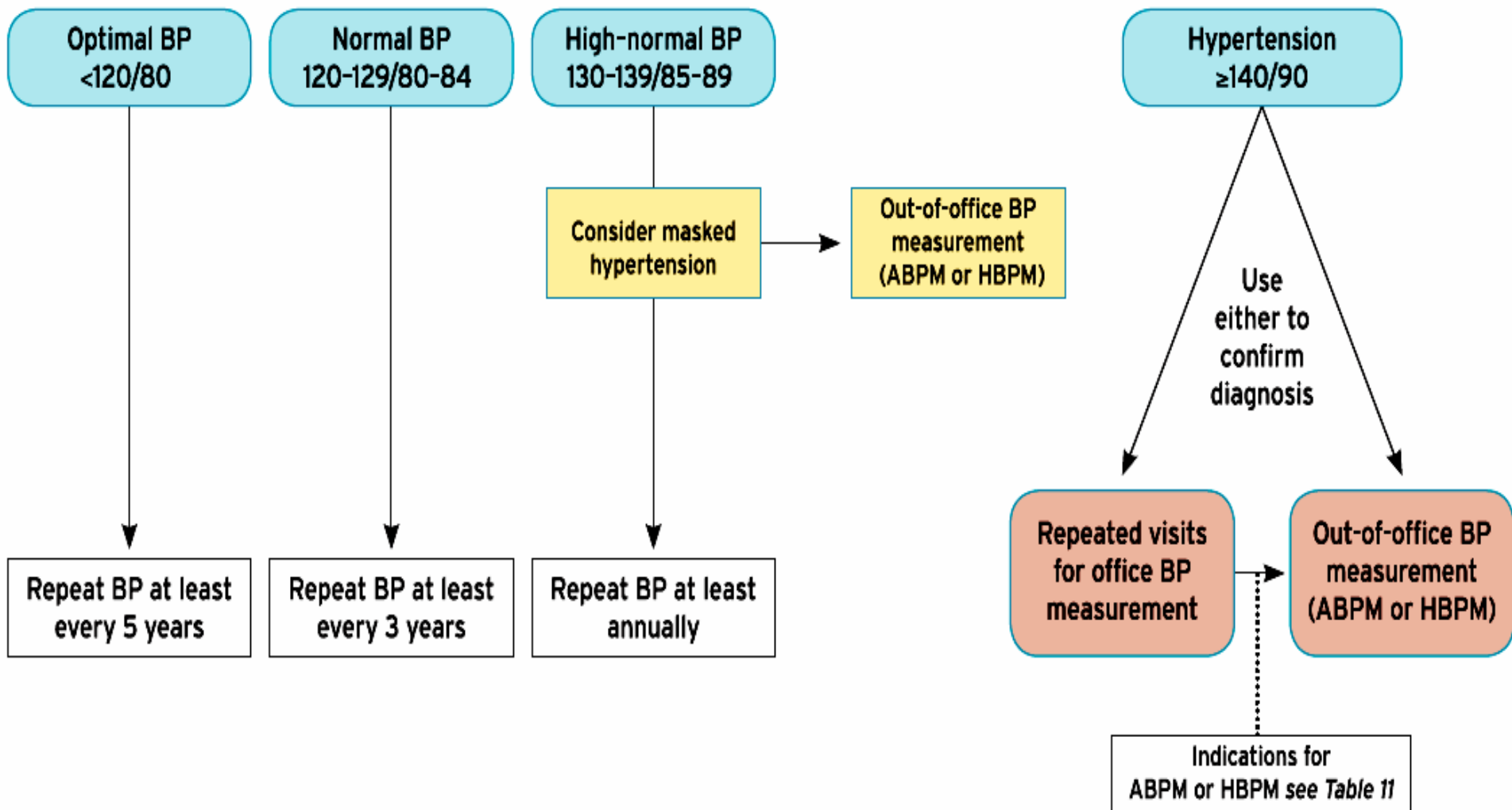
ABPM = ambulatory blood pressure monitoring; ACR = albumin:creatinine ratio; eGFR = estimated glomerular filtration rate; IMT = intima-media thickness; LVH = left ventricular hypertrophy.

# **Confirmation the diagnosis of hypertension at first visit (screening)**

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- **Severe hypertension ( $\geq 180/110$  mm Hg)**
- **Evidence of HMOD**
- **Treated patients**

# Screening and diagnosis of hypertension



# **Home blood pressure measurement (HBPM)**

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- **BP should be measured daily on at least 3–4 days and preferably on 7 consecutive days in the mornings as well as in the evenings.**
- **Two measurements per occasion taken 1–2 min apart**
- **Home BP is the average of these readings, with exclusion of the first monitoring day.**

# Conclusion

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## 1. Screening:

- Blood pressure
- HMOD

## 2. Diagnosis:

- Repeated OBPM on  $>1$  visit except if BP  $\geq 180/110$  mm Hg.
- HBPM or ABPM for detection of white-coat or masked hypertension.

# **Management of Hypertension**

## **STEP 2**

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### **Risk stratification**

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High normal SBP 130-139 DBP 85-89	Grade 1 SBP 140-159 DBP 90-99	Grade 2 SBP 160-179 DBP 100-109	Grade 3 SBP $\geq 180$ or DBP $\geq 110$
Stage 1 (uncomplicated)	No other risk factors	Low risk	Low risk	Moderate risk	High risk
	1 or 2 risk factors	Low risk	Moderate risk	Moderate to high risk	High risk
	$\geq 3$ risk factors	Low to Moderate risk	Moderate to high risk	High Risk	High risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade 3, or diabetes mellitus without organ damage	Moderate to high risk	High risk	High risk	High to very high risk
Stage 3 (established disease)	Established CVD, CKD grade $\geq 4$ , or diabetes mellitus with organ damage	Very high risk	Very high risk	Very high risk	Very high risk

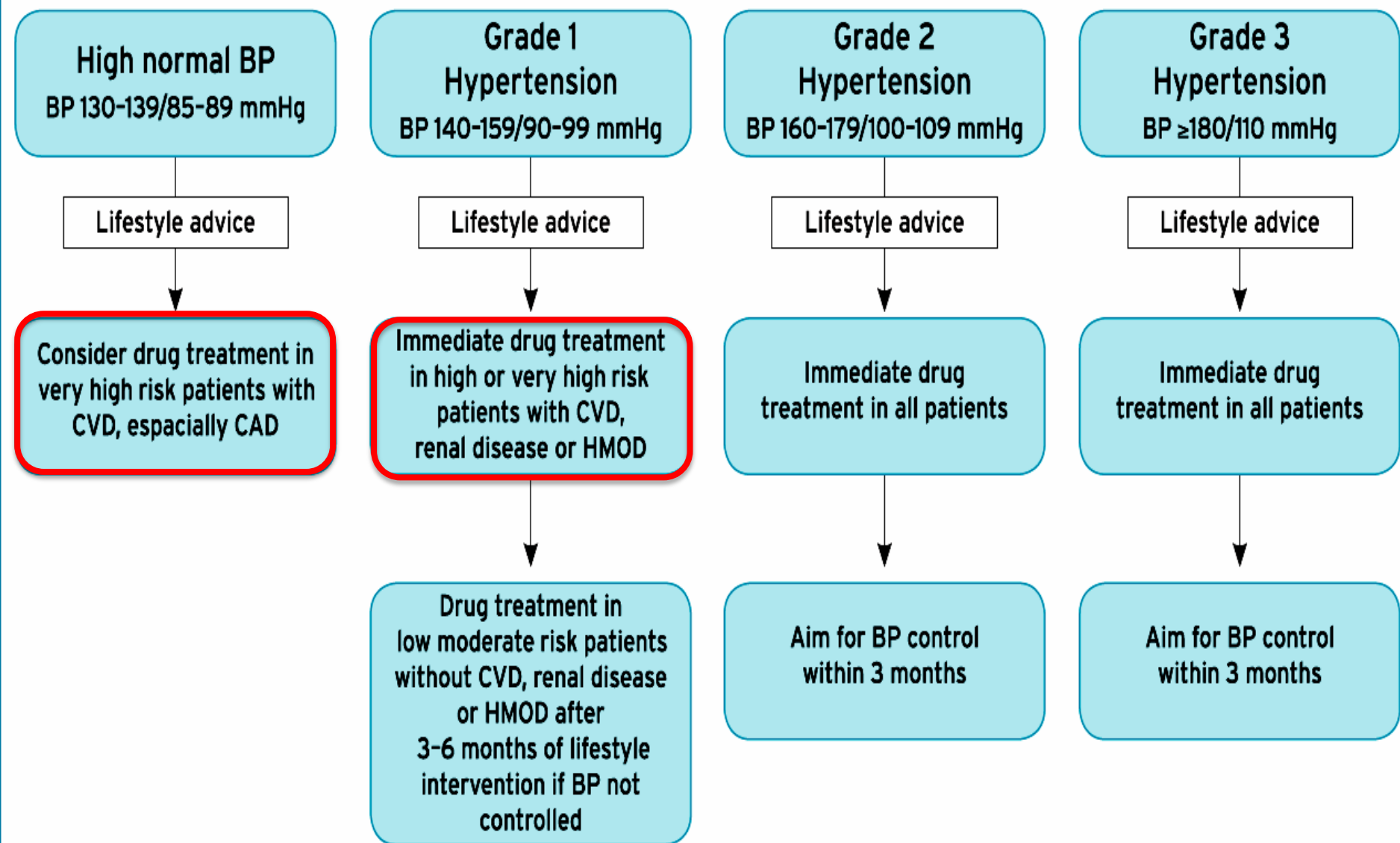
# **Management of Hypertension**

## **STEP 3**

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**Initiation of drug treatment**





# Conclusion

Age group	Office SBP treatment threshold (mmHg)					Office DBP treatment threshold (mmHg)
	Hypertension	+ Diabetes	+ CKD	+ CAD	+ Stroke/TIA	
18 - 65 years	≥140	≥140	≥140	≥140 <sup>a</sup>	≥140 <sup>a</sup>	≥90
65 - 79 years	≥140	≥140	≥140	≥140 <sup>a</sup>	≥140 <sup>a</sup>	≥90
≥80 years	≥160	≥160	≥160	≥160	≥160	≥90
Office DBP treatment threshold (mmHg)	≥90	≥90	≥90	≥90	≥90	

# **Management of Hypertension**

## **STEP 4**

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**Define BP treatment target**

**First objective is to reduce BP to 130-139/80-89 mm Hg  
3 months after initiation of drug treatment**

**If tolerated**

**Age <65 years**

**Target 120-129/<80 mm Hg**

**Age ≥65 years**

**Target 130-139/<80 mm Hg**

**SBP should not <120 mm Hg**

## Management of masked hypertension

### Recommendations

In masked hypertension, lifestyle changes are recommended to reduce CV risk, with regular follow-up, including periodic out-of-office BP monitoring.

**I**

**C**

Antihypertensive drug treatment should be considered in masked hypertension to normalize the out-of-office BP, based on the prognostic importance of out-of-office BP elevation.

**IIa**

**C**

Antihypertensive drug uptitration should be considered in treated patients whose out-of-office BP is not controlled (i.e. masked uncontrolled hypertension), because of the high CV risk of these patients.

**IIa**

**C**

# Conclusion

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- Although BP target is set according to patients age, BP target for most hypertensive patients is  $\leq 130/80$  mm Hg but  $>120/70$  mm Hg.
- Aim of treatment for patients with masked hypertension is to normalize out-of-office BP.

# **Management of Hypertension**

## **STEP 5**

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**Monotherapy or combination  
therapy?**

**Single pill combination for most  
hypertensive patients**



**Most hypertensive patients should initiate treatment  
with a single pill combination comprising two  
antihypertensive drugs**

## **EXCEPT**

**Monotherapy is indicated for:**

- **Low-risk patients with grade 1 hypertension whose SBP is <150 mm Hg**
- **Very high risk patients with high normal BP**
- **Frail older patients**

# **Management of Hypertension**

## **STEP 6**

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**Choose the preferred combination  
therapy**

# Hypertension

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graph TD; A[Hypertension] --> B[No cardiac disease]; A --> C[Cardiac disease]; B --> D[uncomplicated,]; D --> E[HMOD, stroke/TIA,]; E --> F[DM, CKD]; C --> G[CAD]; C --> H[Heart failure]; C --> I[AF];
```

The diagram is a flowchart starting with 'Hypertension' at the top. A vertical line descends from 'Hypertension' to a horizontal line. From the left end of this horizontal line, a vertical line descends to the text 'No cardiac disease'. From the right end of the horizontal line, a vertical line descends to the text 'Cardiac disease'. Under 'No cardiac disease', the text 'uncomplicated,' is centered. Below that, 'HMOD, stroke/TIA,' is centered. Below that, 'DM, CKD' is centered. Under 'Cardiac disease', three diagonal lines descend to the text 'CAD', 'Heart failure', and 'AF' from left to right.

**No cardiac disease**  
**uncomplicated,**  
**HMOD, stroke/TIA,**  
**DM, CKD**

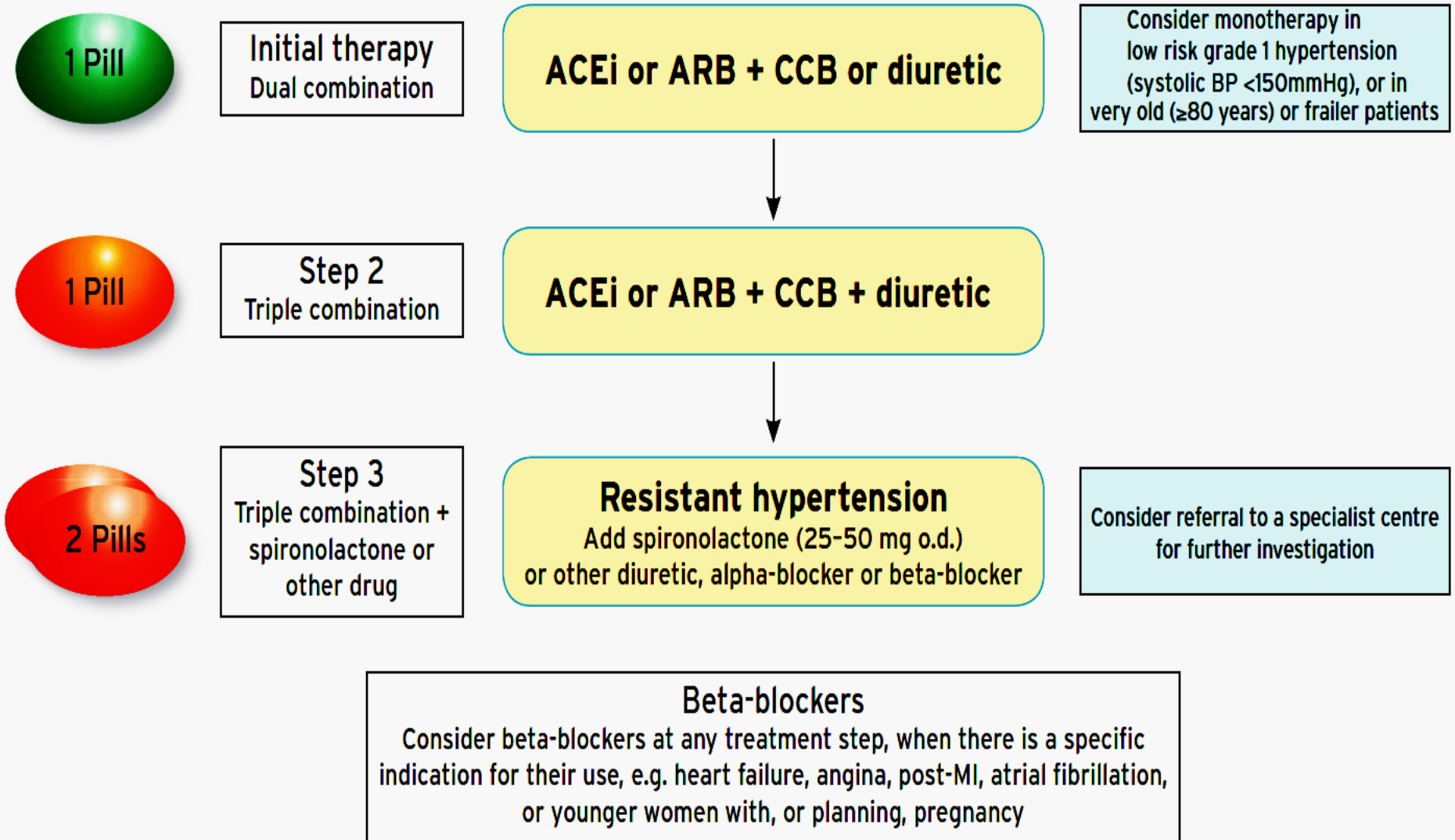
**Cardiac disease**

**CAD**

**Heart  
failure**

**AF**

**Preferred drugs combination for  
uncomplicated hypertension, DM,  
Stroke/TIA, PAD, or with HMOD,**



# **Preferred drugs combination for chronic kidney disease**



**Initial therapy**  
Dual combination

**ACEi or ARB + CCB  
or ACEi or ARB + diuretic (or loop  
diuretic)<sup>b</sup>**

**Beta-blockers**  
Consider beta-blockers at any treatment step, when there is a specific indication for their use, e.g. heart failure, angina, post-MI, atrial fibrillation, or younger women with, or planning, pregnancy



**Step 2**  
Triple combination

**ACEi or ARB + CCB + diuretic (or  
loop diuretic)<sup>b</sup>**



**Step 3**  
Triple combination +  
spironolactone<sup>c</sup> or  
other drug

**Resistant hypertension**  
Add spironolactone (25-50 mg o.d.)  
or other diuretic, alpha-blocker or beta-blocker

A reduction in eGFR and rise in serum creatinine is expected in patients with CKD<sup>a</sup> who receive BP-lowering therapy, especially in those treated with an ACEi or ARB but a rise in serum creatinine of >30% should prompt evaluation of the patient for possible renovascular disease.

**Preferred drugs combination for  
coronary artery disease**



1 Pill

Initial therapy  
Dual combination

**ACEi or ARB + beta-blocker or CCB  
or CCB + diuretic or beta-blocker  
or beta-blocker + diuretic**

Consider monotherapy in low risk  
grade 1 hypertension  
(systolic BP <150mmHg), or in  
very old ( $\geq 80$  years) or frailer patients

1 Pill

Step 2  
Triple combination

**Triple combination of above**

Consider initiating therapy  
when systolic BP is  
 $\geq 130$  mmHg in these very  
high risk patients with  
established CVD

2 Pills

Step 3  
Triple combination +  
spironolactone or  
other drug

**Resistant hypertension**  
Add spironolactone (25-50 mg o.d.)  
or other diuretic, alpha-blocker or beta-blocker

Consider referral to a specialist centre  
for further investigation

# **Preferred drugs combination for heart failure with reduced ejection fraction (HFrEF)\***

**\* EF  $\leq$  40%**

Initial therapy

**ACEi or ARB<sup>a</sup> + diuretic<sup>b</sup> (or loop diuretic) +  
beta-blocker**



Step 2

**ACEi or ARB<sup>a</sup> + diuretic<sup>b</sup> (or loop diuretic) +  
beta-blocker + MRA<sup>c</sup>**

When antihypertensive therapy is not required in HFrEF, treatment should be prescribed according to the ESC Heart Failure Guidelines.<sup>136</sup>

# **Preferred drugs combination for atrial fibrillation**

**Initial therapy**  
Dual combination

**ACEi or ARB + beta-blocker  
or non-DHP CCB<sup>a</sup>,  
or beta-blocker + CCB**



**Step 2**  
Triple combination

**ACEi or ARB + beta-blocker  
+ DHP CCB or diuretic  
or beta-blocker + DHP CCB + diuretic**

Add oral anticoagulation when indicated according to the CHA<sub>2</sub>DS<sub>2</sub>-VASc score, unless contraindicated.

<sup>a</sup> Routine combination of beta-blockers with non-dihydropyridine CCBs (e.g. verapamil or diltiazem) is not recommended due to a potential marked reduction in heart rate.