

Hypertension Management: An Insight

A series of horizontal lines in yellow and gold colors, with varying lengths and thicknesses, extending from the left edge of the slide towards the right.

Hypertension Burden

- One of the major contributors of CV morbidity and mortality
- Undiagnosed, uncontrolled, and undertreated hypertension - responsible for increased chronic disease burden
- Worldwide Prevalence: 970 million
- Expected to affect 1.56 billion adults with hypertension by 2025



**Hypertension :
The Silent Killer**

ACC/ AHA Hypertension Guidelines (2017)

New blood pressure targets and treatment recommendations

- For years, hypertension was classified as blood pressure (BP) reading of 140/90 mm Hg or higher.
- But the updated guideline classifies hypertension as a BP reading of 130/80 mm Hg or higher.
- The updated guideline also provides new treatment recommendations, which include lifestyle changes as well as BP-lowering medications

New ACC/ AHA Hypertension Guidelines (2017)

BP Category	Systolic BP		Diastolic BP	Treatment or Follow-up
Normal	<120 mm Hg	and	<80 mm Hg	Evaluate yearly; encourage healthy lifestyle changes to maintain normal BP
Elevated	120-129 mm Hg	and	<80 mm Hg	Recommend healthy lifestyle changes and reassess in 3-6 months
Hypertension: stage 1	130-139 mm Hg	or	80-89 mm Hg	Assess the 10-year risk for heart disease and stroke using the atherosclerotic cardiovascular disease (ASCVD) risk calculator • If risk is less than 10%, start with healthy lifestyle recommendations and reassess in 3-6 months • If risk is greater than 10% or the patient has known clinical cardiovascular disease (CVD), diabetes mellitus, or chronic kidney disease, recommend lifestyle changes and BP-lowering medication (1 medication); reassess in 1 month for effectiveness of medication therapy – If goal is met after 1 month, reassess in 3-6 months – If goal is not met after 1 month, consider different medication or titration – Continue monthly follow-up until control is achieved
Hypertension: stage 2	≥140 mm Hg	or	≥90 mm Hg	Recommend healthy lifestyle changes and BP-lowering medication (2 medications of different classes); reassess in 1 month for effectiveness • If goal is met after 1 month, reassess in 3-6 months • If goal is not met after 1 month, consider different medications or titration • Continue monthly follow-up until control is achieved

2017 ACC/ AHA Hypertension Guidelines BP thresholds and recommendations



2017 ACC/ AHA Hypertension Guidelines BP thresholds & recommendations

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

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



ESC

European Society
of Cardiology

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ESC/ESH GUIDELINES

2018 ESC/ESH Guidelines for the management of arterial hypertension

The Task Force for the management of arterial hypertension of the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH)

Changes in recommendations							
2013				2018			
Diagnosis				Diagnosis			
Office BP is recommended for screening and diagnosis of hypertension.				It is recommended to base the diagnosis of hypertension on: • Repeated office BP measurements; or • Out-of-office BP measurement with ABPM and/or HBPM if logistically and economically feasible.			
Treatment thresholds Highnormal BP (130–139/85–89 mmHg): Unless the necessary evidence is obtained, it is not recommended to initiate antihypertensive drug therapy at high–normal BP.				Treatment thresholds Highnormal BP (130–139/85–89 mmHg): Drug treatment may be considered when CV risk is very high due to established CVD, especially CAD.			
Treatment thresholds Treatment of low-risk grade 1 hypertension: Initiation of antihypertensive drug treatment should also be considered in grade 1 hypertensive patients at low–moderate-risk, when BP is within this range at several repeated visits or elevated by ambulatory BP criteria, and remains within this range despite a reasonable period of time with lifestyle measures.				Treatment thresholds Treatment of low-risk grade 1 hypertension: In patients with grade 1 hypertension at low–moderate-risk and without evidence of HMOD, BP-lowering drug treatment is recommended if the patient remains hypertensive after a period of lifestyle intervention.			
Recommendation Grading							
	Grade I		Grade IIa		Grade IIb		Grade III

Changes in recommendations							
2013			2018				
Treatment thresholds Older patients Antihypertensive drug treatment may be considered in the elderly (at least when younger than 80 years) when SBP is in the 140–159 mmHg range, provided that antihypertensive treatment is well tolerated.			Treatment thresholds Older patients BP-lowering drug treatment and lifestyle intervention is recommended in fit older patients (>65 years but not >80 years) when SBP is in the grade 1 range (140–159 mmHg), provided that treatment is well tolerated.				
BP treatment targets An SBP goal of <140 mmHg is recommended.			BP treatment targets ● It is recommended that the first objective of treatment should be to lower BP to <140/90 mmHg <i>in all patients</i> and, provided that the treatment is well tolerated, treated BP values should be targeted to 130/80 mmHg or lower in most patients. ● In patients <65 years it is recommended that SBP should be lowered to a BP range of 120–129 mmHg in most patients.				
Recommendation Grading							
	Grade I		Grade IIa		Grade IIb		Grade III

Changes in recommendations							
2013				2018			
BP treatment targets in older patients (65–80 years)				BP treatment targets in older patients (65–80 years)			
An SBP target of between 140–150 mmHg is recommended for older patients (65–80 years).				In older patients (≥ 65 years), it is recommended that SBP should be targeted to a BP range of 130–139 mmHg.			
BP treatment targets in patients aged over 80 years				BP treatment targets in patients aged over 80 years			
An SBP target between 140–150 mmHg should be considered in people older than 80 years, with an initial SBP ≥ 160 mmHg, provided that they are in good physical and mental condition.				An SBP target range of 130–139 mmHg is recommended for people older than 80 years, if tolerated.			
DBP targets				DBP targets			
A DBP target of <90 mmHg is always recommended, except in patients with diabetes, in whom values <85 mmHg are recommended.				A DBP target of <80 mmHg should be considered for all hypertensive patients, independent of the level of risk and comorbidities.			
Recommendation Grading							
	Grade I		Grade IIa		Grade IIb		Grade III

Changes in recommendations	
2013	2018
Initiation of drug treatment	Initiation of drug treatment
Initiation of antihypertensive therapy with a two-drug combination may be considered in patients with markedly high baseline BP or at high CV risk.	It is recommended to initiate an antihypertensive treatment with a two-drug combination, preferably in a SPC. The exceptions are frail older patients and those at low risk and with grade 1 hypertension (particularly if SBP is <150 mmHg).
Resistant hypertension	Resistant hypertension
Mineralocorticoid receptor antagonists, amiloride, and the alpha-1 blocker doxazosin should be considered if no contraindication exists.	Recommended treatment of resistant hypertension is the addition of low-dose spironolactone to existing treatment, or the addition of further diuretic therapy if intolerant to spironolactone, with either eplerenone, amiloride, higher-dose thiazide/thiazide-like diuretic or a loop diuretic, or the addition of bisoprolol or doxazosin.
Device-based therapy for hypertension	Device-based therapy for hypertension
In case of ineffectiveness of drug treatment, invasive procedures such as renal denervation and baroreceptor stimulation may be considered.	Use of device-based therapies is not recommended for the routine treatment of hypertension, unless in the context of clinical studies and RCTs, until further evidence regarding their safety and efficacy becomes available.

New concepts In ESC Guidelines 2018

BP measurement

- **Wider use of out-of-office BP measurement with ABPM and/or HBPM, especially HBPM, as an option to confirm the diagnosis of hypertension, detect white-coat and masked hypertension, and monitor BP control.**

Less conservative treatment of BP in older and very old patients

- Lower BP thresholds and treatment targets for older patients, with emphasis on considerations of biological rather than chronological age.
- Recommendation that treatment should never be denied or withdrawn on the basis of age, provided that treatment is tolerated

A SPC treatment strategy to improve BP control

- Preferred use of two-drug combination therapy for the initial treatment of most people with hypertension.
- A single-pill treatment strategy for hypertension with the preferred use of SPC therapy for most patients.
- Simplified drug treatment algorithms with the preferred use of an ACE inhibitor or ARB, combined with a CCB and/or a thiazide/thiazide-likediuretic, as core strategy for most patients, with beta-blockers used for specific indications

ABPM = ambulatory blood pressure monitoring; ACE = angiotensin-converting enzyme; AF = atrial fibrillation; ARB = angiotensin receptor blocker; BP = blood pressure; CCB = calcium channel blocker; HBPM = home blood pressure monitoring; HMOD = hypertension-mediated organ damage; SCORE = Systematic COronary Risk Evaluation; SPC = single-pill combination.

New concepts In ESC Guidelines 2018

New target ranges for BP in treated patients

- Target BP ranges for treated patients to better identify the recommended BP target and lower safety boundaries for treated BP, according to a patient's age and specific comorbidities.

Detecting poor adherence to drug therapy

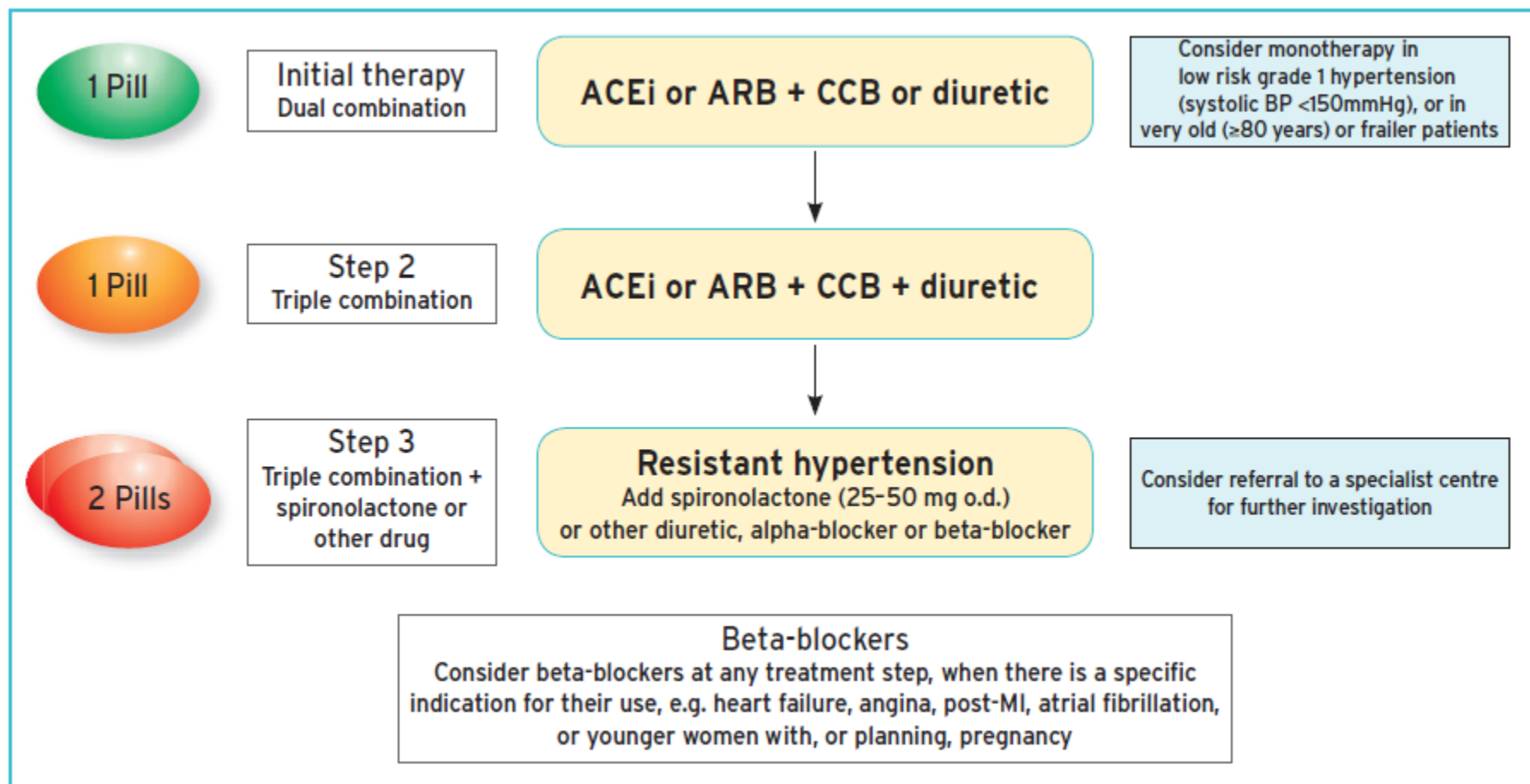
- A strong emphasis on the importance of evaluating treatment adherence as a major cause of poor BP control.

A key role for nurses and pharmacists in the longer-term management of hypertension

- The important role of nurses and pharmacists in the education, support, and follow-up of treated hypertensive patients is emphasized as part of the overall strategy to improve BP control.

ABPM = ambulatory blood pressure monitoring; ACE = angiotensin-converting enzyme; AF = atrial fibrillation; ARB = angiotensin receptor blocker; BP = blood pressure; CCB = calcium channel blocker; CV = cardiovascular; CVD = cardiovascular disease; HBPM = home blood pressure monitoring; HMOD = hypertension-mediated organ damage; SCORE = Systematic COronary Risk Evaluation; SPC = single-pill combination.

Drug treatment strategy for uncomplicated Hypertension



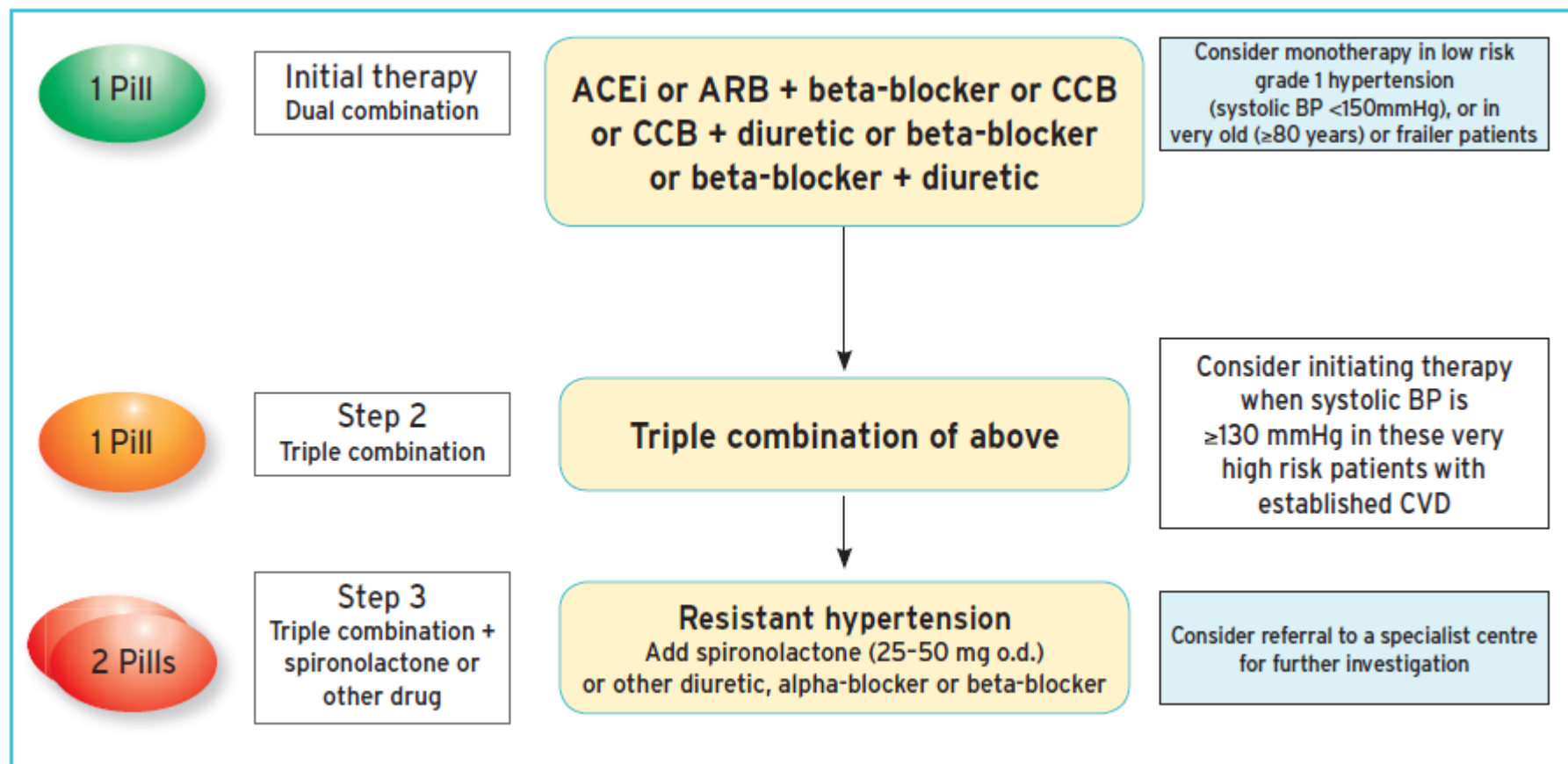
The core algorithm is also appropriate for most patients with HMOD, cerebrovascular disease, diabetes, or PAD.

ACEi = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker

CCB = calcium channel blocker; HMOD = hypertension-mediated organ damage; MI = myocardial infarction; o.d. = omni die (every day)

PAD = peripheral artery disease.

Strategy for HTN & coronary artery disease.

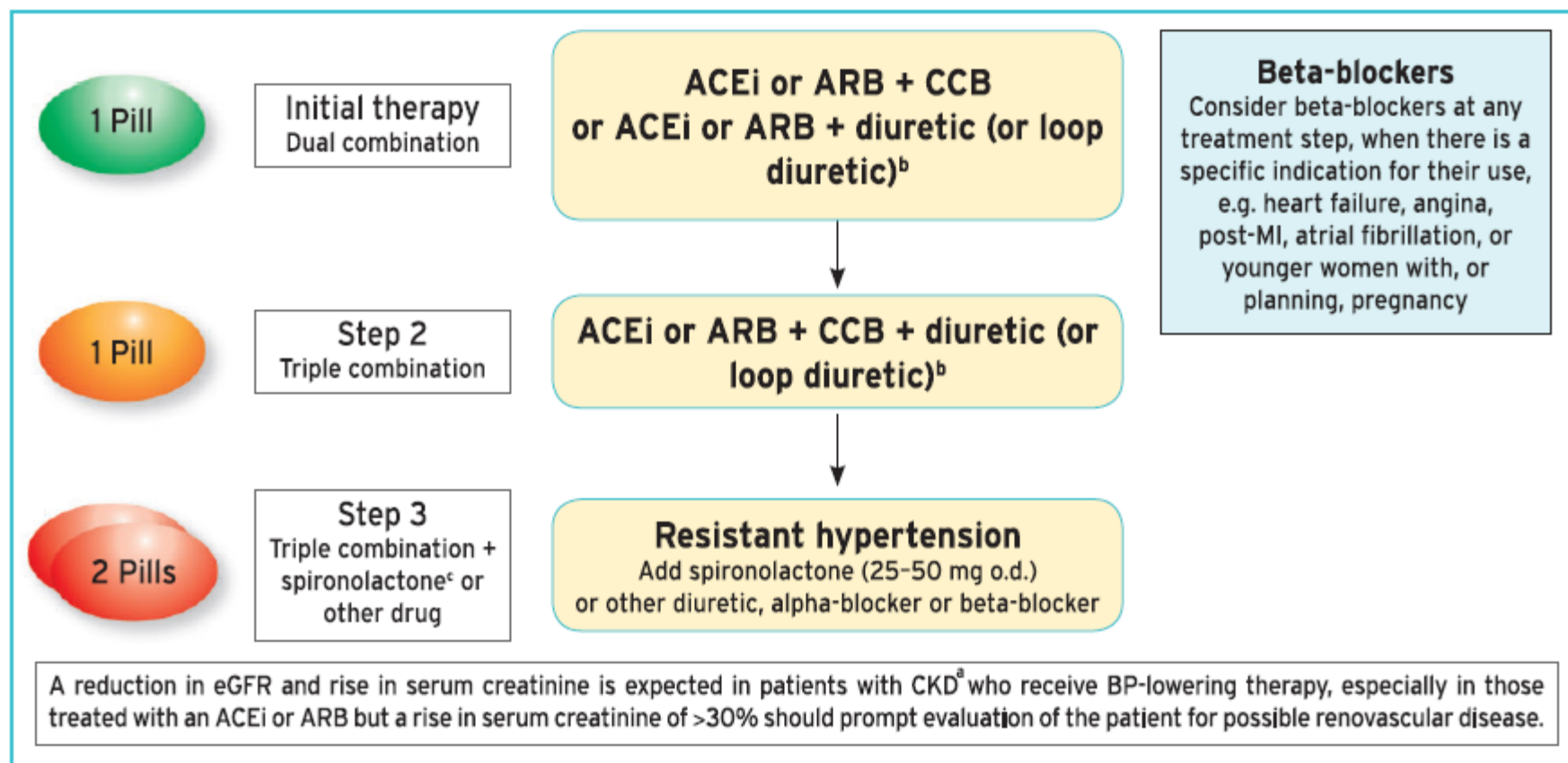


ACEi = angiotensin-converting enzyme inhibitor;

ARB = angiotensin receptor blocker; BP = blood pressure; CCB = calcium channel blocker; CVD = cardiovascular disease;

o.d. = omni die (every day).

Drug treatment strategy for HTN & CKD



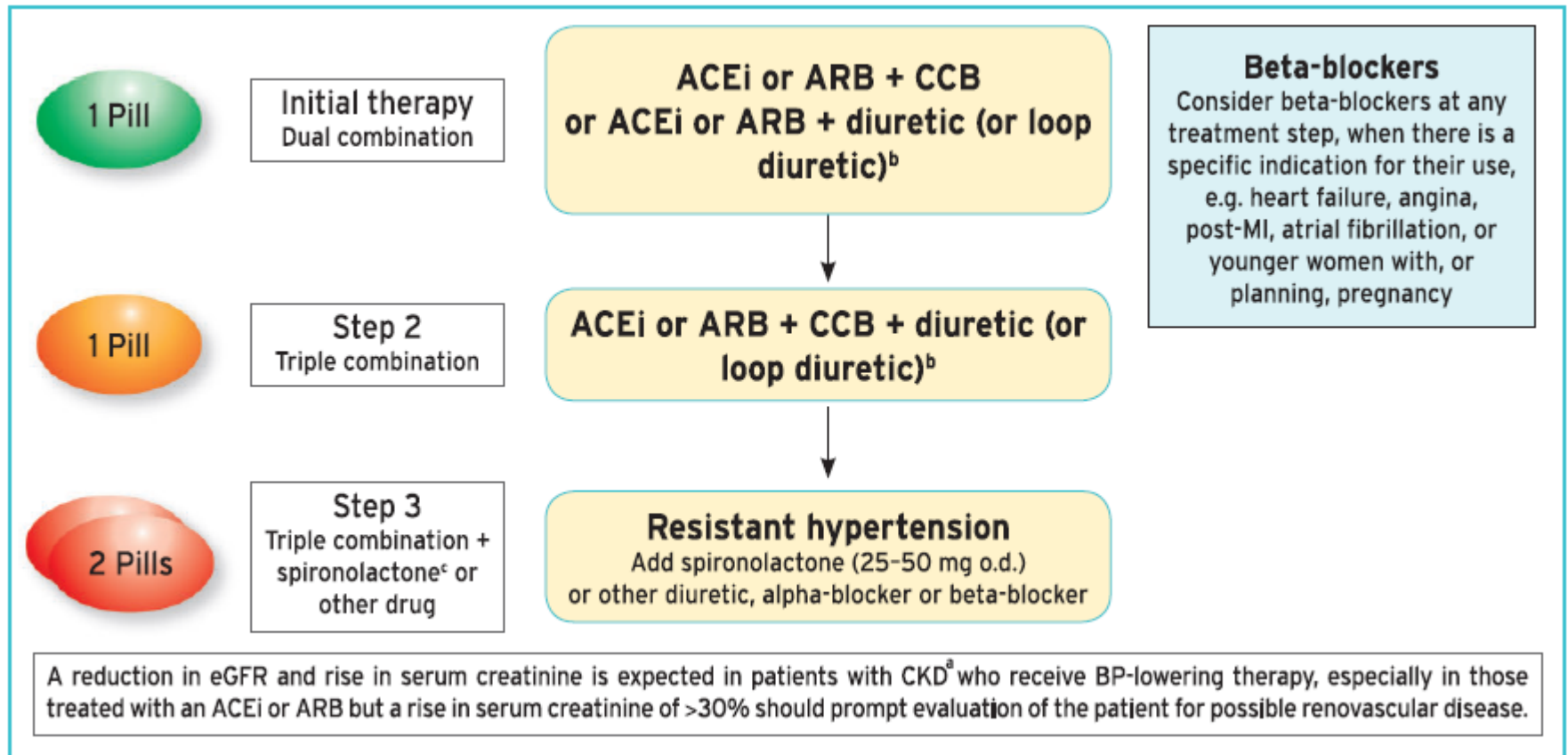
ACEi = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; BP = blood pressure; CCB = calcium channel blocker
CKD = chronic kidney disease; eGFR = estimated glomerular filtration rate; MI = myocardial infarction; o.d. = omni die (every day).

aCKD is defined as an eGFR <60 mL/min/1.72 m² with or without proteinuria.

bUse loop diuretics when eGFR is <30 mL/min/1.72 m², because thiazide/thiazide-like diuretics are much less effective/ineffective when eGFR is reduced to this level.

cCaution: risk of hyperkalaemia with spironolactone, especially when eGFR is <45 mL/min/1.72 m² or baseline K⁺ >4.5 mmol/L.

Drug treatment strategy heart failure with reduced ejection fraction

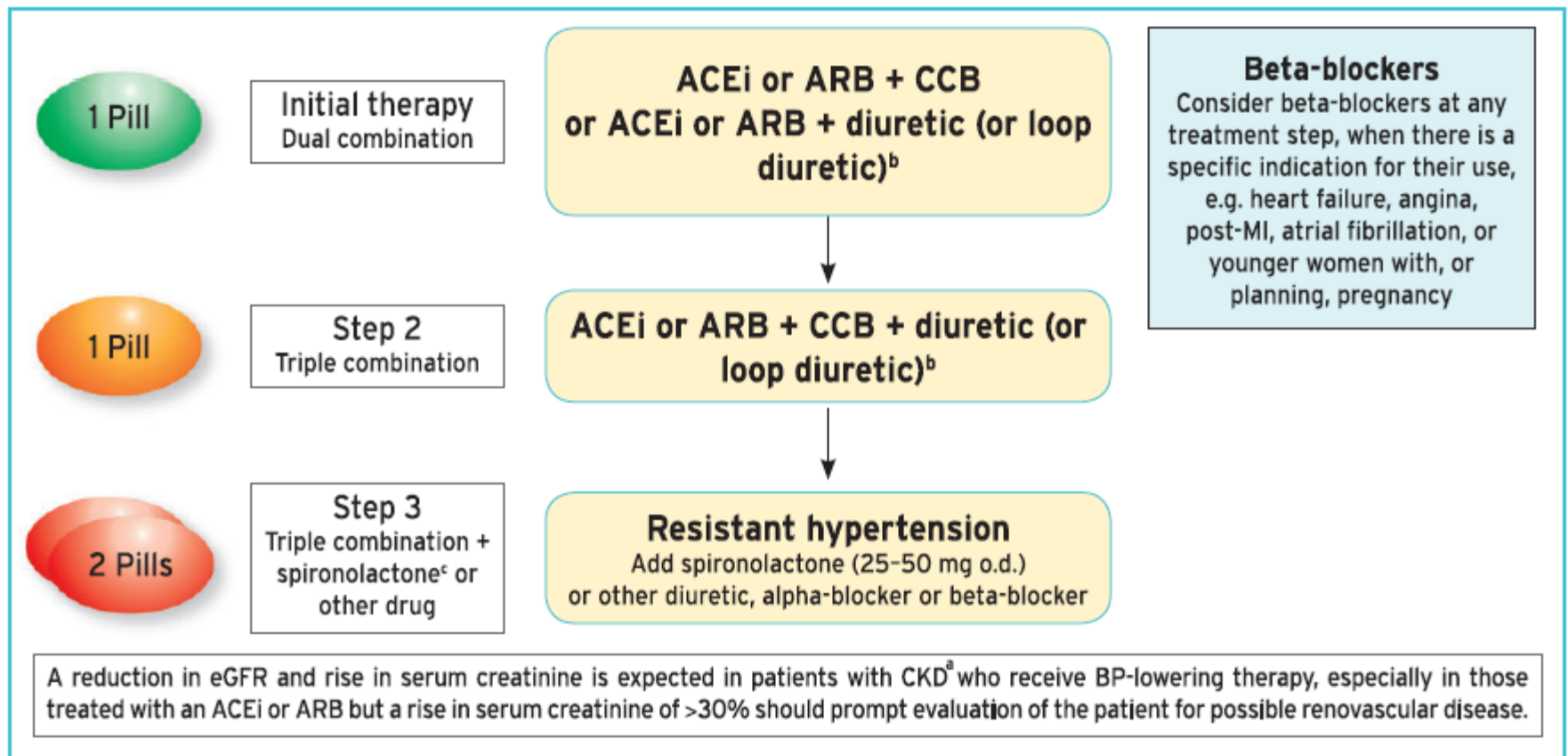


Do not use non-dihydropyridine CCBs (e.g. verapamil or diltiazem). ACEi = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; CCB = calcium channel blocker; ESC = European Society of Cardiology; HFrEF = heart failure with reduced ejection fraction; MRA = mineralocorticoid receptor antagonist.

^aConsider an angiotensin receptor/neprilysin inhibitor instead of ACEi or ARB per ESC Heart Failure Guidelines.

^bDiuretic refers to thiazide/thiazide-like diuretic. Consider a loop diuretic as an alternative in patients with oedema. ^cMRA (spironolactone or eplerenone).

Drug treatment strategy for atrial fibrillation



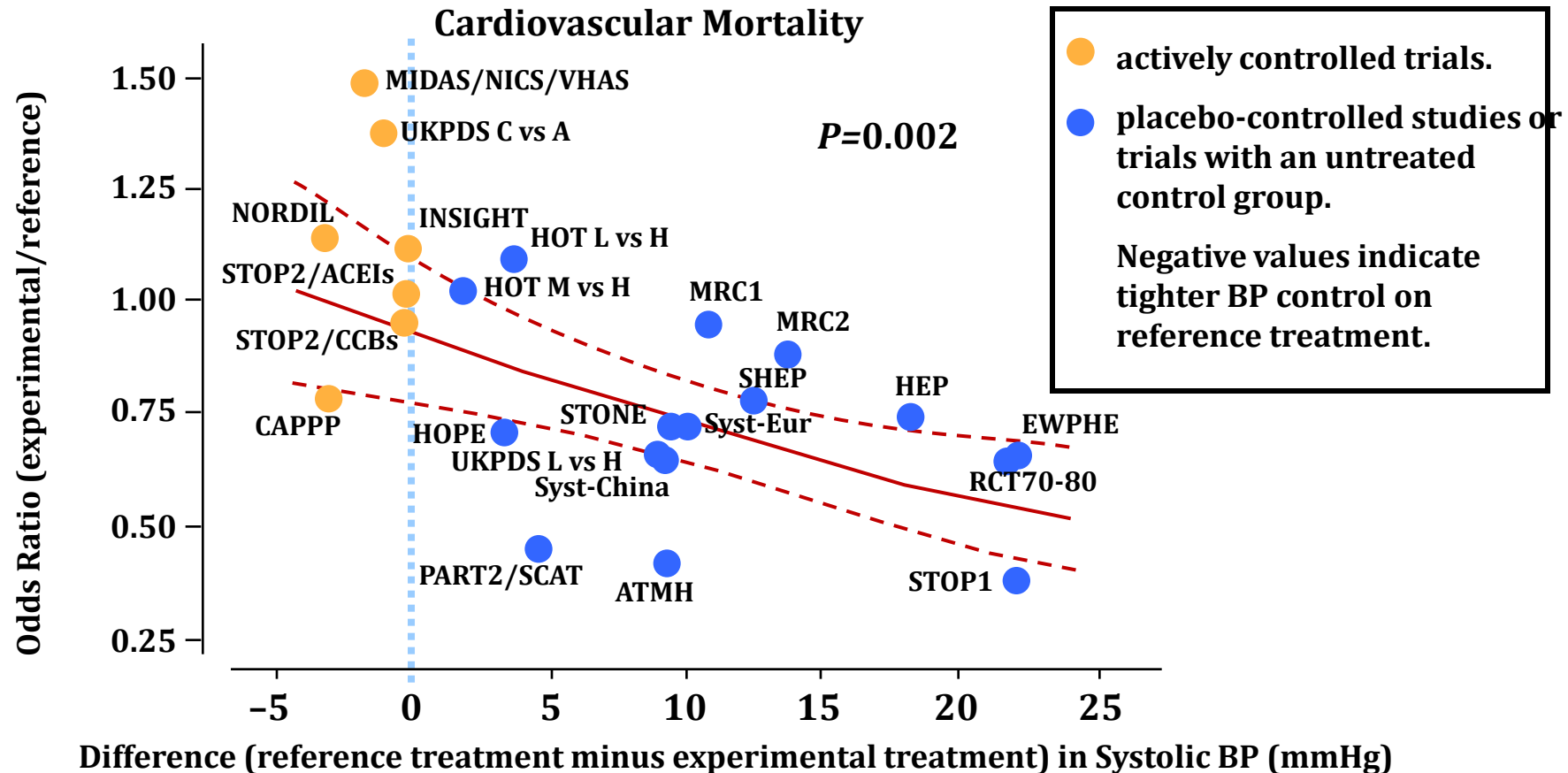
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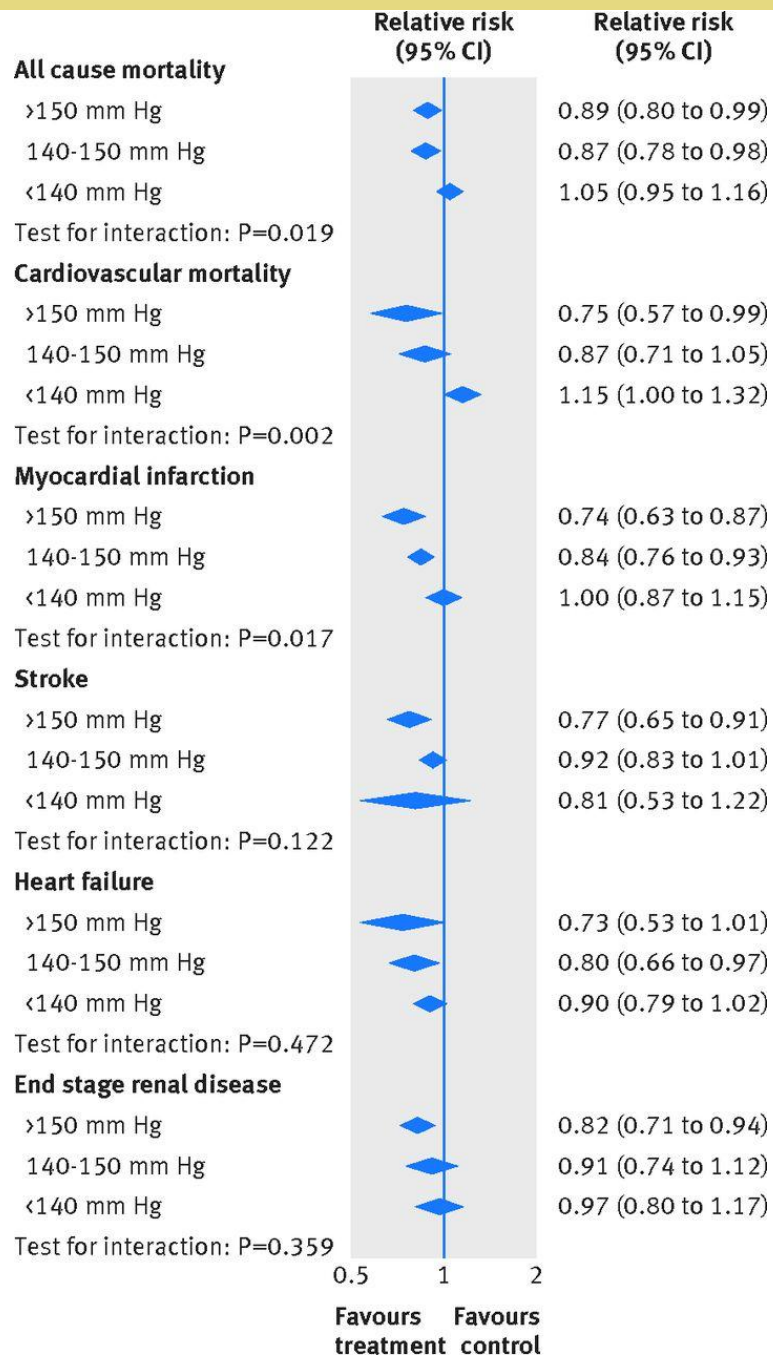
^bDiuretic refers to thiazide/thiazide-like diuretic. Consider a loop diuretic as an alternative in patients with oedema. ^cMRA (spironolactone or eplerenone).

Importance of Lowering BP

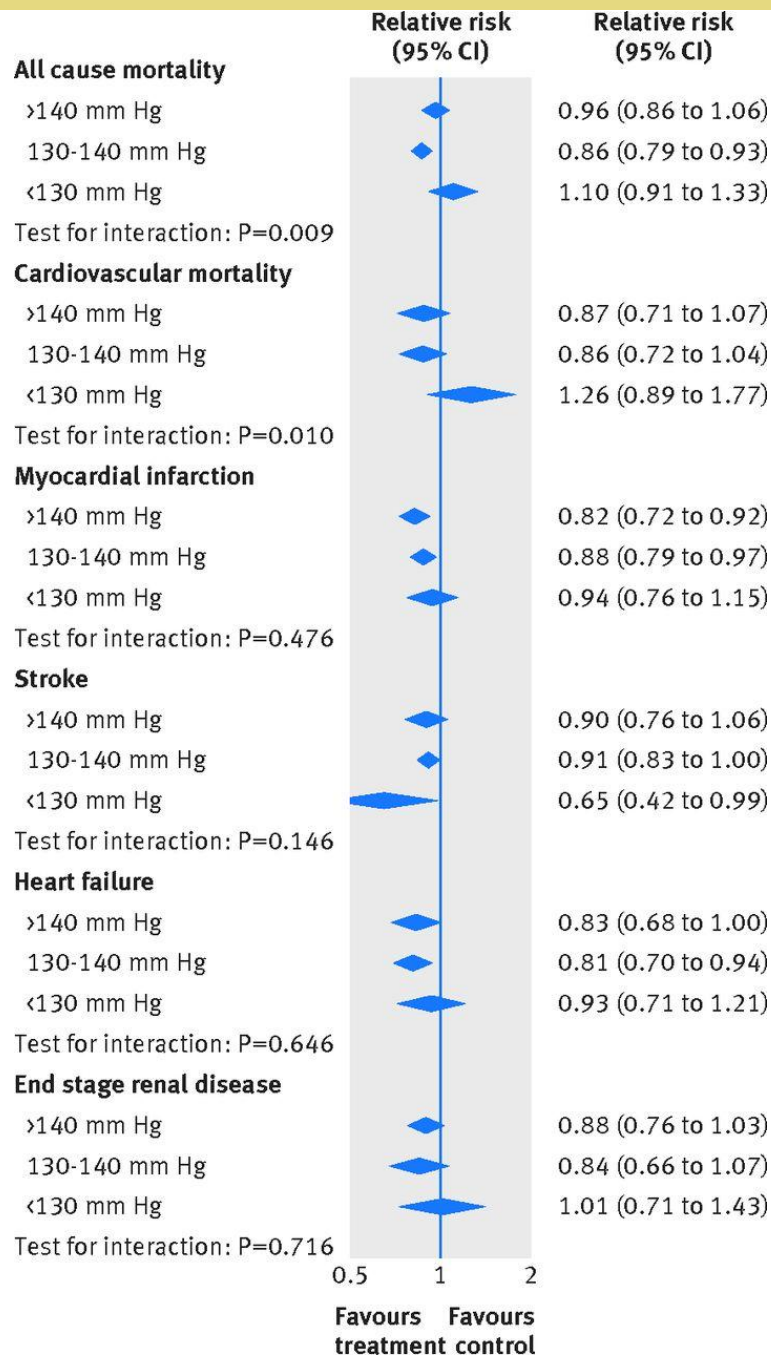
(Data from Multiple Clinical Trials Measuring the Impact of Hypertensive Therapy on Cardiovascular Mortality)



Greater differences in BP reduction mean greater reductions in the risk of CV mortality.



Results from meta-analyses stratified according to **baseline systolic blood pressure (SBP)**, reported for each outcome separately



Results from meta-analyses stratified according to **attained systolic blood pressure (SBP)**, reported for each outcome separately

Conclusion

- Hypertension exerts a substantial health burden on CV health status and healthcare systems
- Around 54% of stroke and 47% of coronary heart disease are attributable to hypertension
- Over 80% of this burden occurs in low and middle income countries

Conclusion

- BP-related disease also contributes to cardiovascular death among people below hypertensive threshold of 140/90 mmHg.
- ***Hypertension remains "the silent killer".***
- Reductions in burden of BP-related death require the parallel application of the population strategy at:
 - community level and
 - the clinical strategy *focusing on new and improved treatments for people with hypertension.*



Thank You