Hypertension, Re defining Normal Blood Pressure ; Is Lower Better ?

ASEAN FAMILY MEDICINE CONGRESS

IPOH, PERAK

20TH JUNE 2019

CRITERIA FOR 'NORMAL PRESSURE' - HISTORICAL PERSPECTIVE

pre - 1960	1960-1980	WHO 1980s	WHO/JNC/ISH 1990s	JNC 2000s
High BP is essential and should not be intervened	Normal SBP is 100 + age	<160/95mmHg	<140/90 mmHg	pre HPT introduced SBP 120-139 mmHg DBP 80-89 mmHg

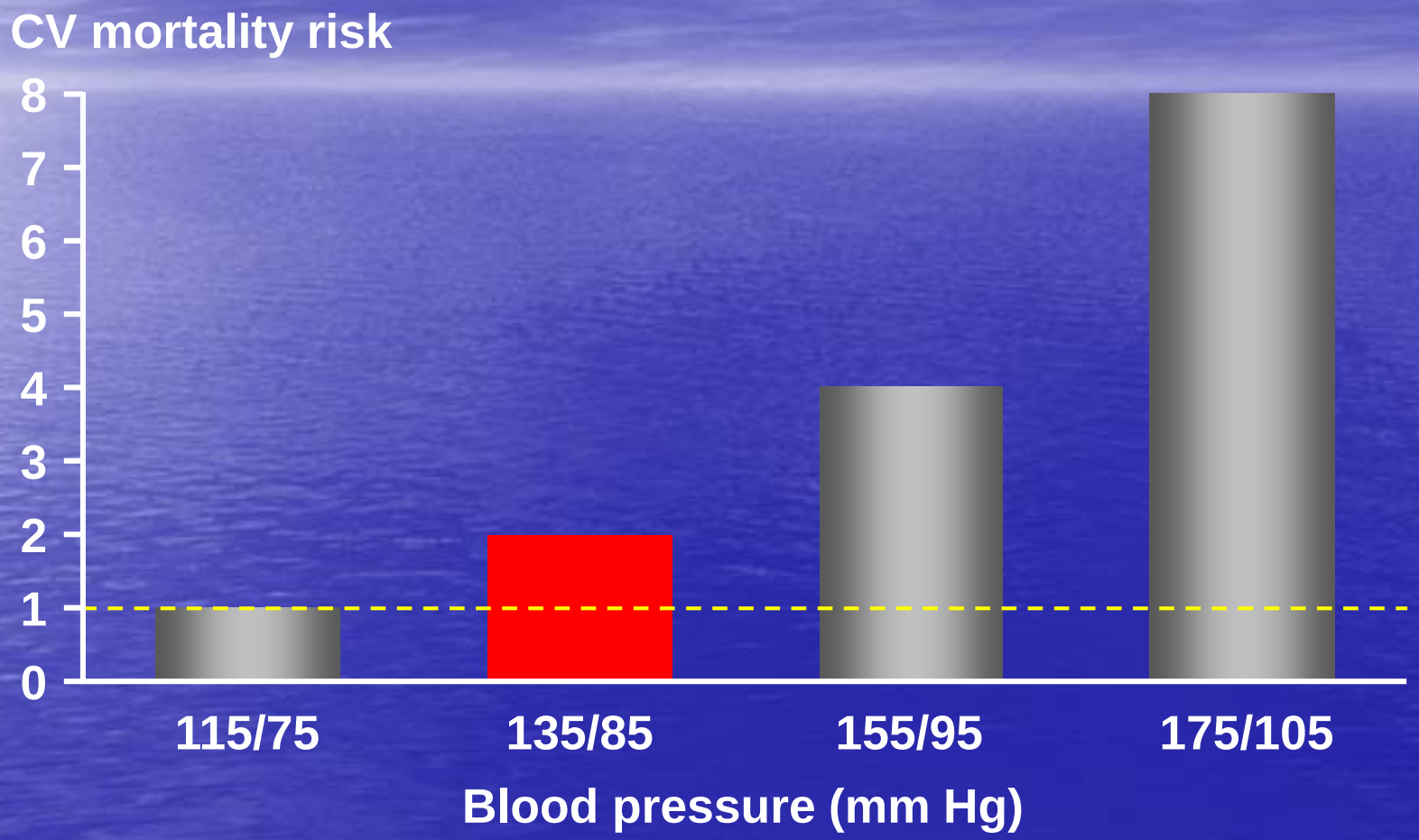
CRITERIA FOR 'NORMAL PRESSURE' - CURRENT STATUS

AHA/ACC November 2017	MSH January 2018	ESC/ESH August 2018
<130/80 mmHg	<140/90 mmHg	< 140/90 mmHg

CRITERIA FOR DIAGNOSIS

- EVIDENCE ?

EPIDEMIOLOGY



* individuals aged 40-70 years, starting at BP 115/75 mm Hg

Lewington et al. Lancet 2002
JNC VII. JAMA 2003

AHA /ACC 2017

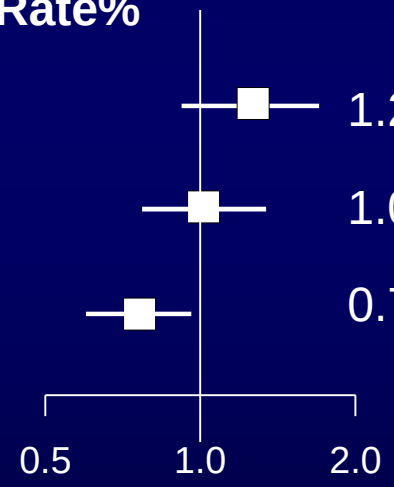
" Categories were based on a pragmatic interpretation of BP related CVD risk and benefit of BP reduction in clinical trials"

There is only ONE trial so far

Baseline BP 138/82 , CV Risk < 10%

CV Death, MI, Stroke, Cardiac Arrest, Revasc, HF

Cutoffs	SBP Mean	Diff	Placebo Event Rate%	HR (95% CI)	P Trend
≤131.5	122	6.1	3.5	1.25 (0.92-1.70)	0.009
131.6-143.5	138	5.6	4.6	1.02 (0.77-1.34)	
>143.5	154	5.8	7.5	0.76 (0.60-0.96)	

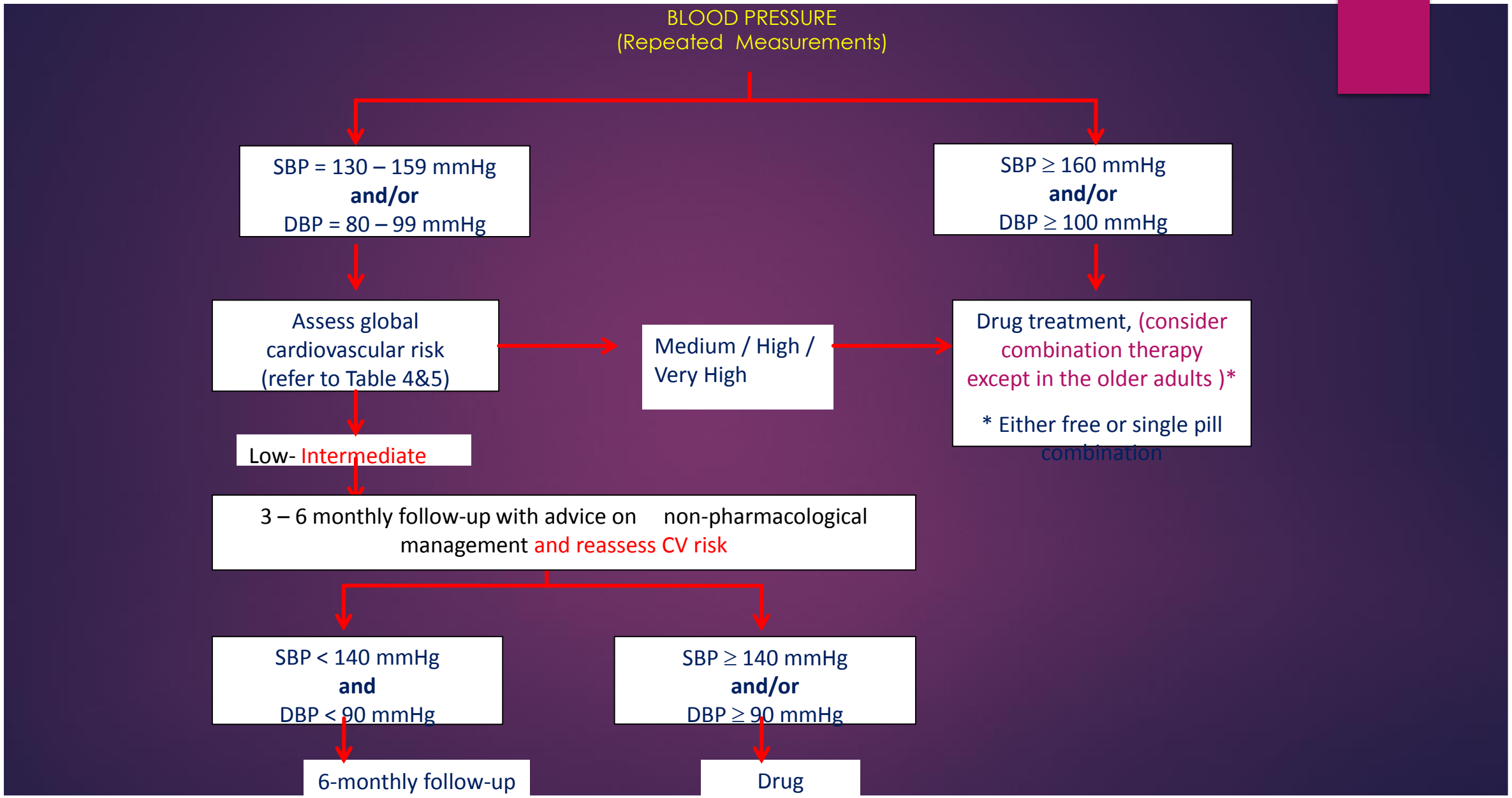


Candesartan + HCTZ Better Placebo Better

BP Lowering Arm: Conclusions

- Fixed dose combination of Candesartan 16 mg + HCTZ 12.5 mg/day reduced BP by 6.0/3.0 mmHg, but did not reduce CV events
- CV events were significantly reduced in the highest third of SBP
  - SBP >143.5 mmHg, mean 154 mmHg
- Results were neutral in the middle third, and trended towards harm in the lowest third of SBP
- Treatment increased lightheadedness, but not syncope or renal dysfunction

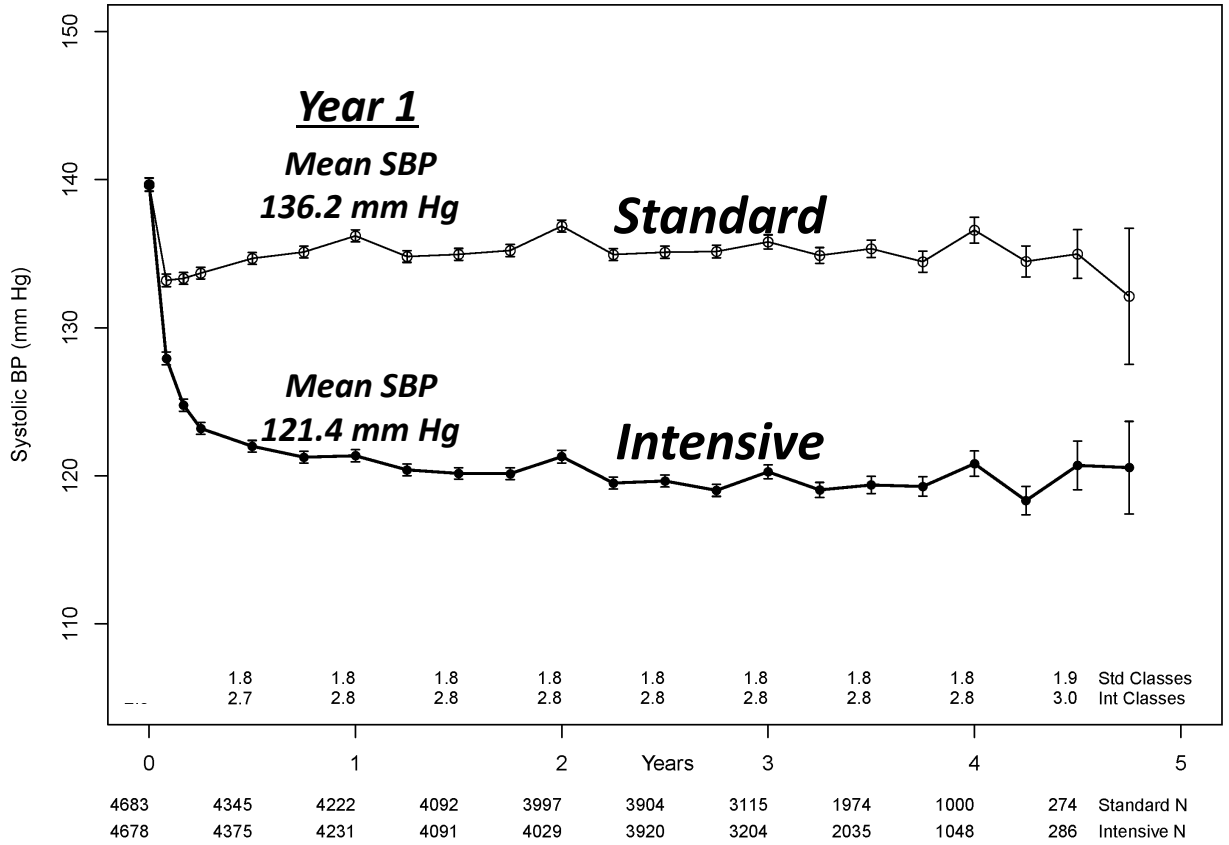
Algorithm for the Management of Hypertension



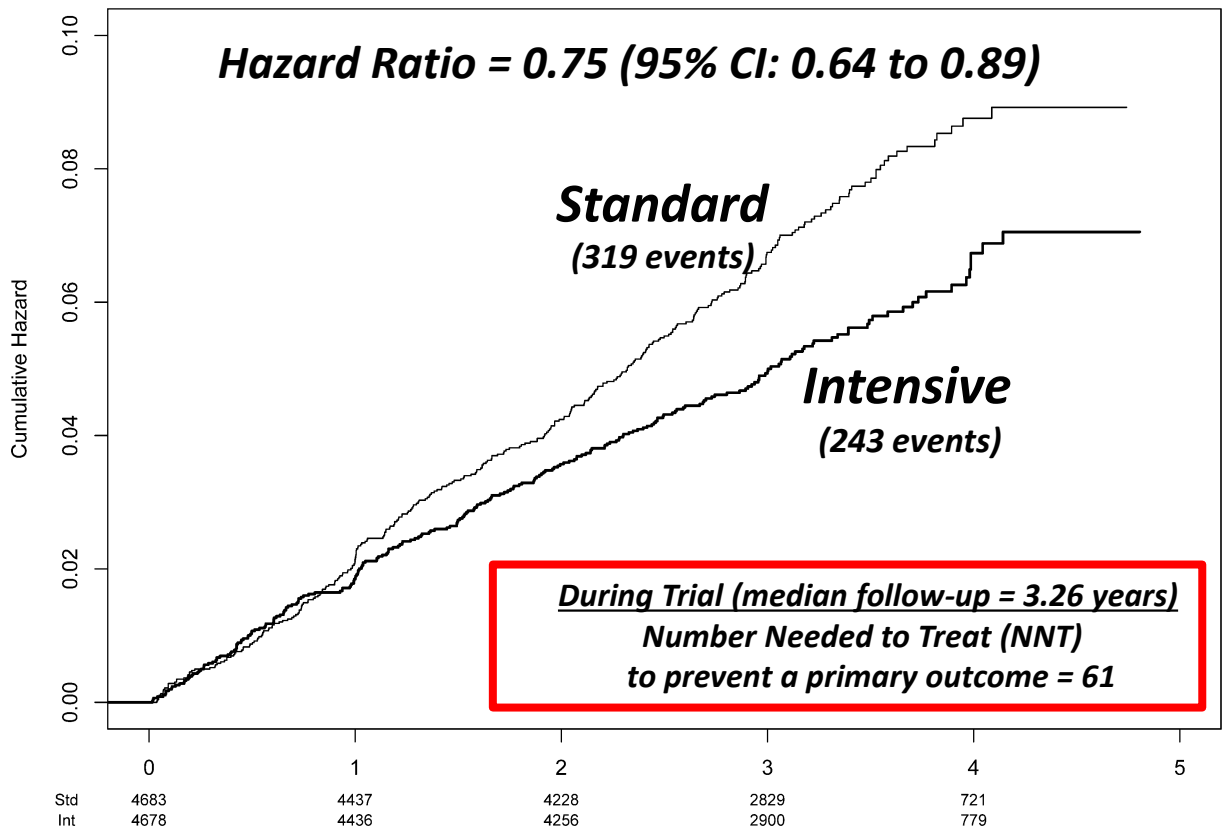
BP Target in the Elderly

ACP/ AAFP January 2017	AHA/ACC January 2017	MSH January 2018	ESC/ESH August 2018
< 150/90mmHg	< 130 mmHg	< 130/80 mmHg <140/90 mmHg < 150/90 mmHg	SBP 130-139 (avoid SBP < 130 mm) DBP < 80mmHg
≥ 60 years	≥65yrs	≥ 65 yrs	≥ 65 yrs

SPRINT - SYSTOLIC BP



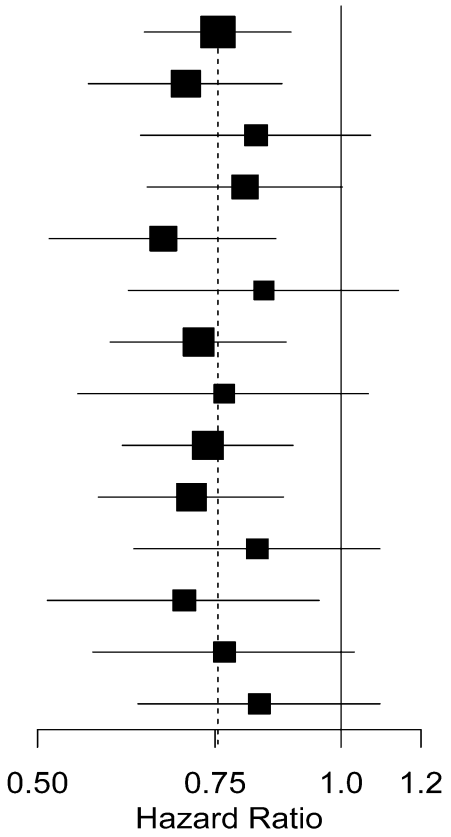
SPRINT Primary Outcome
Cumulative Hazard



Primary Outcome Experience in the Six Pre-specified Subgroups of Interest

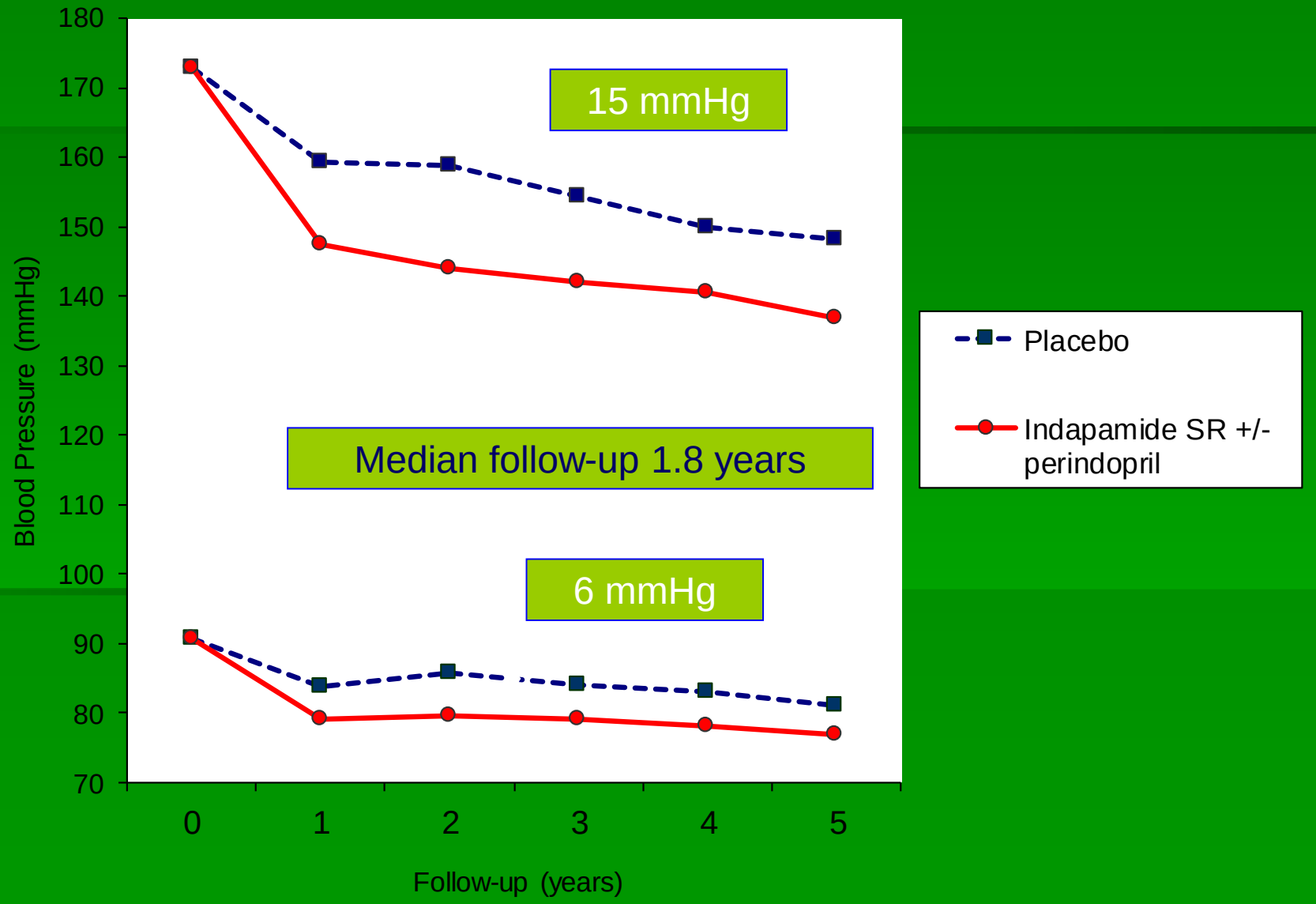
Subgroup	HR	P*
Overall	0.75 (0.64,0.89)	
No Prior CKD	0.70 (0.56,0.87)	0.36
Prior CKD	0.82 (0.63,1.07)	
Age < 75	0.80 (0.64,1.00)	0.32
Age ≥ 75	0.67 (0.51,0.86)	
Female	0.84 (0.62,1.14)	0.45
Male	0.72 (0.59,0.88)	
African−American	0.77 (0.55,1.06)	0.83
Non African−American	0.74 (0.61,0.90)	
No Prior CVD	0.71 (0.57,0.88)	0.39
Prior CVD	0.83 (0.62,1.09)	
SBP ≤ 132	0.70 (0.51,0.95)	0.77
132 < SBP < 145	0.77 (0.57,1.03)	
SBP ≥ 145	0.83 (0.63,1.09)	

*Treatment by subgroup interaction
*Unadjusted for multiplicity



SPRINT
Systolic Blood Pressure Intervention Trial

HYVET - Blood pressure separation



The Older Adult - Malaysian CPG

Older Adult Population	Target Systolic BP
> 80 years old	< 150/90 mmHg
65-80 years old	< 140/90 mmHg
Multiple Comorbidities Functional and Cognitive Impairment Frail , Institutionalized Experiencing ADR	Consider less strict targets Limit numbers of antihypertensive agents
Fit 65-80 years old (free from health conditions that limit mobility and/or functional ability with good nutrition and cognitive status	< 130/80mmHg

BP TARGET FOR DIABETIC HYPERTENSIVES

JNC 8 2014	AHA/ACC 2017	MSH 2018	ESC/ESH 2018
< 140/90mmHg	< 130/80mmHg	< 140/80mmHg	< 140/80mmHg (1st objective) SBP < 130 mmHg(if well tolerated) SBP < 120mmHg (should be avoided) DBP < 70mmHg (should be avoided)

ADA 2017

- ADA 2017 changed target from 140/80 mm Hg to 140/90mmHg

- “ These targets are in harmony with JNC8 (2014) recommendations of a DBP threshold of < 90 for individuals > 18 years of age with diabetes. A BP of < 80mmHg is still appropriate for patients with long life expectancy, CKD, elevated UAE, evidence of CV disease or additional risk factors such as dyslipidaemia, smoking or obesity

Hypertension Trials in Diabetes

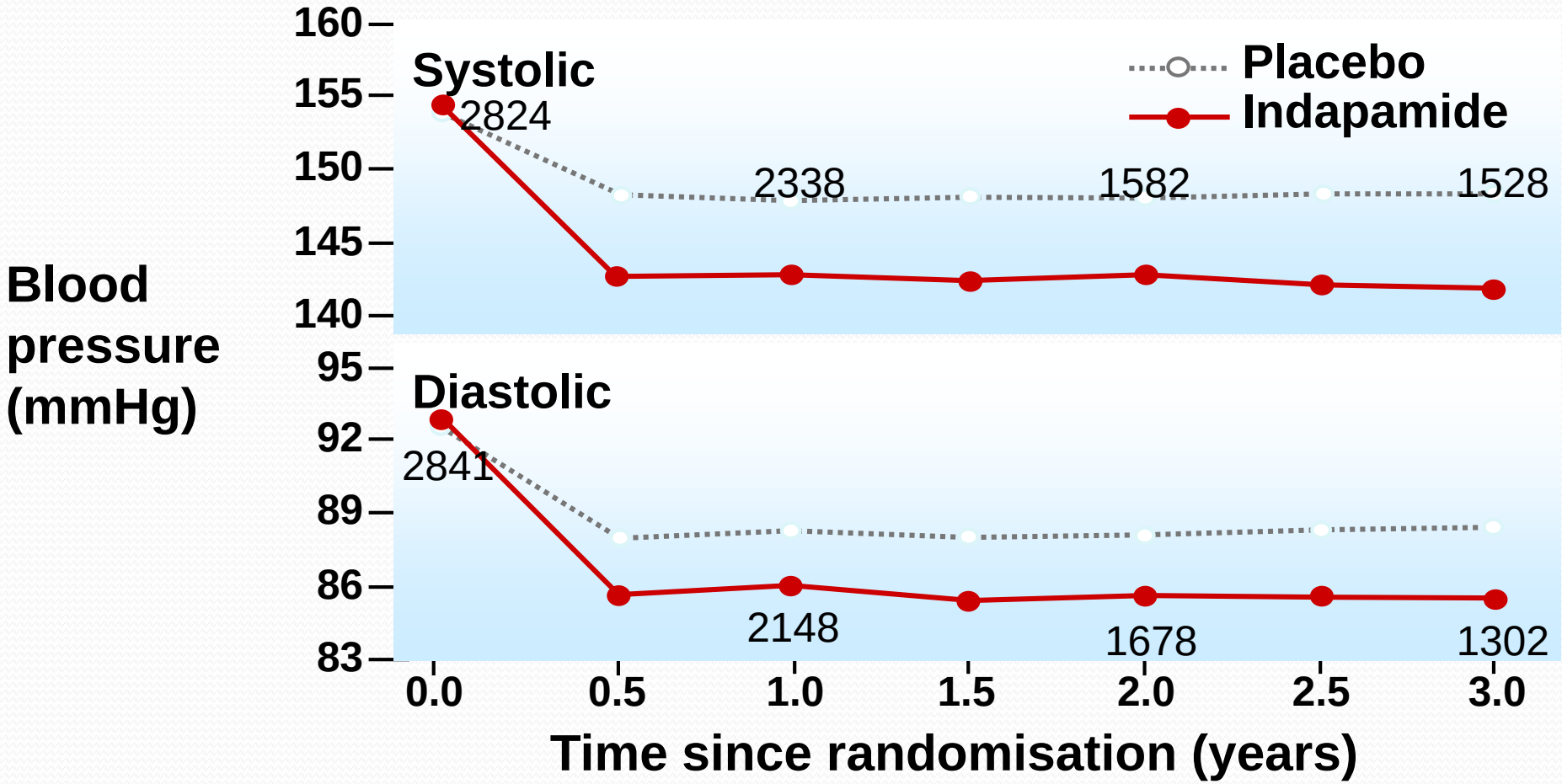
Trial	Year	Entry BP	BP difference	Outcome
UKPDS	1998	160/94	154/ 88 vs 144/82	POSITIVE
ADVANCE	2007	145/81	140/77 vs 135/75	POSITIVE
ACCORD	2010	139/76	134/71 vs 119/ 64	NEGATIVE

BP TARGET FOR HYPERTENSIVES WITH PREVIOUS CVA

AHA/ACC 2017	MSH 2018	ESC/ESH 2018
< 130/80mmHg	< 140/90mmHg < 130/80 for lacunar stroke	SBP 120-130mmHg

PATS: Blood pressure

Baseline BP 154/93mmHg

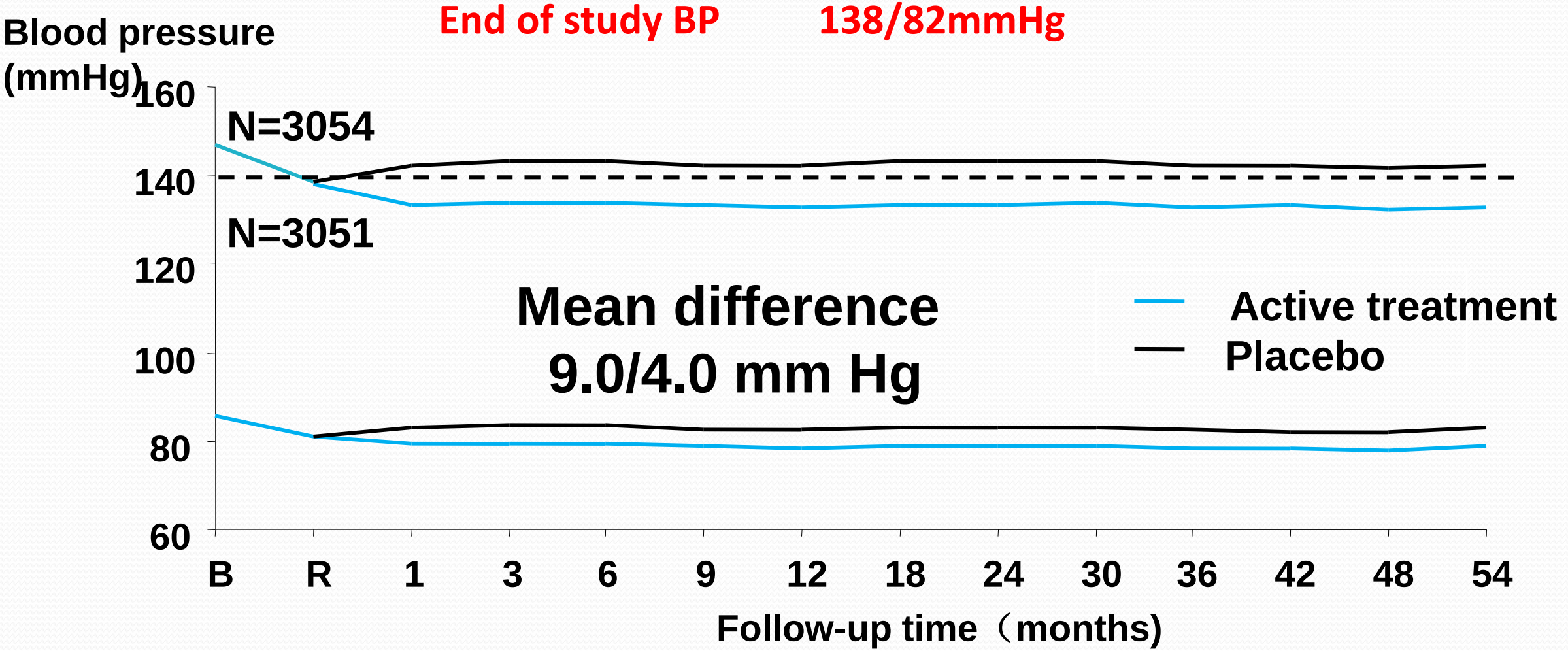


PATS Collaborating Group, Chin. Med. J. 1995; 108: 710-7.

PROGRESS

Baseline BP 147/86mmHg

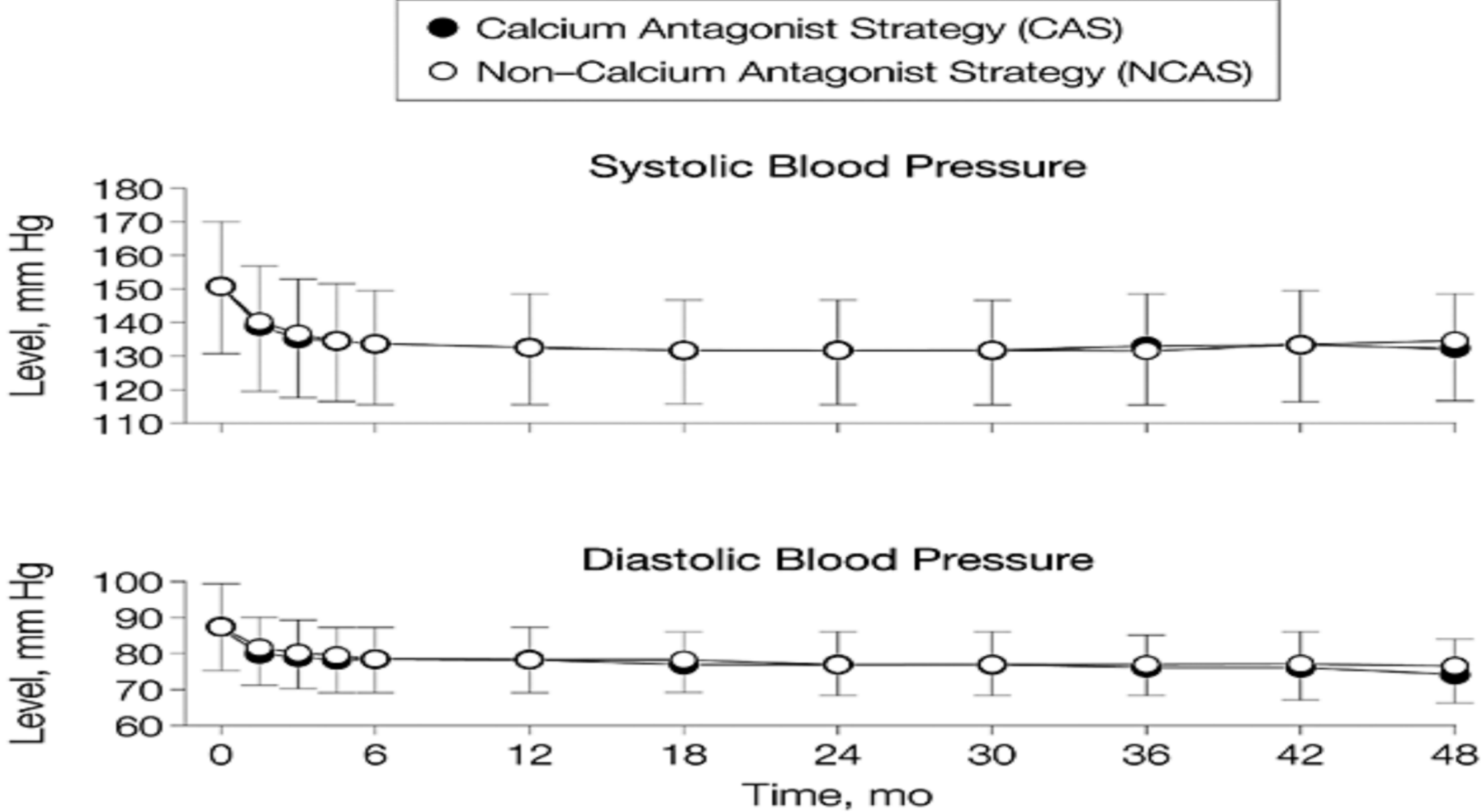
End of study BP 138/82mmHg



Lancet. 2001;358:1033-1041.

BP TARGET FOR HYPERTENSIVES WITH CONCOMITANT IHD

AHA/ACC 2017	MSH 2018	ESC/ESH 2018
< 130/80mmHg	< 130/80 mmHg	SBP $\leq$ 130/ < 80 mmHg SBP NOT < 120 / 70 mmHg



No. of Patients

CAS	11 267	8558	8639	7758	7842	5721	3659	1458	796
NCAS	11 309	8573	8694	7710	7850	5834	3679	1473	817

BP TARGET FOR HYPERTENSIVES WITH CONCOMITANT CKD

AHA/ACC 2017	MSH 2018	ESC/ESH 2018
< 130/80mmHg	< 140/90 mmHg (proteinuria < 1g/day) < 130/80 mmHg (proteinuria > 1g/day)	SBP 130-139 mmHg

CONCLUSIONS

- Only 2 new RCTs over the last 5 years to add to the existing body of evidence on BP targets
- Based on global surveys, we are still struggling to reach < 140/90mmHg when treating patients
- Strongest evidence is to get all patients < 80 years' BP < 140/90mmHg
- In higher risk patients < 130/80mmHg can be the target (evidence strongest with lacunar stroke) but care is needed as to *not do more harm than good*