

Table 3: First-line treatment of hypertension complicated by co-morbid conditions

	INITIAL THERAPY	SECOND LINE THERAPY	NOTES AND/OR CAUTIONS
Cardiovascular Disease			
Coronary heart disease	ACEI (for most patients); beta-blockers (for patients with stable angina)	Long-acting CCB	Avoid short-acting nifedipine
Myocardial infarction	ACEI + beta-blocker	ARB if ACEI intolerant and LV dysfunction is present; long-acting CCB if beta-blocker contraindicated or ineffective	Avoid non-DHP CCB if heart failure present
Left ventricular hypertrophy	Thiazide diuretic; ACEI; long-acting CCB	ARB if ACEI intolerant	Avoid direct arterial vasodilators such as hydralazine and minoxidil
Heart failure	ACEI + beta-blocker; aldosterone antagonist (in selected patients)	ARB if ACE intolerant; hydralazine /isosorbide dinitrate if ACEI and ARB intolerant; if BP not controlled, an ARB may be added to ACEI; thiazide or loop diuretics as additive therapy; long-acting DHP-CCB as additive therapy	If combining ACEI + ARB, monitor for potential adverse events including hypotension, hyperkalemia and worsening of renal function; if bradycardia is also present, avoid use of beta-blockers
Cerebrovascular disease	ACEI + thiazide diuretic	Long-acting DHP-CCB	Caution is indicated in deciding whether to lower BP in the acute stroke situation; pharmacologic agents and routes of administration should be chosen to avoid precipitous falls in BP
Non-Diabetic Chronic Kidney Disease			
Non-diabetic chronic kidney disease	ACEI (for patients with proteinuria*)	ARB if ACEI intolerant; thiazide diuretic as additive anti-hypertensive therapy; loop diuretics for volume overload	Avoid ACEI and ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney
Renovascular disease	Thiazide diuretic; ACEI; long-acting CCB	ARB if ACEI intolerant; combination of first-line medications	Avoid ACEI and ARB if bilateral renal artery stenosis or unilateral disease with solitary kidney
Diabetes Mellitus			
Diabetes mellitus with albuminuria	ACEI	ARB if ACEI intolerant; additional hypertensive agents should be used to achieve target BP	
Diabetes mellitus without albuminuria**	Thiazide diuretic; ACEI; DHP-CCB	ARB if ACEI intolerant; if these drugs are not tolerated, a non-DHP CCB may be used	

* Proteinuria is defined as urinary protein >500 mg/24hr or albumin-creatinine ratio (ACR) >30

** Albuminuria is defined as persistent ACR >2.0 mg/mmol in men and >2.8 mg/mmol in women

Abbreviations: ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin II receptor blocker; CCB, calcium channel blocker; DHP-CCB, dihydropyridine calcium channel blocker.

Table adapted from CHEP 2007¹