Properties of Antihypertensive Agents

Drug Category	Primary Action	Factors offsetting BP↓	Adverse Effects	STXL Cardiovasc Regression	Effective in Combo	Special Issues	
						Indicated In	Avoid In
DIURETIC- (long acting thiazides) Hydrochlorthiazide Chlorthalidone Metolazone	↓Renal Na + Reabsorption capacity (Also vasodilate)	↑ PRA ↑ SNS	Hypo K+ Met Alk ↑ TG/glu intol Impotence	Yes 2+	ACE inhibitors/ARBs Sympatholytics CCB Combine with triamterene to minimize hypoK	Stones, CHF Isolated Sys HTN Elderly African Americans	Uncontrolled DM ↑ lipids Gout
ACE Inhibitors Captopril Lisinopril Ramipril	↓ Ang II level ↑ Bradykinin, Ang1-7 levels ↓ SNS Outflos	(-)	Hypotension if ↑ PRA ↓ GFR in renal art. stenosis	Yes 4+	All	Diabetes, CHF; CRF Proteinuria/nephrosis Vasc Dis (HOPE)	HyperK+ Some renal art. stenosis pts.
Ang II AT-1 receptor Blockers Losartan Candesartan Aldo Receptor Blkrs Spironolactone Eplerenone	↓ Ang II action ↑ Ang II level ↓ Ren Na+ Reabs	(-) ???	Same ↑ K+ in CKD	Yes 2-4 ???	All except ACE Inhib. (except in proteinura>1gm)	Alternative to ACEI if pt. intolerant; Add to ACE in heavy Proteinuria Primary Aldo	HyperK+ Some renal art. stenosis pts.
Peripheral Beta Blockers Atenolol/Metoprolol Corvedilol/Labetolol	↓ SNS periph action	(-)	↓ Exercise tol. Brady; CHF ↑ **risk new DM**	Yes (weak)	Any except non-DHP CCBs (risk bradycardia & conduction block)	CAD (Angina/post MI) Severe CHF (+ ACEI) Rev 04	COPD Diabetes (rel contra) Obesity
<u>DHP CCB</u> <u>Dihydropyridine:</u> Nipedipine XL Amlopidine	↓TVR ↓Renal Na reabsorption	(-)	<u>DHP:</u> Edema ↑Proteinuria	Yes	Any except vasodilators; additive with nonDHP Ca Ch Blockers		Proteinuria/ Diabetes (except with ACEI) CAD (short acting nifedipine)
<u>Non DHP CCB:</u> Diltiazam Verapamil	↓TVR	(-)	<u>Non-DHP:</u> Bradycardia CHF Constipation		Verapamil: Hi % Brady, changes cardiac conductivity with B blockers	Dilt for proteinuria CAD, At fib	CHF
Alpha 1blockers Prazosin Doxazosin	↓ SNS periph action	↑circ catechols ? B1 cardiac stim if used alone	Postural hypotension	??? Cardiac Ptxn < diuretic	*Avoid monotherapy*; Combine with Beta blocker (per ALLHAT)	↑ lipids Impotence BPH	Elderly (risk for postural Hypotension)
SYMPATHOLYTICS Central Clonidine Aldomet	↓ SNS outflow ↓HR (25%)	(-)	Dry mouth Drowsiness	Yes	Any/all	Diabetes Insomnia Substance abuse	Auton neuropathy (paradoxical increase BP)
DIRECT VASODILATORS Hydralazine	↓ TVR	↑ SNS ↑ Ht. Rate ↑ CO Work Renal Na Retention ↑ PRA/Ang II	Angina Edema	No esp (*Minoxidil can cause RVH)	Sympatholytic Diuretic (avoid CCB)	CHF if intolerant of ACEI	
Minoxidil	↓↓↓ TVR		Angina Edema CHF		<u>Must</u> use BBlkr + Loop diuretic		CAD/angina, LVH