

Angiotensin II Receptor Blockers

Examples Cozaar (Losarten)
Atacand (Candesarten) Diovan (Valsartan)

MOA: Prevent action of A-II and produce vasodilation and increased salt and water excretion

Side effects Hyperkalemia
Impaired renal function

Drug Interactions: None listed

Nursing Implications Monitor b/p and heart rate Full effect may take 3-6 weeks Watch for hyperkalemia and renal dysfunction

Patient Education

Screening B/P measurement
Cardiovascular risk factors

Therapeutic regime Lifestyle modification Medication adherence

Nursing Management

Assessment History and physical exam BP measurement

Nursing Diagnoses Ineffective health maintenance Anxiety
Sexual dysfunction

Goals Lower BP and enhance patient compliance

Interventions Early identification of medication side effects or complications Patient and family education

Evaluation Achieve and maintain goal BP Understand, accept, and implement therapeutic plan Experience minimal or no side effects

Calcium Channel Blockers

Examples: Diltiazem (Cardizem SR) Nifedipine (Procardia, Procardia XL, Adalat) Nicardipine (Cardene) Verapamil (Isoptin, Calan, Calan SR) Amlodipine (Norvasc)

Mechanism of action: Blocks movement of calcium into cells Vasodilatation, ↓ SVR, ↓ contractility, ↓ HR

Side Effects: Bradycardia, 1st degree AV heart block, nausea, headache, dizziness, peripheral edema, flushing, rash gingival hyperplasia, and constipation with verapamil.

Adverse drug Interactions: Cautious use in patients with heart failure. Contraindicated in patients with 2nd and 3rd degree heart block.

Avoid grapefruit juice

Watch for bradycardia, first degree heart block

Diuretics

Thiazide	Loop
MOA: Inhibit NaCl reabsorption in distal tubules. Initial decrease in ECF and sustained decrease in SVR. Lowers B/P over 2-4 weeks.	MOA: Inhibits NaCl reabsorption in the ascending limb of loop of Henle, Increase excretion NaCl.

Chlorothiazide (Diuril), hydrochlorothiazide (Microzide)	Furosemide (Lasix), bumetanide (Bumex)
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Diuretics (cont)

Side effects: fluid and E-imbalance, volume depletion, metabolic alkalosis. Vertigo, headache, weakness. Anorexia, N/V, constipation, pancreatitis, sexual dysfunction, photosensitivity, decreased glucose tolerance

Adverse rxn: Fluid and electrolyte imbalances. Ototoxicity, vertigo, Metabolic: hyperurecemia, hyperglycemia, inc. LDL and triglycerides and dec. HDL

Drug Interactions: Potentiate digoxin NSAIDs may decrease diuretic and antihypertensive effect

Nursing Considerations: Monitor VS, orthostatic hypotension, Monitor for hypokalemia. Teach about supplementation with K+ rich foods

Drug Interactions: None listed

Nursing Interventions: Monitor fluid and E imbalances

Diuretics

Potassium Sparing	Aldosterone Receptor Blockers
MOA: Reduce K+ and Na+ exchange distal and collecting tubules reduce excretion of K+, H+, Ca+ and Mg+	MOA: inhibits Na+ retaining and K+ excreting effects of aldosterone in distal and collecting tubules (K+ sparing)

Amiloride (Midamor)	Spirolactone (Aldactone)
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Side effects: Hyperkalemia: N/V, diarrhea, leg cramps, dizziness, Tall t waves	Side effects: Hyperkalemia, gynecomastia, erectile dysfunction menstrual irregularity
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Drug interactions: Caution in pts on ACE inhibitors and Angiotensin II blockers avoid potassium supplements	Drug Interactions: Do not combine with K+ sparing diuretics or supplements, cautious use with ACE Inhibitors or angiotensin II blockers
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Diuretics (cont)

Nursing Interventions: monitor for orthostatic hypotension, contraindicated in pts with renal failure and cautious use in pts on ACE inhibitors and Angiotensin II blockers. Avoid K+ supplements

Nursing Interactions: monitor for orthostatic hypotension and hyperkalemia.ing

Interventions: Monitor fluid and E imbalances

Direct Vasodilators

Examples: Hydralazine (Apresoline) Minoxidil (Loniten) Sodium nitropruside (Nipride)

Mechanism of action: Relax vascular smooth muscle
Decrease SVR

Often given IV for hypertensive crisis

Side Effects: Reflex tachycardia, nausea, flushing, headache, hypotension

Nursing Interventions: Monitor for hypotension and tachycardia

ACE Inhibitors

"pril"

Examples: Captopril (Capoten) Enalapril (Vasotec) Lisinopril (Zestril, Prinivil) Ramipril (Altace) Benazepril (Lotensin) Quinapril (Accupril)

ACE Inhibitors (cont)

Mechanism of action: Inhibits angiotensin-converting enzyme
Decreases vasoconstriction and water retention

Side Effects: Cough: 1/3 will develop Hypotension, Dizziness, headache, vertigo Angioedema Photosensitivity Abdominal pain, loss of taste Hyperkalemia: inhibits aldosterone

Drug Interactions: Diuretics enhance effect NSAIDS and ASA may reduce effect

Nursing Implications Monitor blood pressure Monitor serum potassium Monitor renal function Antacids may decrease absorption

Beta Blockers

Beta Blockers "-olol"

Metropolol(Lopressor), propranolol(Inderal), carvediol(Coreg)

Mechanism of action: Block beta receptor sites which are responsive to epinephrine and norepinephrine..

Side Effects Hypotension Headache Fatigue Peripheral edema Erectile dysfunction Diabetics : may mask hypoglycemia Asthma: symptoms to monitor for

Nursing Implications Monitor heart rate and blood pressure Monitor for symptoms of HF

Drug Interactions: cautious use with diabetics and asthma patients

Nursing Interactions: Monitor pulse and BP regularly. IV administration short onset and duration

Hypertensive Crisis

Sudden, severe increase in diastolic BP

Clinical manifestations: Hypertensive encephalopathy Renal insufficiency Cardiac decompensation Neurologic compromise

Hypertensive Crisis: Nursing-Collaborative Management

Hospitalization IV antihypertensive drugs Intensive monitoring Invasive blood pressure monitoring Frequent physical assessments Treatment guided by MAP Use caution not to decrease BP too fast!

Types of Medications

Diuretics

Beta-Blockers

Calcium Channel Blockers

ACE Inhibitors

ARBs

Vasodilators

