

Diuretics (-zide, -mide)

Thiazide diuretics	LOOP diuretics	K+ Sparing
⚡ MOA	i.e. Lasix (furosemide)	i.e. spironolactone, triamterene

Inhibits reabsorption of Na, K, Cl resulting in osmotic water loss

Relaxes arterioles (decrease afterload)

⚡ Indication	Reduced BP	⚡ Indications
HTN (first line)	Reduced SVR (afterload), reduced CVP (preload), reduced LVEDP	HF

Edematous state d/t HF, liver cirrhosis

⚡ Contraindications	Edema (rt sided HF)	⚡ Contraindications
		Allergy, hyperkalemia, kidney failure, anuria

Diuretics (-zide, -mide) (cont)

Drug	Fluid	⚡ Adverse Effects
allergy, hepatic coma, anuria, kidney failure	accumulation d/t liver/kidney disease	

⚡ HTN
Adverse Effects
 Spironolactone-gynecomastia, amenorrhea, irregular menses, etc.

Electrolyte disturbances (decrease K, elevated Ca, lipids, glucose, uric acid)	Pulmonary edema (lt sided HF)	Triamterene-kidney stone d/t reduced folic acid
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Dizziness
 GI disturbance

Thrombocytopenia
⚡ Contraindications
 allergy, hepatic coma, severe electrolyte loss (Na & K), pregnancy/BF, gout

Pancreatitis
⚡ Adverse Effects

Diuretics (-zide, -mide) (cont)

Cholecystitis	Electrolyte loss/dehydration
Headache	Furosemide-ototoxicity/photosensitivity

Impotence
 Orthostatic hypotension
 Hyperglycemia, hyperuricemia

*Thiazide diuretics work on distal tubule
 *Loop diuretics work on ascending loop of Henle
 *K sparing works on collecting duct

Beta Blockers (-olol)

i.e. atenolol, metoprolol, bisoprolol, timolol (eye drops), labetalol (IV)

⚡ MOA
 - blocks SNS stimulation of Beta 1
 - Reduced renin and aldosterone release and fluid balance
 - Vasodilation of arterioles= Decreased PVR and BP
 - Decreased myocardial stimulation
 - Decreased HR
 - Decreased conduction through AV node
 - Prolonged SA node recovery
 - Decreases myocardial O2 demand and contractility

Beta Blockers (-olol) (cont)

*reduces the work of the heart

⚡ Indications
 - HTN, angina, dysrhythmias

⚡ Contraindications
 - Allergy
 - Uncompensated HF
 - Cardiogenic shock
 - Heart block
 - Bradycardia
 - Pregnancy
 - Severe pulmonary disease (B2)
 - Raynaud's disease

⚡ Adverse Effects
 - Can worsen angina or cause MI if stopped quickly
 - Symptoms of HF (coughing, SOB, Edema, fatigue)
 - Can mask signs of hypoglycemia
 - CV: AV block, bradycardia, HF, PV insufficiency, hypotension
 - Resp: bronchospasm, bronchoconstriction
 - CNS: dizziness, depression, lethargy
 - GI: nausea, dry mouth, vomiting, constipation, diarrhea
 - Hema: thrombocytopenia

** Watch for diabetic pts
 ** Monitor closely if given with calcium channel blocker



ARBs (-sartan)

i.e. losartan, eprosartan, valsartan, irbesartan, telmisartan

⚡ MOA

- blocks binding of angiotensin II to receptors
- Affects smooth muscle and adrenal gland
- Blocks vasoconstriction and secretion of aldosterone

⚡ Indications

- HTN, HF (decrease preload/afterload), decreased mortality after MI

⚡ Contraindications

- allergy, pregnancy/BF, kidney dysfunction (caution), older adults

⚡ Adverse Effects

- URI, headache, hypotension, tachycardia, S/S of toxicity

⚡ Interactions

- Cimetidine, phenobarbital, rifampin, K+ supplements

**once daily medication

Calcium Channel Blockers (-pine, -amil)

i.e. Amlodipine (dihydropyridines), Diltiazem (benzothiazepines), Verapamil (phenylalkylamines)

⚡ MOA

- Blocks Ca access to cells causing:
 - decreased contractility
 - decreased conductivity of the heart

Calcium Channel Blockers (-pine, -amil) (cont)

- decreased demand for O₂
- dilation of coronary arteries (decreased afterload, increased oxygen supply)

**decreases work of the heart

⚡ Indications

- Angina
- HTN
- SVT
- Atrial fib/flutter
- Migraines
- Intracranial aneurysm rupture

⚡ Contraindications

- allergy, acute MI, 2 or 3rd heart block, hypotension

⚡ Adverse Effects

- Hypotension
- Palpitations
- Tachycardia or bradycardia
- HF
- Constipation
- Nausea
- Dermatitis
- Dyspnea
- Rash/flushing
- Peripheral edema

⚡ Interactions

- beta blocker, digoxin, h₂ blockers, cyclosporin
- grapefruit

**avoid grapefruit

**do not take diltiazem with cyclosporin

** check liver and renal fx

** Weight- check for peripheral edema

Nitrates (nitroglycerin)

⚡ MOA

- dilation of blood vessels (relaxation of smooth muscle) esp coronary vessels
- decreased afterload and preload

⚡ Indications

- Angina (stable, unstable, vasospastic)

⚡ Contraindications

- allergy, anemia, closed-angle glaucoma, hypotension, head injury

⚡ Adverse Effects

- headache, tachycardia, postural hypotension, reflex tachycardia, tolerance

⚡ Interactions

- alcohol, beta blockers, CCB, antipsychotics, erectile dysfunction medications

**light sensitive

**check expiration date

**comes in many forms- sublingual, chewable, oral tabs, capsules, ointments, patches, translingual spray, IV

**ensure pt is not on erectile dysfunction medication

**always date and time nitro patches upon application

** administer while seated, take BP measure pain, then wait 5 mins and repeat up to 3x

ACE inhibitors (-pril)

i.e. ramipril, fosinopril sodium, lisinopril, enalapril, perindopril, captopril

⚡ MOA

ACE inhibitors (-pril) (cont)

- Suppresses formation of angiotensin II from the RAAS system

- Reduces PVR
- Increases CO

⚡ Indications

- HTN (decreased afterload, prevents formation of ACE II)
- HF (prevents Na and water resorption, causes diuresis, decreases preload)
- Protective effects on kidney (decreases GFR)

⚡ Contraindications

- History of angioedema, renal artery stenosis, K⁺ >5mmol/L

⚡ Adverse Effects

- Hyperkalemia
- Fatigue, mood changes, dizziness, headache
- Dry, non-productive cough**
- Hypotension
- Angioedema

- Rash, thrombocytosis, loss of taste, proteinuria, pruritis, anemia, neutropenia

⚡ Interactions

- NSAIDS
- Potassium sparing diuretics
- Lithium and ACE inhibitors

**Do not use during pregnancy/BF