Diuretics (-zide, -mide)

Thiazide diuretics	LOOP diuretics	K+ Sparing
ϟ MOA	i.e. Lasix (furosemide)	i.e. spironolactone, triamterene
Inhibits reabsorption of Na, K, Cl resulting is osmotic water loss	ϟ MOA	ϟ MOA
Relaxes arterioles (decrease afterload)	Loss of fluid by inhibition of Na and Cl reabsorption	Blocks reabsorption of Na and water, potassium retained
ϟ Indication	Reduced BP	ϟ Indications
HTN (first line)	Reduced SVR (afterload), reduced CVP (preload), reduced LVEDP	HF
Edematous state d/t HF, liver cirrhosis	ϟ Indications	ϟ Contraindications
ϟ Contraindications	Edema (rt sided HF)	Allergy, kyperkalemia, kidney failure, anuria

Diuretics (-zide, -mide) (cont)

Drug allergy, hepatic coma, anuria, kidney failure	Fluid accumulation d/t liver/-kidney disease	ϟ Adverse Effects
ϟ Adverse Effects	HTN	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
Dizziness	Crackles/low O2 sats	
GI disturbance	ϟ Contraindications	
Thrombocytopenia	allergy, hepatic coma, severe electrolyte loss (Na & K), pregnancy/BF, gout	
Pancreatitis	ϟ Adverse Effects	

Diuretics (-zide, -mide) (cont)

Cholecystitis	Electrolye loss/dehydration
Headache	Furosemide-ototoxicity/photosensitivity
Impotence	Orthostatis 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)

ϟ MOA

- blocks SNS stimulation of Beta 1
- Reduced renin and aldosterone release and fluid balance
- Vasodilation of aterioles= 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

ϟ Indications

- HTN, angina, dysrhythmias

ϟ Contraindications

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

ϟ 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 (phenylakylamines)

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 3* 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