

Perfusion Medication Table

Class	Action	Side Effects	Medication Examples	Used In	Nursing Considerations/Teaching
Alpha Adrenergic Blockers <i>not on exam!</i> ↓ BP by dilating vessels in smooth muscle	• Dilates arteries & veins by blocking post-synaptic alpha ₁ adrenergic receptors	• Dizziness • Head ache • Weakness • 1st dose orthostatic hypotension • palpitations	prazosin (Minipress)	• Mild to moderate hypertension	• Important to continue taking meds • Comply w/ add'l interventions for hypertension (weight ↓, ↓ Na diet, no smoking, exercise)
Alpha₂ Agonists	↓ BP ↓ pain	• Drowsiness • Dry mouth • W/O phenomenon	clonidine (Catapres) *	• Mild-moderate hypertension • Cancer pain when unresponsive to opioids alone.	• May cause drowsiness which diminishes & cont. use • Avoid sudden changes to ortho. hypo. • If dry mouth, use mouth rinse.
Beta Adrenergic Blockers "10/1" ↓ force of contraction (↓ HR) ↓ CO will get slow, strong contractions rather than fast, weak contractions → more efficient	↓ BP & HR ↓ frequency of angina attacks ↓ rate of CV mortality & hosp. in patients w/ HF	• fatigue • weakness • bradycardia • CHF • pulmonary edema • hypoglycemia • erectile dysfunction • hypotension • bronchoconstriction ↓ libido	atenolol (Tenorium) metoprolol (Toprol) propranolol (Inderal)	• hypertension • angina • prevention of MI • mgmt of stable angina • HF • dysrhythmias	• check pulse & BP • may cause drowsiness & ortho hypo. • may ↑ sensitivity to cold • Diabetics should monitor blood glucose. • Reinforce add'l therapies for hypertension
Combination Drugs: Alpha & Beta Adrenergic Blockers	↓ HR & BP Improves CO Slows progression of CHF & ↓ r/o death	• bradycardia • CHF • pulmonary edema • hyperglycemia • dizziness • fatigue • weakness • diarrhea • erectile dysfunction	carvedilol (Coreg) and labetalol (Trandate)	• hypertension • CHF • LV dysfunction after MI.	• Do not abruptly w/o! • Check pulse & BP • closely monitor blood glucose

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- DVT valve replace.
- prevent thrombus formation

Inhibits thrombin

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Oral Anticoagulants	<ul style="list-style-type: none"> Depression of hepatic synthesis of vit K clotting factors. 	<ul style="list-style-type: none"> Anorexia Nausea Vomiting Diarrhea Abd. cramps Rash Fever Bleeding 	warfarin (Coumadin), dicumarol (Bishydroxycoumarin) ASA Plavix } antiplatelet (see next pg)	<ul style="list-style-type: none"> To prevent blood clotting ↓ r/o subsequent MI for clients w/ hx of A-fib 	<ul style="list-style-type: none"> Take meds as directed Limit foods ↑ vit K Avoid IM injections & activities leading to injury Report symptoms of unusual bleeding/bruising black stools No alcohol or OTC meds w/o advice of HCP. Carry ID describing meds.
Sub Q Anticoagulants	<ul style="list-style-type: none"> Prevention of thrombus formation Prevents conversion of prothrombin to thrombin. 	<ul style="list-style-type: none"> Bleeding Anemia Thrombocytopenia Fever ↑ liver enzymes pain at injection site Rash 	Heparin Lovenox (low-weight Heparin)	<ul style="list-style-type: none"> To prevent & treat DVTs & PEs 	<ul style="list-style-type: none"> Report s/s unusual bleeding (gums, nose, urine) Do not take meds w/ aspirin or NSAIDs. } could cause stress ulcer. Avoid activities leading to injury. } take Tylenol.
IV Anticoagulants	"same"	"same"	heparin Protamine Sulfate (anti-dote)	<ul style="list-style-type: none"> Tx of thrombo-embolic d/o heparin flush: To maintain patency of IV catheters 	"Same"

INR - checked as outpt monthly (once therapeutic)
 in acute setting, checked daily

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IV Anticoagulants (cont)					
Antiplatelet Agents	<ul style="list-style-type: none"> Prevents thrombosis in the arteries by suppressing platelet aggregation (by inhibiting the binding of ATP to platelet receptors) 	<ul style="list-style-type: none"> HF or heart block Cardiomyopathy Tachycardia Atrial flutter or fibrillation upper RTI flu-like symptoms Dizziness Headaches Fatigue Chest pain Hypertension 	acetylsalicylic acid (Aspirin), dipyridamole (Persantine), ticlopidine (Ticlid), Aggrenox, clopidogrel (Plavix) combination product: (Aspirin) & (Persantine) <ul style="list-style-type: none"> Hypercholesterolemia Neutropenia GI bleeding Diarrhea Bronchitis 	<ul style="list-style-type: none"> Prevent recurrence of MI, stroke, TIAs Prevent thrombin formation To tx intermittent claudication & sickle cell disease 	<ul style="list-style-type: none"> Take meds as prescribed. Notify HCP if fever, chills, sore throat, or unusual bleeding/bruising occurs. Avoid OTC meds w/ aspirin & NSAIDs.
Calcium Channel Blockers	<ul style="list-style-type: none"> Systemic vasodilation = ↓BP ↓ O₂ demand ↓ afterload (periph. resist) ↓ cardiac contractility Reduces workload of heart. * Blocks Ca²⁺ entry into cells of vascular smooth muscle & myocardium 	<ul style="list-style-type: none"> Headache Hypotension Dizziness Flushing of skin ortho. hypo 	Amlodipine (Norvasc) nifedipine (Cardene) nifedipine (Procardia) <i>more common</i> verapamil (Calan) diltiazem (Cardizem)	<ul style="list-style-type: none"> Angina pectoris Hypertension Cardiac dysrhythmias 	<ul style="list-style-type: none"> Take as directed Avoid lg amts of grapefruit juice Monitor pulse (HCP = 60 & BP < 100 before!) Change positions slowly (RT ortho. hypo). Avoid alcohol & OTC meds.

vascular smooth muscle & myocardium
 Ca²⁺ causes muscle contraction
 ↓ in contraction

Monitor BP, pulse, I&O
 "pine"

Perfusion Medication Table

*check lung sounds
check edema*

Class	Action	Side Effects	Medication Examples	Used In	Nursing Considerations/Teaching
Diuretics: Loop <i>↑ excretion of Na⁺ & H₂O via renal tubules</i> <i>↓ FVE</i>	<ul style="list-style-type: none"> • diuresis & mobilization of excess fluid. • ↓ BP 	<ul style="list-style-type: none"> • aplastic anemia • agranulocytosis • dehydration • hypochloremia • hypokalemia • hypomagnesemia • hyponatremia 	furosemide (Lasix) bumetanide (Bumex)	<ul style="list-style-type: none"> • edema due to HF • hepatic impair. or renal disease • hypertension 	<ul style="list-style-type: none"> • change pos. slowly • consult HCP re: diet • Notify HCP of weight gain > 3 lbs in one day • Monitor blood glucose.
Diuretics: Thiazide	<ul style="list-style-type: none"> • ↓ BP in hyperten. patients • diuresis & mob. of edema 	<ul style="list-style-type: none"> • hypokalemia - etc - 	hydrochlorothiazide (HCTZ, Hydrodiuril) chlorothiazide (Diuril)	<ul style="list-style-type: none"> • Mild to mod hypertension • edema assoc. w/ CHF • renal dysfunction • cirrhosis 	<ul style="list-style-type: none"> • Monitor weight • use sunscreen (photosensitivity)
Diuretics: Potassium Sparing	<ul style="list-style-type: none"> • weaker diuretic & antihypertensive response. • Conservation of K⁺ 	<ul style="list-style-type: none"> • hyperkalemia 	spironolactone (Aldactone) triamterene (Dyrenium) Combo drugs: spironolactone & HCTZ (Aldactazide) triamterene & HCTZ (Dyazide, Maxzide)	Counteract K ⁺ loss by other diuretics to tx edema & hypertension	<ul style="list-style-type: none"> • Avoid salt substitutes

*ortho hypo
↑ K⁺ sign of hypo Kalemia*

↑ "ide"

↑ "one"
↑ "ene"

• Inhibits conversion of angiotensin I to angiotensin II
 • ↓ secretion of aldosterone

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RAAS: ACE Inhibitors <i>Prevents vasoconstriction & Na⁺ reabsorption in kidneys</i>	↓ BP Improves symptoms of CHF ↓ r/o cv death ↓ progression of diabetic nephropathy (captopril only)	• cough (dry) • hypotension • taste disturbances • agranulocytosis • angioedema hyperkalemia skin rash	captopril (Capoten); enalapril (Vasotec); lisinopril (Zestril)	• hypertension • CHF <i>cause vasodilates</i> • slows progr of LV dysfunction	• Notify HCP of rash, mouth sores, sore throat, swelling hands/feet, difficulty swallowing • Comply w/ other hypertension interventions • monitor BP Watch BUN & creatinine
RAAS: Angiotensin II Receptor Blockers ARBs <i>block receptor sites for angiotensin II</i>	↓ BP slows prog. of diabetic neph. (irbesartan & losartan only) ↓ cv death	dizziness hypotension (no cough) <i>Combo</i>	losartan (Cozaar), valsartan (Diovan) combination product of losartan (Cozaar) & hydrochlorothiazide (HCTZ): Hyzaar <i>diuretic & hypertension in 1 pill</i>	hypertension type II diab/hypert. CHF (who cannot tolerate ACE inh)	• Avoid salt sub. • ortho hypo. • Addl. intv. for hyper.
Dyslipidemic Agents: Statins <i>"statin" or "</i>	↓ total chol, LDL & trigly. slightly ↑ HDL carries chol. out of the body.	abd cramps constipation diarrhea flatulence heartburn rashes rhabdomyolysis <i>muscle cramps</i>	atorvastatin (Lipitor); simvastatin (Zocor); rosuvastatin (Crestor); and pravastatin (Pravachol)	hypercholesterolemia 2° prev CVD	• Notify HCP of unexplained muscle pain, tenderness or weakness (esp w/ fever or malaise)

(monitor kidneys/funct)

Perfusion Medication Table

stop smoking
↓ HDL ↑ LDL

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Dyslipidemic Agents: Cholesterol Absorption Inhibitors	↓ cholesterol	cholecystitis nausea pancreatitis angioedema	ezetimibe (Zetia) combination product Vytorin: simvastatin (Zocor) & Ezetimibe (Zetia)	mgmt of dyslipidemia & Familial hypercholesterolemia	used in conj. w diet restrictions (chol, CHO, alcohol) ↑ fluid intake routine labwork monitor chol. level
Dyslipidemic Agents: Niacins	↓ blood lipids	GI upset Flushing of face neck pruritis	Niacor, nicotinic acid, Slo-Niacin	• tx of niacin deficiency • hyperlipidemia	report signs of hepatotoxicity (dark urine, light gray stool, ↓ appetite, severe stomach pain, yellow eyes (skin))
Dyslipidemic Agents: Fibric Acids	↓ triglyc. ↑ HDL	abd pain diarrhea epigastric pain	gemfibrozil (Lopid), fenofibrate (Tricor)	mgmt type IIb hyperlipidemia	• Dietary restr. Notify HCP stomach pain, fever, chills, sore throat, rash, diarrhea
Dyslipidemic Agents: Bile Acid Sequestrants	↓ chol & LDL ↓ pruritus		cholestyramine (LoCholest, Questran, Prevalite); colestipolHC (Colestid)	hypercholesterolemia Pruritus assoc. w ↑ levels of bile acids	Tablets swallowed whole - do not crush, break • Constipation may occur

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<p>Nitrates</p> <p><i>↑ O₂ supply to myocardium thru vasodilation</i></p>	<p>relief or prevent anginal attacks</p> <p>↑ CO</p> <p>↓ BP</p>	<p>dizziness</p> <p>headache</p> <p>hypotension</p> <p>tachycardia</p> <p><i>give something for headache</i></p> <p><i>all form of nitrate</i></p>	<p>Nitroglycerin:</p> <p>Intravenous (Nitro-Bid IV, Tridil); SL (Nitrostat); Translingual Spray (Nitromist); Ointment (Nitro-Bid); Transdermal (Nitro-Dur)</p> <p>-isosorbide dinitrate (Isordil) (SL, chewable tablets, sustained release capsules)</p> <p>-isosorbide mononitrate (Imdur) (sustained release capsules)</p> <p><i>nifedipine (IV) hypertensive crisis</i></p> <p><i>↳ circulatory collapse (no BP)</i></p> <p><i>power points</i></p> <p><i>natural or synthetic form</i></p> <p><i>diuresis & vasodilation</i></p>	<p>• angina</p> <p>• adjunct to CTR</p> <p>• adjunct to acute MI</p> <p>hypertensive crisis, MI</p>	<p>• ortho hypo</p> <p>• avoid alcohol</p> <p>• headache is common</p> <p>• Relief usually occurs w/ 5 min.</p> <p>Monitor BP (3 doses) max</p> <p>Ask if they've taken Viagra, Levitra, Propecia 24-48 h. ? Cialis</p> <p>Teach med-free period</p>

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circulating
collapse
(no BP)

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Vasodilators	Repd ↓ BP ↓ preload & afterload	dizziness headache abd pain nausea cyanide toxicity	nitroprusside (Nipride) IV	• hypertensive crises • controlled hypotension during anesthesia • cardiac pump failure or cardiogenic shock	Report tinnitus, dyspnea, dizziness, headache, blurred vision
Positive Inotropes- increase force of myocardial contraction	-ALL increase force of myocardial contraction, cardiac output & tissue perfusion -Digoxin: also decrease HR -Dopamine & Dobutamine: also increase HR	Digoxin: ^{vision changes} fatigue bradycardia arrhythmias anorexia nausea, vomiting toxicity Dopamine: arrhythmias hypotension headache Dobutamine: hypertension ↑ HR premature ventricular contractions	digoxin (Lanoxin) normal 0.5-2.0 (iv) sometimes given for renal perfusion Dopamine (Intropin) ↓ tissue necrosis = IV infiltration (give special med) (IV) Dobutamine (Dobutrex)	Digoxin: CHF tachyarrhythmias Dopamine: To improve CO, BP, urine output in tx of shock unresponsive to fluid replacement Dobutamine: S/T mgmt (<48h) 6F I/F	Digoxin: ^{apical} Take pulse before meds Notify HCP if < 60 or > 100. check Kt level (3.5-5.0) Dopamine: Immediately report chest pain, dyspnea, numbness, tingling, burning of ext. Dobutamine: (same ")

↑
perfusion
into
systemic
circulation

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Positive Inotropes (cont)	- Inacor & Primacor: also vasodilate ↑ CO	Inacor & Primacor: vent. arrhythm. angina chest pain hypotension	amrinone lactate (Inacor) milrinone lactate (Primacor)	Inacor & Primacor: SIT to CHF when unresponsive to digoxin, diuretics & vasodilators. ejection fraction < 50%	Inacor & Primacor: Monitor HR & BP • Not a cure but temp. controls the symptoms.
Oral Iron Preparations	prevent / tx Iron deficiency	hypotension nausea constipation dk stools diarrhea epigastric pain anaphylaxis	ferrous sulfate (Feosol) (Feratab) ferrous gluconate (Ferozon) (Fertinic) ferrous fumarate (Feostat) (Nephro-Fer) ferrous fumarate & docusate sodium (Ferro-DSS) iron + stool softener	prevent / tx iron def anemia	Assess for s/s anaphylaxis Stools may become dark Follow diet ↑ in iron Discuss risk of Children OD on iron

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Parenteral Iron Preparations	<i>Same</i>	<i>Same</i>	Iron Dextran or Iron Sucrose	Tx iron def. anemia in pts who cannot tolerate, or recv oral iron.	<i>Same</i>

Drug Class/ Examples	Action/ Used For	SE/AF	Assess	Pt. Teaching
Anticoag/Anti-platelet Heparin – antidote- protamine sulfate Coumadin/Warfarin – antidote- Vit K ASA, Plavix (clopidogrel)	Inhibits Thrombin Other Clotting Factors DVT - prevents clots in general Valve replacement	Bleeding RISK-DIC & HIT Severe Bleeding (death) Need platelets & Whole bld	Bleeding/Bruising Nose, tongue, urine, stool INR, APTT	Avoid Vit K foods Avoid razors Avoid Alcohol Avoid NSAIDS (bleeding GI ulcers)
Dyslipidemics Lipitor (atorvastatin), Zocor (simvastatin), Pravachol (pravastatin), Prescor, Zetia (ezetimibe)	↓Cholesterol, ↓Triglycerides ↓LDL, ↑HDL High Cholesterol	Muscle aching Muscle cramping Dyspepsia (GI distress)	Assess Cholesterol levels Assess liver NZ	Avoid smoking - ↑LDL ↓ Diet: low fat, low choles fluids, fiber
Diuretics - General only	Excrete H ₂ O, Na ⁺ (& other ions) FVE	Ion disturbance usually K ⁺ Over diuresis: FVD So Tachy, dizzy, Orthohypotens	FVE FVD (overdiuresis) I/O – wt qd	Take weight qd Take BP Eat K ⁺ Foods (usually)
Ace Inhibitors Captipril, Lisinopril, Ramipril ARB- blocks angiotensine II – No dry cough	Blocks Angiotensin I → II ↓ Aldosterone ↓ Vasoconstriction HTN, Chronic HF	Hypotension HyperKalemia Dry cough	BP K ⁺ levels	Take BP Avoid ↑ K ⁺ foods
Vasodilators- Natreacor – synth BNP Minoxidil- antiHTN, <u>Nitrates</u> Na ⁺ nitroprusside: Nipride Apresoline nitroglycerin Topical (over heart), SL, SQ, IV, spray, SL Tridil (IV NITRO)	Vasodialates - ↑ O ₂ to myocardia Angina, HTN Crisis, MI Natreacor – vasodilate & diuresis for acute decompensated CHF (dyspnea at rest). Tridil – acute MI, acute angina Nipride: HTN Crisis (no BP)	Hypotension, Tachycardia, Dizzy, HA (classic) nausea	BP, HR	Teach: go slow (activity = angina), SL – dose 3xs q5min, No erectile rx w/in 24-48 nitro, check your BP, 12 hours on/12 hours off
Ca⁺⁺ Channel Blockers Norvasc, verapamil (Calan), diltiazem (Cardizem), nifedipine (Procardia)	Blocks Ca ⁺⁺ from myocardial cells ↓contraction ↓HR ↓myocardial O ₂ demand Angina, HTN, Some dysrhythmias	Orthostatic Hypotension HA, dizziness, bradycardia, AV block, edema, rash	BP supine, standing Pulse don't give: Systolic < 100, HR < 60	Take BP & P Rise slowly
Beta Blockers: Atenolol (Tenormin), Metoprolol (Lopressor), Propranolol (Inderal), Carvedilol (Coreg), Labetalol(Trandate).	lower BP by blocking SNS beta adrenrgic receptors in heart & vessels ↓ CO ↓ HR HTN, Angina dysrhythmias Sometimes for HF cuz slowing fast, weak HR, gives vent more time to contract so ↑ EF	fatigue, hypotension, bronchospasm, hypoglycemia, insomnia.	HR, BP RR & sounds Glucose	
Inotropes (ionotropy = contractility) Dig, dobutamine, dopamine Primacor (milrinone)	↑ contractility <u>Dopamine</u> -HF w/ EF < 50-55% Low dose for perfuse renal <u>Milrinone</u> - unresponsive CHF	↓HR, Dysrhythmias, blurred vision & halos, Dopamine – IV necrosis (tissue)	HR (apical) K ⁺	HR (radial)