### Drug List for CV 1 (hypertension) and CV 2 (angina, heart failure and arrhythmias)

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| Hydrochlorothiazide “hye dro klor o THY a zide” | Esidrix (AKA HCT) | • Thiazide diuretic – mild to moderate HTN, edema  
• PO – monitor for electrolyte imbalance (as with all diuretics)  
• May cause hypokalemia and increases in blood glucose, cholesterol, triglycerides and uric acid levels. |
| Furosemide “fur OH se mide” | Lasix | • Loop diuretic - HTN, HF, edema, kidney failure  
• PO, IV/IM  
• Boxed warning: potent diuretic  
• Incompatible with NSAIDs and ACEI  
• May cause vision changes and if injected rapidly, hearing loss.  
• pH incompatible with milrinone, diltiazem, Ciprofloxacin, labetalol, etc. (pH <7.0 ppts) |
| Spironolactone “spir ON oh LAK tone” | Aldactone | • K+ sparing diuretic - HTN, HF, edema, primary aldosteronism (aldosterone receptor antagonist), Hypokalemia  
• PO – May cause hyperkalemia, gynecomastia  
• Don’t give with potassium supplements, ACEI or ARBs  
• Boxed warning: tumorigenic, not for initial therapy. |
| Metoprolol “meh TOE pro lol” | Lopressor, Toprol-XL | • Beta 1 blocker - HTN, MI, angina, CHF, certain tachycardias  
• PO, IV – may be given as an intraosseous infusion during CPR  
• Caution with asthmatics, diabetics and hyperthyroid patients  
• Boxed warning: rebound angina/MI See also PNS lecture |
| Doxazosin “dox AY zo sin” | Cardura | • Alpha 1 blocker - HTN, BPH  
• PO – Severe 1st dose syncope  
• See also PNS lecture; may cause edema. |
| Hydralazine “hye DRAL a zeen” | Apresoline | • Vasodilator – HTN (severe)  
• PO, IV, IM – not used alone, use with diuretic to control sodium retention and beta blocker to control reflex tachycardia.  
• May cause systemic lupus erythematosus-like syndrome  
• Monitor complete blood counts and antinuclear antibody (ANA) titer  
• May cause angina or MI |
| Nitroprusside “nye troe PRUS ide” | Nitropress | • Nitrate vasodilator - HTN, Acute congestive HF, to induce hypotension – light sensitive; do not use if color changed (should be reddish-brown powder)  
• IV infusion after dilution  
• Boxed warning: 1. Must be diluted before IV infusion; 2. May cause precipitous BP drop; 3. May cause fatal cyanosis |

**Symptoms of electrolyte imbalance related to thiazide or loop diuretic use:** dry mouth, thirst, weakness, cramps or tetany, tremors, hypotension, arrhythmias, nausea.

**Symptoms of hyperkalemia related to spironolactone use:** arrhythmias, cardiac arrest, nausea, diarrhea, and muscle weakness.
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| Benazepril “ben AY ze pril”  | Lotensin   | • ACEI – HTN, HF, diabetic nephropathy  
|                               |            | • PO - PRODRUG  
|                               |            | • Boxed warning: fetotoxic |
| Captopril “KAP toe pril”     | Capoten    | • ACEI - HTN, HF, if vent dysfunction after MI, diabetic nephropathy  
|                               | Pit viper spit | • PO, 1 hr BEFORE meals  
|                               |            | • Boxed warning: fetotoxic |
| Enalapril “e NAL a pril”     | Vasotec    | • ACEI - HTN, HF, if vent dysfunction after MI, diabetic nephropathy. PRODRUG of enalaprilat.  
|                               |            | • PO, IV (as enalaprilat, an active metabolite of Enalapril).  
|                               |            | • Boxed warning: fetotoxic |
| Irbesartan “ir be SAR tan”   | Avapro     | • ARB - HTN, diabetic nephropathy. Can be used in CHF.  
|                               |            | • PO  
|                               |            | • Boxed warning: fetotoxic |
| Valsartan “val SAR tan”      | Diovan     | • ARB - HTN, HF, left ventricular dysfunction after acute MI, diabetic nephropathy.  
|                               |            | • PO  
|                               |            | • Boxed warning: fetotoxic |
| Losartan “loe SAR tan”       | Cozaar     | • ARB - HTN, If vent hypertrophy, diabetic nephropathy  
|                               |            | • Boxed warning: fetotoxic |
| Methyldopa “METH il DOE pa”  | Aldomet, Aldoril | • Dopamine agonist – HTN  
|                               |            | • PO, IV (Prodrug converted to alpha methyl norepinephrine)  
|                               |            | • May cause a positive Coombs test, hemolytic anemia or liver failure; also sedation, dry mouth, constipation, sexual dysfunction and sodium retention. |
|                               |            | • Antihypertensive of choice for pregnant women |
| Clonidine “KLOE ni deen”     | Catapres   | • Alpha 2 agonist - HTN, chronic pain  
|                               |            | • PO (tablets, capsules, solutions), epidural injectable (for chronic pain), TD  
|                               |            | • Discontinuation syndrome (severe hypertension) alleviated by restarting clonidine. May cause sedation, dry mouth, constipation, sexual dysfunction and sodium retention.  
|                               |            | • Boxed warning: epidural not for obstetrics due to risk of hypotension  
|                               |            | • See PNS lecture |
| Fenoldopam “feh-NAHL-doe-  
|                               | Corlopam   | • Peripheral D1 agonist - Short term HTN management (up to 48 hours in adults and 4 hours in kids)  
|                               |            | • IV infusion |
| Losartan + HCT               | Hyzaar     | • HTN Combo  
<p>|                               |            | • PO |
| Propranolol + HCT            | Inderide   | |
| Amlodipine + Benazepril     | Lotrel     | |</p>
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| Nitroglycerin “NYE troe GLIS er in” | Nitro-Bid, Nitrostat | • Nitrate vasodilator - Angina or MI, Acute HF  
• Tolerance controlled by keeping doses 10-12 hours apart  
• T ½ is about 3 minutes (short-acting)  
• LOTS of formulations, paste may be mistaken for hand cream and capsules may be broken and waved under the nose  
• TD and topical ointment/cream must be applied to non-hairy skin, but NOT on hands or feet  
• TD patch has aluminum backing, remove before defibrillation to avoid burns, etc.  
• Nitrates can oxidize hemoglobin to methemoglobin |
| Amlodipine “am LOE di peen” | Norvasc | • CCB - Angina, HTN  
• PO only – long duration (t ½ up to 2 days)  
• May worsen angina at initiation of therapy, control with nitrate  
• CCBs must be individually titrated to correct dose |
| Diltiazem “di TYE a zem” | Cardizem, Tiazac | • CCB - Angina, HTN, Class IV antiarrhythmic  
• PO, enteric solutions, IV bolus/infusion (inject slowly)  
• Inhibits P450s  
• Oral onset should be within minutes. Short t ½ (2-11 hours)  
• Incompatible with furosemide. Lots of drug interactions  
• 5-20% of patients develop gingival hyperplasia  
• CCBs must be individually titrated to correct dose |
| Verapamil “ver AP a mil” | Covera-HS, Verelan, Isoptin SR, Calan | • CCB - Class IV antiarrhythmic, HTN  
• PO (HTN), slow IV (antiarrhythmic). PO onset delayed up to 1 week.  
• Inhibits P450s. Lots of drug interactions  
• ~5% of patients develop gingival hyperplasia. Severe constipation.  
• CCBs must be individually titrated to correct dose. 1/3 dose in patients with severe liver dysfunction. Monitor for liver dysfunction. |
| Aliskiren “a-lis-KYE-ren” | Tekturna | • Direct Renin inhibitor – HTN  
• PO  
• Boxed warning: fetotoxicity in 2nd and 3rd trimesters |
| Propranolol “pro PRAN oh lol” | Inderal | • Beta blocker (mixed β 1&2 blocker) - Migraine, HTN, angina, class II antiarrhythmic, subaortic hypertrophic stenosis, pheochromocytoma; anxiety, thyrotoxicosis & essential tremor  
• PO  
• Boxed warning: rebound angina/MI – See also PNS lecture |
| Trimetazidine “try met AZ i deen” | Vastarel | • pFOX inhibitor - Angina (chronic stable)  
• Not yet FDA approved |
| Ranolazine “ra NOE la zeen” | Ranexa | • pFOX inhibitor - Angina in combo with anti hypertensive drug  
• PO – Lots of drug interactions |
| Dobutamine “doe BUE ta meen” | Dobutrex, Novaplus | • Synthetic catecholamine (mainly a β1 agonist) – acute HF, MI, shock  
• IV (dilute prior to use) |
| Milrinone “MIL ri none” | Primacor | • 3PDE –‘r – acute HF  
• IV |
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| Nesiritide “ness EAR a tide” | Natreor | • Natriuretic peptide - acute HF  
• IV |
| Procainamide “proe KANE a mide” | Pronestyl, Procanbid | • Class la anti arrhythmic  
• IV/IM, PO  
• **Boxed warning: prolonged use leads to a positive ANA (antinuclear antibody) test for lupus** |
| Lidocaine “LYE doe kane” | Xylocaine | • Local anesthetic, Class Ib anti arrhythmic  
• Topical, epidural, See Anesthetics lecture |
| Phenytoin “FEN i toyn” | Dilantin | • Antiepileptic drug (AED), Class Ib anti arrhythmic. Drug of choice to treat digitalis toxicity  
• PO, IV (must be given slowly, but within 1 hour of making solution). IM only as a last resort.  
• LOTS of ADRs – Induces P450s |
| Flecaainide “FLEK a nide” | Tambocor | • PO Class Ic anti arrhythmic  
• **Boxed warning: proarrhythmic** |
| Amiodarone “A MEE OH da rone” | Cordarone, Nexterone, Pacerone | • Class III anti arrhythmic  
• PO, IV  
• Lots of individual variation – requires loading dose.  
• LOTS of ADRs – BIG BOXED WARNINGS SECTION  
• Pulmonary fibrosis or hypersensitivity pneumonitis  
• Up to 100% of patients get micro-deposits of crystalline material in their corneas  
• 20-60% have lens opacity & 2% optic nerve damage; up to 40% have halo vision.  
• Inhibits P450s. Lots of drug interactions  
• Leaches plasticizers like DEHP from IV sets |
| Digoxin “di JOX in” | Lanoxin | • Class V anti arrhythmic  
• PO, IV/IM  
• Cardio toxic at low K+ levels (diuretics cause hypokalemia). Hypokalemia and hypomagnesemia lead to cardiotoxicity.  
• Don’t take with pGP inhibitor  
• 10% of population have GIT bacteria that eat digoxin leading to treatment failure when digoxin taken PO.  
• If taken with PO antibiotic (e.g., tetracycline), GIT bacteria are killed and digoxin toxicity may result.  
• May increase by 20% risk of death in atrial fibrillation patients |
| Adenosine “a-DEN-oh-seen” | Adenocard | • Class V anti arrhythmic  
• IV only, very short t½  
• Antagonized by methyl xanthines (including coffee) |

## Drugs for HYPOTENSION or SHOCK

| Albumin | 5% or 25% IV for hypovolemic shock, burns, hypoproteinemia, hyperbilirubinemia. Not with midazolam, Vancomycin or verapamil: May cause pulmonary edema. Not with ACEI: Increased risk of ACEI ADRs |
| Plasma Proteins | Fractions of Plasma proteins IV – same ADRs |

*Hypotension (e.g., due to heart failure) can increase intracranial pressure leading to headaches, confusion, nausea, vomiting, visual disturbances, and moderate fever – as well as reflex tachycardia.*