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| --- |
| Antihyperlipidemics |
| **Hyperlipidemia**-Hyperlipidemia = High Cholesterol = Dyslipidemia-There are 2 types of lipids: Cholesterol and Triglycerides, the majority of cholesterol is made by the body, but the rest comes from diet. -Not all cholesterol is bad, but there is such a thing as TOO MUCH: increased cholesterol increases the risk of atherosclerosis which then increases the risk of cardiovascular events. Atherosclerosis is the cholesterol buildup in the arteries 🡪 hardening of artery walls. Effects: increase blood pressure, increase risk of heart attack/stroke, peripheral arterial disease -Treatment goals: decrease LDL and TG, prevention of primary and secondary cardiovascular eventsNormal Values-Low-density lipoproteins (LDL) 🡪 “Bad” cholesterol: <100 mg/dL-High-density lipoproteins (HDL) 🡪 “Good” cholesterol: >40 mg/dL (males) and >50 mg/dL (females)-Triglycerides (TG): <150 mg/dL  |
| **HMG-CoA reductase inhibitors** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Lipitor | atorvastatin | Blocks the synthesis of cholesterol by the liver by competing with hydroxymethylglutaryl (HMG-CoA) for the reductase enzymeMost commonly referred to as “Statins” | Myalgia (muscle pain), arthralgia (joint pain),FatigueDiarrhea | Myopathy/rhabdomyolysis | Avoid grapefruit juiceAvoid large quantiles of alcoholTake medication at night (lovastatin, pravastatin, simvastatin) | Decrease LDL and TG, increase HDLFirst line therapy for anyone with hyperlipidemia or CVDDrug-drug interactions |
| Mevacor | lovastatin |
| Pravachol | pravastatin |
| Crestor | rosuvastatin |
| Zocor | simvastatin |
| **Fibrates**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| TriCor | fenofibrate | Decreases the circulation of triglyceride carrying particles in the blood and increases the elimination of triglycerides from the body | HeadacheGI disturbancesIncrease myalgia (w/statin)Skin rash | Liver toxicity (dark urine, yellowing skin) | Increase bleeding risk in pts taking warfarin (increase INR) | Fenofibrate > gemfibrozilDecrease LDL and TG, increase HDL |
| Lopid | gemfibrozil |
| **Cholesterol-Absorption Inhibitor**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Zetia | ezetimibe | Inhibits absorption of cholesterol by the small intestine resulting in reduced circulation of cholesterol in the bloodCommonly used in combination with statins or fibrates | Well tolerated (headache, diarrhea, joint pain, fatigue) | Upper respiratory infectionPharyngitis | Take with or without foodSeparate from bile acid sequestrates (ex. Cholestyramine) by 2 hours before or 4 hours after | Moderate activity as a single agentBest add-on agent if statin alone is insufficientDecrease LDL and TG, increase HDL |
| Antihypertensives |
| **Hypertension**-Blood pressure >130/80 systolic (top number) diastolic (bottom number)-Risk Factors: Smoking, Diabetes, Hyperlipidemia, Overweight/obesity, lack of physical activity, Diet-Goals: decrease blood pressure to <130/80-Prevent complication: Left ventricular hypertrophy, heart failure, ischemic stroke, hemorrhagic stroke, myocardial infarction, CKDNormal BP: less than 120 AND less than 80 Elevated BP: 120-129 AND less than 80 Hypertension Stage 1: 130-139 OR 80-89Hypertension Stage 2: 140 OR higher or 90 or high Hypertensive Crisis: higher than 180 AND/OR higher than 120  |
| **CCBs: Calcium Channel Blockers**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Norvasc | amlodipine | Prevents calcium from entering cells of the heart and arteries resulting in the dilation of blood vessels (decease blood pressure) | DizzinessPeripheral edema (DHP CCBs)HypotensionFlushing | AnginaMI | Take daily, but do not double up on doesMonitor for pedal edema | 1st line agent for pts of African descentMaximum dose of simvastatin w/amlodipine is 20 mgTwo types of CCBs:Non-DHP CCBs: diltiazem, verapamilDHP CCBs: amlodipine, nifedipine |
| Cardizem (CD), Cartia, Dilacor, Dilt-XR, Tiazac | diltiazem |
| Adalat CC, Nifedical XL, Procardia | nifedipine |
| Calan, Isoptin, Verelan | verapamil |
| **ACE Inhibitors: Angiotensin-converting enzyme inhibitors**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Lotensin | benazepril | Prevents the conversion of angiotensin I to angiotensin II which results in the dilation of the blood vessels | Dry coughDizzinessHyperkalemiaTransient increase in SCr | Angioedema | Avoid salt substitutes containing potassiumTake daily, but do not double up on doses | If patient is bothered by cough, may switch to an ARBIf angioedema experience with ACEI, do NOT try an ARB |
| Epaned, Vasotec | enalapril |
| Prinivil, Zestril | lisinopril |
| Zestoretic, Prinzide | lisinopril/HCTZ |
| **ARBs: Angiotensin II receptor blockers**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Cozaar | losartan | Prevents the binding to angiotensin II receptors on muscles surrounding the blood vessels resulting in vasodilation (dilation of the blood vessels) | DizzinessUpper respiratory infection | AngioedemaRhabdomyolysis | Take daily, but do not double up on doses | Pts will not take an ACEI and ARB together (one or the other) |
| Diovan | valsartan |
| Hyzaar | losartan/HCTZ |
| **Beta Blockers** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tenormin | atenolol | Blocks epinephrine and norepinephrine from binding to beta receptors allowing the heart to beat more slowly and reducing the amount of blood being pumped | DizzinessShortness of breathDecreased heart rateMood changes (reduced anxiety) esp. with those not cardio-specific“Beta blocker blues” |  | Decreased exercise toleranceTake with food to increase absorptionTake daily, but do not double up on doses | This class of drugs may mask symptoms of hypoglycemia (besides sweating)This drug class should be tapered at discontinuation, not stopped abruptlyMay counteract some inhaled respiratory medicationsSome are cardio-selective and some are not (propranolol) |
| Coreg (CR) | carvedilol |
| Toprol XL | metoprolol succinate |
| Lopressor | metoprolol tartrate |
| Inderal (LA), Innopran XL | propranolol |
| **Alpha-1 Blockers** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Cardura (XL) | doxazosin | Blocks the activation of alpha receptors by norepinephrine preventing vasoconstriction | DizzinessOrthostatic hypotensionTachycardia | Insomnia (if used only at bedtime) | First dose should be taken at bedtime due to the risk of orthostatic hypotensionMay cause drowsiness | Avoid use in elderly (Beers Criteria)Not really used for HTN |
| Minipress | prazosin |
| **Alpha-2 Agonists**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Catapres, Nexiclon XR, Kapvay | clonidine | Stimulates alpha receptors in the CNS and activates inhibitory neurons which results in negative feedback inhibition and ultimately a reduction in blood pressure | Dry mouth/dry eyesDizzinessHeadache | Neurologic disturbances including hallucinations and confusion (guanfacine) | May take with food if GI upset occursDo not take the ER tablets with a high fat meal (guanfacine) | Abrupt discontinuation can result in rebound hypertension (clonidine)Patch used more frequently to decrease ADEsGuanfacine ER also used in ADD/ADHD |
| Intuniv, Tenex | guanfacine |
| **Vasodilator**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Apresoline | hydralazine | Relaxes the smooth muscle in blood vessels causing blood vessels to dilate | Orthostatic hypotensionTachycardiaDizziness | Drug induced lupus syndrome | Take with food or milk | Avoid use in the elderly (Beers Criteria)Rarely used |
| **Glucose Lowering Medications** |
| **Diabetes** -Type 1 Diabetes Mellitus (T1DM): Body does not produce insulin; ALL patients receive insulin (“insulin-dependent”)-Type 2 Diabetes Mellitus (T2DM): Body does not respond appropriately to insulin and does not take up glucose at a normal rate; may receive insulin or other glucose-lowering medications-Goals of therapy (ADA): A1c <7%, fasting blood glucose 80-130 mg/dL, postprandial blood glucose <180 mg/dL-General 1st line treatment: T1DM insulin, T2DM metformin  |
| **Biguanide** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Glucophage (XR), Glumetza, Riomet | metformin | Decreases hepatic glucose production, decreases intestinal glucose absorption, and improves insulin sensitivity | Diarrhea (most common)NauseaVitamin B12 depletion | Black Box Warning: Lactic Acidosis | GI effects are transient (2 weeks)Take with food to help with nauseaStart low and go slow | 1st line medication for T2DM, max effective dose 2,000 mg, if pts cannot tolerate IR formulation can try ERAvoid with poor renal function |
| **Sulfonylureas** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Amaryl | glimepiride | Stimulates insulin secretion from pancreatic beta cells; “continuous squeeze on the pancreas” | HypoglycemiaWeight gainNauseaPhotosensitivity | Hepatic toxicity | Take 30 minutes before first mealMay cause low blood sugarMay cause hypersensitivity to sunlight | Mostly used when pts cannot afford more effective/well tolerated DM medsNot contraindicated with sulfa allergyLose effectiveness over timeAvoid with G6PD deficiency |
| Glucotrol (XL) | glipizide |
| **DPP-4 Inhibitors: Dipeptidyl peptidase-4 inhibitors**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tradjenta | linagliptin | Inhibits dipeptidyl peptidase (DPP)-4 activity preventing inactivation of glucagon-like peptide (GLP)-1 | Well toleratedUpper respiratory infection | Joint painHeadacheAcute pancreatitis | Take with or without food | Contraindicated with pancreatitis |
| Januvia | sitagliptin |
| **TZD: Thiazolidinedione** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Actos | pioglitazone | Improves insulin sensitivity in muscle and liver; peroxisome-proliferator-activated receptor gamma (PPAR-$γ$) agonist | Edema (swelling)Weight gainBone fractures | Bladder cancer | Monitor for sings of heart failureMay take 6-8 weeks to see full effect | Black Box Warning: avoid in pts with heart failureAvoid in elderly pts with osteoporosis |
| **Long-acting insulins** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Levemir | insulin detemir | Insulin that acts over ~24 hours; also, called “basal” insulin | HypoglycemiaWeight gainInjection site reactions  | LipohypertrophyLipoatrophy | Can take any time during the day (stay consistent)Take without regard to mealsPick one site (arm, thigh, abdomen) and rotate around that site only | Store in the fridge; vial/syringe currently in use can be kept at room tempCannot be mixed in the same syringe with other insulins |
| Lantus, Toujeo | insulin glargine |
| **Rapid-acting insulins** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Novolog | insulin aspart | Insulin that acts quickly and lasts in the body for ~4-6 hours; also, called “bolus” insulin | HypoglycemiaWeight gainInjection site reactions | LipohypertrophyLipoatrophy | Take immediately prior to a meal (within 15 minutes)Pick one site and rotate around that site only | Should be clear liquidUsed 1-3 times per day before mealsUsed in insulin pumps |
| Humalog | insulin lispro |
| **Oral Contraceptives** |
| **Contraception**Goal: preventing fertilized egg from attaching to the uterine wallTypes of contraceptives: Barrier (ex. Condoms), chemical (ex. Spermicide), hormonal (ex. Oral contraceptives, cervical rings, intrauterine devices (IUD), implants, patches and injections) |
| **Oral Contraceptives** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Ortho-Cyclen, Sprintec | norgestimate and ethinyl estradiol (monophasic) | Inhibits ovulation via negative feedback on the hypothalamus; inhibits fertilized egg from attaching to uterine wall | Spotting,Weight gain,Mood disturbances/depression,Vaginal yeast infections,Disruption of microbial flora, Decreased absorption of certain vitamins and minerals | Increased risk of blood clots (especially with other RFs including obesity, smoking, age >35 years) | Need to use another form of contraception during the 1st cycleCertain antibiotics may make birth control less effectiveAvoid smoking while on birth controlTake at the same time each day | Progesterone only pills (POPs): no PBO pill, active only; can use for people at increased risk for clotting |
| Tri-Cyclen, Trinessa, Tri Sprintec | norgestimate with ethinyl estradiol (triphasic) |
| **Asthma & COPD Inhalers** |
| **Asthma** -Asthma: hypersensitivity reaction from the body’s own immune system; inflammatory response -Symptoms: shortness of breath, intense wheezing, reversible airway obstruction -Treatment: GINA Guidelines, short acting beta-2 agonists as rescue inhaled corticosteroids, long acting beta-2 agonists, and combination inhalers as control therapy -Goals: risk reduction and symptom control **COPD**-Chronic Obstructive Pulmonary Disorder (COPD): Preventable/treatable disease characterized by persistent respiratory symptoms and airflow limitation; structural damage -Symptoms: Chest tightness, shortness of breath, cough, sputum production, minimally reversible airway of obstruction -Treatment: GOLD Guidelines, beta-2 agonists and muscarinic agonists used as control therapy, steroids are primarily reserved for use during exacerbations -Goals: Reduction of symptoms and risk of future exacerbations  |
| **LTRA: Leukotriene Receptor Antagonist**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Singulair | montelukast | Blocks the effects of leukotriene D4 in the lungs resulting in smooth muscle relaxation and decreased inflammation | HeadacheInfluenzaCough | Psychiatric symptoms (agitation, depression, suicidal thoughts) | This should be taken even when no symptoms are presentThis is not intended to treat an asthma attack | Only oral optionChewable tablets contain phenylalanine (caution in pts with phenylketonuria)can be used in pts with allergies/allergic asthma |
| **Beta-2 Agonists**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| ProAir HFA, Proventil HFA, Ventolin HFA | albuterolShort-acting (SABA) | Relax airway smooth muscles by stimulating beta-2 adrenergic receptors | NervousnessTremor/shakes Tachycardia | Cardiomyopathy | Albuterol is only use as needed AKA “rescue inhaler” (not a maintenance therapy when used alone)If treatment becomes less effective for symptomatic relief contact your prescriber | A spacer can be used with a MDI to ensure receival of medication |
| “see combo” | formoterolLong-acting (LABA) |
| “see combo” | salmeterolLong-acting (LABA) |
| “see combo” | vilanterolLong-acting (LABA) |
| **Antimuscarinics**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| “see combo” | ipratropiumShort-acting (SAMA) | Block bronchoconstrictor effects of acetylcholine on M3 muscarinic receptors in the airway smooth muscles\*Also, referred to as “anticholinergics” | Dry mouthUrinary retentionHeadache/DizzinessPalpitations |  | This medication is intended for daily use to achieve maximum benefit | Helps improve shortness of breath and exercise intoleranceLacks anti-inflammatory effects |
| Spiriva | tiotropiumLong-acting (LAMA) |
| **ICS: Inhaled Corticosteroids**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Pulmicort | budesonide | Decrease migration of inflammatory mediators | Thrush (fungal infection)Upper respiratory infectionFatigueArthralgia or arthritis |  | Not intended to be used as a rescue inhaleRinse mouth after each use | If a bronchodilator is being used as part of inhaler regimen, use prior to inhaled steroids |
| Flovent | fluticasone |
| **Inhaled Combinations** |
| **Product Brand** | **Product Generic** | **MOA** |
| Combivent, DuoNeb | ipratropium + albuterol | SAMA + SABA |
| Symbicort | budesonide + formoterol | ICS + LABA |
| Advair | fluticasone + salmeterol | ICS + LABA |
| Breo Ellipta | fluticasone + vilanterol | ICS + LABA |
| **Anti-Anxiety** |
| **Anxiety:** -Occasional Anxiety: The general population can and does experience anxiety when faced with challenges-Anxiety Disorder: Symptoms are chronic and severe and cause great distress, interfering with daily life and/or relationships  |
| **Benzodiazepines**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Xanax | alprazolam | Cause central nervous system depression to relieve anxiety symptomsAll benzodiazepines are Schedule IV controlled substances (C-IV) | Fatigue/sedationDizziness | Confusion Memory & recall impairment Respiratory depression (enhanced risk with opioids) | Take as needed for symptomatic reliefAvoid use with alcoholIf using chronically, do not stop abruptly | Do not treat the underlying cause of anxietyMust be tapered off slowly to prevent withdrawal symptoms |
| Klonopin | clonazepam |
| Valium | diazepam |
| Ativan | lorazepam |
| **Antihistamine** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Atarax | hydroxyzine hydrochloride | Causes sedation to relieve symptoms of anxiety | Fatigue Dry mouth | Confusion Memory & recall impairmentRespiratory depression | Take as needed for symptomatic reliefShould not be used long-term | Does not treat underlying cause of anxietyThe pamoate salt form has greater anti-anxiety effect than the hydrochloride form |
| Vistaril | hydroxyzine pamoate |
| **Miscellaneous** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| BuSpar | buspirone | Mechanism is unknown, but may be due to its affinity for serotonin receptors | DizzinessDrowsinessNauseaExcitement | Risk of serotonin syndrome (enhanced risk with other serotonergic agents) | Take with or without food, but must be consistentTakes 2-4 weeks for full effect | No potential for abuse, tolerance, or physiological dependence |
| **Antidepressants** |
| **Depression** -Symptoms: SIG-E-CAPS**S- S**uicidal ideation**I-** loss of **I**nterest in previously enjoyed activities **G-** feelings of **G**uilt/shame**E-** decreased **E**nergy**C-** difficulty **C**oncentrating **A-** **A**ppetite changes (over- or under-eating)**P-** **P**sychomotor symptoms (sluggish or agitated)**S-** **S**leep changes (insomnia or hypersomnia) -The cause of depression is not fully understood, but it is theorized to involve a decreased amount or imbalance of neurotransmitters in the brain: dopamine, serotonin, norepinephrine  |
| **SSRIs: Selective Serotonin Reuptake Inhibitors**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Celexa | citalopram | Prevent the reuptake and maintaining the level of serotonin in the neuronal synapse | Sexual dysfunctionFatigue and insomniaDry mouthHeadache | HyponatremiaBleeding (additive risk with anticoagulants)Serotonin syndrome | Takes 1-2 weeks to feel a benefit and 6-8 weeks for full effect on moodTake fluoxetine in AM (most activating), paroxetine in PM (most sedating), take all others in AM; if causing sedation, take in PM | Sertraline is preferred in patients with cardiac riskVilazodone and vortioxetine have mixed MOAs (serotonin receptors) |
| Lexapro | escitalopram |
| Prozac | fluoxetine |
| Paxil | paroxetine |
| Zoloft | sertraline |
| Viibryd | vilazodone |
| Trintellix | vortioxetine |
| **SNRIs: Serotonin/Norepinephrine Reuptake Inhibitors**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Pristiq | desvenlafaxine | Prevent the reuptake and maintain the levels of serotonin and NE in the neuronal synapseNE= Norepinephrine | Similar to SSRIs (serotonin effect)Increased heart rate and blood pressureFeeling excitable (much less sedation than SSRIs due to NE effect) | HyponatremiaBleeding (additive risk with anticoagulants)Serotonin syndrome | Takes 1-2 weeks to feel a benefit and 6-8 weeks for full effect on moodTake in AM | Duloxetine can also be used for neurologic pain |
| Cymbalta | duloxetine |
| Effexor | venlafaxine |
| **TCAs: Tricyclic Antidepressants** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Elavil (brand d/c) | amitriptyline | Inhibit reuptake of serotonin and NE (also block Ach and histamine receptors, leading to side effects)NE= NorepinephrineAch= Acetylcholine | Orthostasis, tachycardiaWeight gainDry mouth, blurred vision, urinary retention, constipation (anticholinergic)Major sedation | Overdose can cause fatal arrhythmias (QT prolongation)- monitor for suicidal ideation | Takes 1-2 weeks to feel a benefit and 6-8 weeks for full effect on moodTake in PM | Amitriptyline and doxepin are slightly more effective than nortriptyline, but have worse side effects |
| Silenor | doxepin |
| Pamelor | nortriptyline |
| **NDRI: Norepinephrine/Dopamine Reuptake Inhibitor**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Wellbutrin (SR, XL), Zyban (brand d/c) | Bupropion | Prevents the reuptake and maintaining the levels of dopamine and NE in the neuronal synapseNE= Norepinephrine | Dry mouthInsomnia, restlessness (similar to SNRIs because of NE effect)Weight loss | Seizures (dose-related)- contraindicated in seizure disorder or anorexia/bulimia | Takes 1-2 weeks to feel a benefit and 6-8 weeks for full effect on moodTake in AM | Also, used for smoking cessation |
| **Miscellaneous** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Remeron | mirtazapine | TCA with alpha-2 adrenergic antagonistic effect in the CNS, increasing the release of serotonin and NETCA= Tricyclic AntidepressantNE= Norepinephrine | Weight gain, increased appetiteMajor sedationDry mouth, blurred vision, urinary retention, constipation (anticholinergic) | Agranulocytosis (life-threatening blood disorder) | Takes 1-2 weeks to feel a benefit and 6-8 weeks for full effect on mood | Often used in oncology and skilled nursing to help with sleep and appetite stimulation |
| Desyrel | trazodone | Inhibits serotonin reuptake and blocks histamine and alpha-1 adrenergic receptors | Major sedationSexual dysfunction | Priapism | Take in PM | Most often used off-label for sleep |
| **Antipsychotics**  |
| **Schizophrenia**-Chronic, severe, and disabling thought disabling though disorder that affects 1 in 100 people in all societies. -Hallucinations: sensing something that is not present -Delusions: beliefs about something that is not true-Disorganization: inability to focus attention, communicate **organized** **thoughts**, or behave logically **Bipolar Disorder** -Fluctuation of mood between depression and mania in episodes that are drastically different from the person’s usual mood and behavior **-**Depressive Episodes: extremely sad or hopeless; same symptoms as depression **-**Manic Episodes: elevated, overexcited, or irritable; more energy than normal  |
| **First Generation Antipsychotics**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Haldol | haloperidol | Block dopamine -2 receptors without a lot of effect on serotonin | DrowsinessDizzinessAnticholinergic effectsIrregular movements | DysmenorrheaWeight gainNeuromalignant syndrome (extreme muscle rigidity, hyperthermia, mental status change) | Pay attention to new movements or changes in mental status | Can also be used for tics and verbal outburst associated with Tourette syndrome |
| **Second Generation Antipsychotics “atypical”**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Abilify | aripiprazole | Block dopamine-2 and serotonin receptors | SedationWeight gain (not all)Irregular movements | Neuromalignant syndrome (extreme muscle rigidity, hyperthermia, mental status change) | Smoking reduces levels of clozapine and olanzapineInvega can leave ghost tablets in the stool | Clozapine is never used sooner than 3rd line and only prescribed via REMS due to risk for extremely low WBCREMS= Risk Evaluation and Mitigation StrategyWBC= white blood cell |
| Clozaril | clozapine |
| Latuda | lurasidone |
| Zyprexa | olanzapine |
| Invega | paliperidone |
| Seroquel | quetiapine |
| Risperdal | risperidone |
| Geodon | ziprasidone |
| **Analgesics**  |
| **Pain**-It is important to know what kind and severity of pain a patient is experiencing when deciding which analgesic, they should be given |
| **Non-Steroidal Anti-Inflammatory Drugs “NSAIDs”** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Celebrex | celecoxib | Block COX-1 and COX-2 enzymes to inhibit formation of prostaglandin to decrease inflammation, relieve pain, and reduce feverCOX=Cyclooxygenase | Increased blood pressurePhotosensitivity | GI bleeding/ulceration | Take with foodDon’t take if cardiac issues, kidney dysfunction, or pregnantUse sunscreen and sun-protective clothing | Celecoxib, diclofenac, and meloxicam have increased selectivity for COX-2, making their risk for GI complications lower and risk for MI/stroke higherMI= myocardial infraction |
| Voltaren, Voltaren Gel | diclofenac |
| Advil, Motrin | ibuprofen |
| Indocin, Tivorbex | indomethacin |
| Mobic | meloxicam |
| Aleve, Naprosyn | naproxen |
| **Opioid Analgesics** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tylenol w/ Codeine | codeine/APAP | Mu receptor agonists to primarily provide pain relief (also cause euphoria and respiratory depression) | Constipation, nausea, and vomiting Sedation and dizziness | Itching Tolerance and physical dependence | Take with food or milk if upset stomach (not oxymorphone), offer prescription of naloxoneThese opioids are Schedule II controlled substances (C-II) | Overdose can be reversed by the mu receptor antagonist naloxone |
| Duragesic | fentanyl (transdermal) |
| Lortab, Norco, Vicodin | hydrocodone/APAP |
| Dilaudid | hydromorphone |
| Methadose | methadone |
| Avinza, MS Contin, Kadian | morphine |
| Oxycontin | oxycodone |
| Endocet, Percocet,Roxicet | oxycodone/APAP |
| Opana | oxymorphone |
| **Miscellaneous Analgesics** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tylenol | acetaminophen | Mechanism not well known; reduces pain and fever | Generally well tolerated | Severe hepatotoxicity (doses over max) | Maximum daily dose of 4,000 mg, avoid or limit use with alcohol | Comes as part of a lot of combo products, both prescription and OTC |
| Fioricet | butalbital/caffeine/APAP | Barbiturate depresses the sensory cortex and caffeine stimulates the CNS to relieve tension headache | NauseaAnxiety (from caffeine) | Severe hepatotoxicity (doses over max for APAP) | Maximum daily dose of 4,000 mg of APAP, avoid or limit use with alcohol | Use should be limited to no more than 3 days per month to avoid medication overuse headache |
| Ultram | tramadol | Mu receptor agonists that inhibits reuptake of NE and serotoninNE=Norepinephrine | Dizziness and sedationConstipation and nausea | Serotonin syndromeRespiratory depression | Can be taken with or without foodSchedule IV controlled substance (C-IV) | Lower severity of GI side effects compared to stronger opioids |
| **Local Anesthetic** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Lidoderm | lidocaine | Blocks initiation and conduction of nerve impulses by decreasing the neuronal membrane permeability to sodium ions | Possible itchingburning, rash where patch is applied | Allergic reactions | Do not use on broke, abraded, open or severely burned skin (significantly increased absorption) | Approved for pain from shingles |
| **Anticoagulants/Antiplatelets** |
| **Coagulation** -Coagulation is the process of forming blood clots, involving **activation of platelets** and the **clotting/coagulation cascade**-Activation of the coagulation cascade can happen via **blood vessel injury slowed/stopped blood flow**, & **prothrombotic conditions** (cancer, genetic disorders) |
| **LMWH: Low Molecular Weight Heparin**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Lovenox | enoxaparin | Binds to antithrombin to help it inactivate clotting factors IIa and Xa (Xa>IIa) | BleedingAnemiaInjection site reactions | HIT (contraindicated if history of it), Boxed warning for hematomas in pts receiving spinal/epidural anesthesia; may result in long-term or permanent paralysis | Don’t remove air bubble from syringe prior to injecting, can cause loss of drugDon’t administer intramuscularlyHIT= Heparin-InducedThrombocytopenia | More predictable anticoagulant response than heparin, doesn’t require lab monitoring for efficacy (recommended in pregnancy) |
| **Warfarin**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Coumadin, Jantoven | warfarin | Inhibits VKORC1 enzyme, preventing product of certain clotting factors | Bleeding and bruising | Tissue necrosis/gangrene | Keep vitamin K intake consistent,Consult PCP if/when starting or stopping a medication,Do not take if pregnant | Some people have genetic variances that increase risk of bleeding (routine genetic testing is not recommended) |
| **DOACs: Direct Oral Anticoagulant** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Eliquis | apixaban | Directly inhibit clotting factors(Apixaban and Rivaroxaban –Xa) (Dabigatran-IIa (thrombin) | GI bleeding (more with dabigatran) | Boxed warning for hematomas in patients receiving spinal/epidural anesthesia; may result in long-term or permanent paralysis | Swallow dabigatran capsules whole, don’t crush or chewApixaban and rivaroxaban can be crushed and put on applesauce | No monitoring for efficacy required |
| Pradaxa | dabigatran |
| Xarelto | rivaroxaban |
| **P2Y12 Inhibitor** |
| Product Brand | Product Generic | MOA | Common AE | Rare AE | Counseling Points | Clinical Pearls |
| Plavix | clopidogrel  | Prodrug that irreversibly binds to P2Y12 receptors on platelets to prevent aggregation  | Bleeding | TTP (mental status change, vision changes, one-sided weakness, purple spots on skin/mouth, yellow skin, diarrhea, fast heartbeat, fever, headache) TTP= Thrombotic Thrombocytopenic Purpura | Do not take long-term with aspirin to prevent stroke Avoid in combination with omeprazole and esomeprazole  | Some people have genetic variances that can decrease efficacy (routine genetic testing is not recommended)  |
| **Antibiotics** |
| **Antibiotics****-**Antibiotics**:** Used to treat bacterial infections ONLY, variety of classes with different features and varied spectrums against gram negative bacteria, gram positive bacteria, anaerobic bacteria, atypical bacteria, or any combination. -Counseling: Take with a full glass of water, take the full course, even if you start to feel better, take with food to decrease stomach upset. -Drug Interactions: Warfarin🡪 increased bleeding risk, monitor INR closely **-**Birth control🡪 antibiotics can decrease effectiveness, couples need to use extra protection during therapy and for one week after antibiotic ends  |
| **Beta-lactams**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points**  | **Clinical Pearls**  |
| Amoxil, Moxatag, Trimox | amoxicillin | Binds to penicillin-binding proteins (PBPs) and inhibiting the synthesis of the peptidoglycan layer of bacterial cell walls | Nausea, vomiting, and diarrhea  | RashYeast infection | Avoid amoxicillin in patients with penicillin allergies | Typically, low cross-relativity with cephalosporin’s and penicillin allergies |
| Augmentin | amoxicillin/ clavulanate |
| Keflex | cephalexin |
| Omnicef | cefdinir |
| **Macrolides** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Zithromax (Z-Pak), Zmax | azithromycin | Binds to the 50S ribosomal unit, blocking transpeptidation and inhibiting protein synthesis | Nausea, vomiting, and diarrhea, Prolonged QTc interval (caution in patients with heat issues) | Dysgeusia Abdominal pain | Take4 hours after or 2 hours before antacidsOften comes in a dose pack (dosing follows package instructions) | Has good activity against atypical bacteriaUse caution with other QTc prolonging agents |
| **SMX-TMP** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Bactrim, Septra | sulfamethoxazole/ trimethoprim | Sulfamethoxazole: inhibits bacterial folic acid synthesisTrimethoprim: inhibits enzymes of the folic acid pathway | Nausea, vomiting, and diarrheaPhotosensitivity (hypersensitivity to sun exposure)Rash | Increased potassium levelsDecreased folate levels | Increased susceptibility to sunburn, avoid excessive sun exposureTake with full 8 oz. of water (avoid kidney stones) | Avoid in patients with sulfa allergiesOften used for UTIs, but are useful for other infectionsUTI= Urinary Tract Infection |
| **Fluoroquinolones** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Cipro | ciprofloxacin | Inhibits DNA gyrase and topoisomerase, which are essential for bacterial DNA replication | Nausea, vomiting, and diarrheaProlong QTc interval (caution in patients with heart issues) | PhotosensitivityBlack Box Warning for spontaneous tendon rupture (Achilles) | Increased susceptibility to sunburn, avoid excess sun exposureTake 4 hours after or 2 hours before antacids | Use caution with other QTc prolonging agentsCan cause exacerbation of myasthenia gravisGood activity against gram negative bacilli |
| Levaquin | levofloxacin |
| **Tetracyclines**  |
| **Product Brand** | **Product Generic**  | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls**  |
| Vibramycin | doxycycline | Inhibits protein synthesis by binding to 30S ribosomal subunit | Nausea, vomiting, and diarrhea Yeast infections Discoloration of teeth (children) | Photosensitivity | Increased susceptibility to sunburn, avoid excessive sun exposureTake 4 hours after or 2 hours before antacidsDo not take with a glass of milk | Avoid in children less than 8 years old (unless the benefit outweighs the risk)Activity against some atypicals |
| Minocin | minocycline |
| **Lincosamides**  |
| **Product Brand** | **Product Generic**  | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls**  |
| Cleocin | clindamycin | Binds to 50S ribosomal subunit, preventing bacterial protein synthesis | Nausea, vomiting, and diarrhea, taste disturbance when taken orally | Rash, black box warning for C. difficile colitis | Call your doctor if experiencing severe, watery diarrhea | Good anaerobic coverageSometimes used for acne (mostly topically) |
| **Antibiotic** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Flagyl | metronidazole | Interacts with DNA and causing DNA strand breaks, which inhibits protein synthesisGood anaerobic coverage | Vomiting, diarrhea, metallic taste, Disulfiram-like reaction (N/V, throbbing, headache, dizziness) |  | Avoid use with alcohol (Disulfiram-like reaction) |  |
| **Antibiotic/Antiprotozoal** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Macrodantin, Macrobid | nitrofurantoin | Inactivates and alters bacterial proteins, which inhibits protein, DNA, RNA and cell wall synthesis | Nausea, headache | Increase LFTs, pulmonary toxicity | May cause dark urine | Avoid in elderly 🡪 pulmonary toxicityAvoid with magnesium-containing antacidsBactericidal in urine |
| **Antibiotic (topical)** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Bactroban | mupirocin | Inhibits bacterial protein synthesis | Skin reactions (stinging, burning, itching, rash) |  | Wash hands before and after application | Commonly used for skin and soft tissue infections |
| **Antifungals** |
| **Antifungals:** -Topical antifungals commonly used to treat fungal infections on the skin such as athlete’s foot, jock itch, ringworm, vaginal yeast infections-Systemic antifungals can be used to treat more systemic, serious fungal infections  |
| **Azole Antifungals**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Diflucan | fluconazole | Inhibits ergosterol synthesis and prevents fungal cell membrane formation | Generally well tolerated, some nausea, vomiting, diarrhea, rash headache | QT prolongation, hepatotoxicity (with ketoconazole) | Fluconazole for vaginal yeast infections 🡪 dispensed as one 150 mg tablet, take by mouth | Drug interactions (CYP inhibitors) |
| Nizoral | ketoconazole |
| **Antifungal (topical)** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Nystop | nystatin topical | Binds to sterols in fungal cell membrane, and increasing permeability 🡪 cellular contents leak | Contact dermatitis | SJSSJS = Steven-Johnson Syndrome |  | Prepared in units per gram |
| **Antiviral** |
| **Antivirals** -Mostly broad spectrum to target various viral pathogens, can be used as treatment for prophylaxis**Antiretrovirals**-Six different classes that work at different locations in the HIV replication cycle: fusion inhibitors, entry inhibitors, nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), integrase strand transfer inhibitors (INSTIs), protease inhibitors (PIs)-Boosters can be included to increase efficacy of other agents |
| **HIV** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Genvoya | elvitegravir, cobicistat, emtricitabine, tenofovir, alafenamide | Elvitegravir & dolutegravir: integrase inhibitor, prevents integration of proviral gene into human DNACobicistat: CYP3A inhibitor, boosting levels of other antiviralsEmtricitabine tenofovir, alafenamide, abacavir, lamivudine: NRTI 🡪 inhibit reverse transcriptase | Integrase Inhibitors: renal insufficiency, nausea, diarrhea, headacheCobicistat: hyperbilirubinemiaNRTIs: lactic acidosis and hepatic steatosis | Integrase Inhibitors: hypersensitivity reaction, increased LFTs, insomniaCobicistat: rash, increase LFTsNRTIs: renal insufficiency | NRTIs: take without regard to meals | Integrase Inhibitors: few DDIs, good initial therapyCobicistat: major CYP and transport DDIs, can increase SCrNRTIs: no CYP-450 DDIs, long half-life= once daily dosingAbacavir: hypersensitivity reactions, screen for HLAB\*5701 mutation |
| Triumeq | abacavir, dolutegravir, lamivudine |
| **Antiviral**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Valtrex | valacyclovir HCl | Valacyclovir is the prodrug of acyclovir. Acyclovir inhibits DNA synthesis and viral replication by incorporating itself into viral DNA | Nausea and abdominal painNeutropeniaHeadache | Increased LFTsDehydrationSkin rash | Encourage adequate hydration | Renally dose adjusted |
| Zovirax | acyclovir |
| **Neuraminidase Inhibitor** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tamiflu | oseltamivir | Prodrug: inhibits neuraminidase which prevents viral progeny release from host cell | HeadacheNauseaVomiting | Skin rashPain | Patients need to be evaluated ASAP if developing flu-like symptoms to get treatment initiated | Can be used as influenza prophylaxis or for influenza treatment.Initiate within 48 hours of symptoms onset for the best responseRenally dose adjusted |
| **GERD** |
| **GERD**-Characterized by reflux of stomach contents 🡪 causing burning, pain, irritation-Variety of treatment options: Antacids 🡪 short-term relief, H2RAs 🡪 intermediate relief or PPIs 🡪 long-term control-Lifestyle modifications: Avoid lying down 3 hours after a meal, raise head of bed by 6-8 inches, diet modifications  |
| **PPI: Proton Pump Inhibitors**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Prilosec | omeprazole | Blocks the H-K-ATPase, which prevents the release of stomach acidTakes several days for maximal effectiveness | Nausea/vomiting/diarrheaMalabsorption of electrolytes and nutrients | Osteoporosis and fracture riskKidney disease, C. diff development | May take several days for full effect | May prolong or decrease activity of other drugsMost potent GERD drugs |
| Protonix | pantoprazole |
| Nexium | esomeprazole |
| Dexilant | dexlansoprazole |
| **H2As: H2-antagonist** |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Pepcid | famotidine | Inhibit histamine-2 receptors in the stomach | Well tolerated | Thrombocyto-peniaBrady/tachycardiaAsystoleAV block | Can take 30 minutes before meals | Absorption of drugs can be altered with the use of H2AsCan be used as part of GERD regimen with PPIs |
| **Gout** |
| **Gout**-Uric acid (UA) build-up causes painful joint swelling-Causes: kidneys not removing UA, ingesting too much purine-containing foods (organ meats, alcohol/beer, seafood), other conditions such as cancer-Treatment is focused on treating the painful gouty attack and preventing UA buildup-Counseling: Avoid foods high in purines (liver, kidney, anchovies, asparagus, herring, mussels, beer), maintain a healthy weight and exercise regularly, drink plenty of fluids (WATER!) |
| **Xanthine Oxidase Inhibitor**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Zyloprim | allopurinol | Inhibits the enzyme (xanthine oxidase) responsible for uric acid formation | Change in taste | SJS (HLA-B\*5801 gene) | Patients will see an increase in gouty attacks early in therapyIf patient notices any new rash once starting, they should consult their PCP | Used to prevent gouty attacks, NOT treatRenal dose adjustments |
| Anti-Tussives |
| **Anti-Tussives**-Used to prevent coughing. DEA: combination products containing codeine are scheduled based on amount of codeine compared to other products  |
| **Anti-Tussives**  |
| **Product Brand** | **Product Generic** | **MOA** | **Common AE** | **Rare AE** | **Counseling Points** | **Clinical Pearls** |
| Tessalon | benzonatate | Suppress cough by topical anesthetic action on the respiratory stretch receptors | Both are generally well tolerated | Codeine: monitor for respiratory depression | Avoid codeine with other controlled substances | Benzonatate should be swallowed whole (do not crush/chew) |
| Phenergan with Codeine | promethazine HCl with codeine phosphate (V) | Suppresses cough directly by acting on the medulla |