DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Drugs to Treat High Cholesterol			
Statins	HMG CoA Reductase Inhibitors - ↓ Cholesterol Synthesis - ↑ Hepatic LDL Receptors	- ↓ LDL Cholesterol - ↑ HDL Cholesterol - ↓ Triglycerides	-Myopathy (most common) -Rhabdomyolysis -Hepatotoxicity
Ezetimibe	A cholesterol absorption inhibitor -Inhibit the intestinal transport protein NPC1L1	- ↓ Intestinal cholesterol absorption	-Hepatotoxicity -Myopathy
Nicotinic Acid	-Inhibits secretion of VLDL	- ↓ Triglycerides - ↓ LDL Cholesterol - ↑ HDL Cholesterol	-Facial flushing -Hepatotoxicity -Hyperglycemia -Skin rash - ↑ Uric acid levels
Cholesterol Absorption Inhibitors	-Inhibit the intestinal transport protein NPC1L1	- ↓ Intestinal cholesterol absorption	-Hepatoxicity -Myopathy

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Fibric Acid Derivatives (Fibrates)	-Activate hepatic PPARα receptor -PPARα receptor activation causes: - ↑ Lipoprotein lipase - ↓ Apolipoprotein C-III - ↑ Apolipoprotein A-I & A-II	- ↓ Triglycerides - ↑ HDL cholesterol	-Risk of gall stones -Myopathy -Hepatotoxicity
Bile Acid Sequestrants	-Bind bile acids and prevent their absorption	- ↑ Hepatic LDL receptors - ↓ LDL Cholesterol	-Constipation -Bloating -Decreased absorption of negatively charged drugs
Vytorin	-A combination of simvastatin & ezetimibe		
Drugs to Treat Hypertension			
Loop Diuretics	-Block Na and Cl ion reabsorption in the thick ascending limb of the loop of Henle	- ↓ total body water - ↓ peripheral vascular resistance	-Hypokalemia -Hyponatremia -Dehydration -Hypotension

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Thiazide Diuretics	-Block Na and Cl ion reabsorption in the distal tubule	- ↓ total body water - ↓ peripheral vascular resistance	-Hypokalemia (major side effect) -Hyponatremia -Dehydration
Potassium Sparing Diuretics/Aldosterone Antagonists	-Blocks aldosterone receptors	- ↓ renal K excretion -minimal diuresis	-Hyperkalemia
Beta Blockers	-Inhibit beta 1 adrenergic receptors in the heart and juxtaglomerular cells in the kidney	-Heart: ↓ CO by ↓ contractility and HR -Kidney: ↓ renin secretion which decreases angiotensin II mediated vasoconstriction and aldosterone mediated volume expansion	-Bradycardia - ↓ CO -Heart failure (rare) -Rebound hypertension/ cardiac excitation
Direct Renin Inhibitors	-Inhibit plasma renin with high affinity	-Inhibits conversion of angiotensinogen to angiotensin I, therefore ↓ concentrations of angiotensin I, angiotensin II and aldosterone leading to ↓ BP	-Hyperkalemia -Cough -Diarrhea

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Angiotensin Converting Enzyme Inhibitors (ACEI)	-Inhibit angiotensin converting enzyme (ACE)	-Blocks conversion of angiotensin I to angiotensin II and aldosterone which leads to ↓ BP	-1st dose hypotension -Rash -Chronic cough -Hyperkalemia -Angioedema
Angiotensin Receptor Blockers (ARBs)	-Inhibit the angiotensin I receptor (AT1) with high affinity	-Relaxation of smooth muscle - ↓ peripheral resistance and therefore ↓ BP -Causes ↓ secretion of aldosterone	-Unlike ACEIs, ARBs do not cause chronic cough -Very low incidence of angioedema
Dihydropyridine Calcium Channel Blockers	-Block Ca channels in arterial smooth muscle cells	-Peripheral and coronary vasodilation which causes ↓ peripheral resistance and therefore ↓ BP	-Reflex tachycardia -Edema -Dizziness -Flushing -Headache -Rash

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Non-dihydropyridine Calcium Channel Blockers	-Block Ca channels in arterial smooth muscle cells and cardiac muscle cells	-Peripheral and coronary vasodilation which causes ↓ peripheral resistance and therefore ↓ BP -Blockade in cardiac cells causes ↓ CO (mediated by ↓ HR, conduction velocity and contractility), therefore causing ↓ BP	-Constipation -Dizziness -Flushing -Headache -Edema -Compromised cardiac function
Alpha-2 Receptor Agonist	-Bind to alpha 2 receptors in the brainstem to cause ↓ sympathetic outflow	- ↓ CO and ↓ TPR	-Drowsiness -Dry mouth -Rebound hypertension if withdrawn abruptly
CNS I Drugs			
Levodopa	-Dopamine replacement, metabolized by decarboxylases to dopamine	- ↓ symptoms of Parkinson's disease	-Nausea/vomiting -Dyskinesias -Cardiac dysrhythmias -Orthostatic hypotension -Psychosis

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Dopamine Agonist	-Bind to and activate dopamine receptors in the brain	-Relieves mild symptoms of Parkinson's disease	-Hallucinations -Daytime drowsiness -Orthostatic hypotension
Dopamine Releasers	-Stimulate the release of dopamine from dopaminergic neurons -Inhibit dopamine re-uptake -Block NMDA receptors	-Effective treatment of mild Parkinson's, often combined with L-Dopa	-Dizziness -Nausea/Vomiting -Lethargy -Anticholinergic side effects
COMT Inhibitors	-Inhibit metabolism of dopamine and L-Dopa	-Allows greater conversion of L-Dopa to dopamine and increases brain dopamine levels -Only moderately effective at treating Parkinson's Disease, therefore often combined with L-Dopa	-Nausea -Orthostatic hypotension -Vivid dreams -Hallucinations
MAO-B Inhibitors	-Inhibit the metabolism of L-Dopa and dopamine	- ↑ brain levels of L-Dopa and dopamine -Moderately effective in treating Parkinson's, often combined with L-Dopa	-Insomnia -Orthostatic hypotension -Dizziness

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Anticholinergic Drugs	-Block the binding of acetylcholine to its receptor	- ↓ some symptoms of Parkinson's	-Dry mouth -Blurred vision -Urinary retention -Constipation -Tachycardia
Cholinesterase Inhibitors	-Inhibit the metabolism of acetylcholine by blocking the enzyme acetylcholinesterase	- ↑ brain levels of acetylcholine, used to treat symptoms of Alzheimer's	-Nausea/vomiting -Diarrhea -Insomnia
NMDA Receptor Antagonists	-Block Ca entry into post-synaptic neurons	-Inhibits degradation of cholinergic neurons (only mildly effective)	-Well tolerated
Conventional Antipsychotics	-Dopamine 2 receptor antagonists	- ↓ positive symptoms of schizophrenia	-Extrapyramidal symptoms -Sudden high fever -Anticholinergic effects -Orthostatic hypotension -Sedation -Skin reactions

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Atypical Antipsychotics	-Block 5-HT1A receptors -Block 5-HT2A receptors -Block D2 receptors (low affinity for D2 receptors)	-Effective against positive and negative symptoms of schizophrenia	-Sedation -Orthostatic hypotension -Weight gain (sometime severe) -Risk of developing type ll diabetes -Anticholinergic effects
CNS II Drugs			
Phenytoin	-Blocks Na channels-> ↓ spontaneous depolarizations -Non-linear pharmacokinetics	-Treats all types of seizures except absence seizures -Traditional AED	-Sedation -Gingival hyperplasia -Skin rash -Teratogenic
Voltage Dependent Ca Channel Blockers	-block voltage dependent calcium channels -> ↓ neurotransmitter release	-Effective in treating epileptic seizures	N/A
Glutamate Antagonists	-blocks action of glutamate(ExNT) at NMDA-R and AMPA-R	-Effective in treatment of seizures	N/A

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Valproic Acid	N/A	-Traditional AED -Mood stabilizer in treatment of bipolar disorder	N/A
Lamotrigine	N/A	-Newer class of AED	-Decreased side effects compared to traditional AEDs
Tricyclic Antidepressants (TCAs)	-Inhibit the re-uptake of serotonin and norepinephrine	- ↓ symptoms of major depression -useful in treatment of panic disorder and agoraphobia	-Anticholinergic effects -Sedation -Orthostatic hypotension - ↓ Seizure threshold -Weight gain -Sexual dysfunction -Cardiac toxicity(rare)
Selective Serotonin Reuptake Inhibitors (SSRIs)	-block reuptake of serotonin	-Effective treatment of depression(especially major depression) -effective in treating generalized anxiety disorder, panic disorder, agoraphobia, OCD, social anxiety disorder	-Weight gain -Sexual dysfunction -Insomnia -Serotonin syndrome

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)	-Inhibit the reuptake of serotonin	-Effective treatment of major depression -Also effective in treating generalized anxiety disorder	-Nausea -Diastolic hypotension -Sexual dysfunction
MAO Inhibitors	-Inhibit the metabolism of serotonin and norepinephrine	-Effective in treatment of atypical depression and dysthymia	-CNS excitation(anxiety, insomnia, agitation) -Orthostatic hypotension -Hypertensive crisis if taken with tyramine containing foods
Lithium	-alter uptake and release of glutamate -blocks the binding of glutamate	-Mood stabilizer used in treatment of bipolar disorder	-GI upset -Tremor -Sedation -Hypotension

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Benzodiazepines	-bind to GABA receptor and allow greater binding of GABA to receptor -> ↑	-effective treatment of anxiety, epileptic seizures, insomnia, alcohol withdrawal and muscle spasm	-CNS depression(drowsiness) -Anterograde amnesia -Respiratory depression -Teratogenic -Tolerance (to anti-seizure effects, but not for anxiolytic or sedative effects) -Withdrawal
Buspirone	-Modulation of serotonin and dopamine neurotransmission	-effective treatment of generalized anxiety disorder	-Dizziness -Lightheadedness -Excitement
Diabetes Drugs			
Insulin(Metabolic Actions)	- ↑ Cellular uptake of glucose into liver, muscle & fat - ↑ Cellular uptake of amino acids - ↓ Hepatic gluconeogenesis	- ↓ Blood glucose	-Hypoglycemia (tachycardia, palpitations, sweating, nervousness, headache, confusion, drowsiness, fatigue)

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Insulin Lispro	-Short duration, rapid acting insulin	-Used to control postprandial rise in glucose	
Insulin Aspart	-Short duration, rapid acting insulin	-Used to control postprandial rise in glucose	
Insulin Glulisine	-Short duration, rapid acting insulin	-Used to control postprandial rise in glucose	
Unmodified Human Insulin	-Short duration, slower acting insulin	-Used to control postprandial rise in glucose	
NPH Insulin	-Intermediate duration insulin -Supplied as a cloudy suspension	-Used to control blood glucose between meals and in the evenings	
Insulin Detemir	-Intermediate duration insulin	-Used to control blood glucose between meals and in the evenings	
Insulin Glargine	-Long duration insulin	-Administered once daily to control blood glucose levels	

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Glucagon	-Causes glycogenolysis	- ↑ Blood glucose	-Hyperglycemia
Biguanides	- ↑ Sensitivity and number of insulin receptors - ↓ Hepatic gluconeogenesis - ↓ Glucose absorption	-Lowers blood glucose	-Nausea -Decreased appetite -Diarrhea - ↓ Absorption of vitamin B12 and folic acid -Lactic Acidosis
Sulfonylureas	-Stimulate release of insulin from the pancreas -Inhibit gylcogenolysis	-Lowers blood glucose	-Hyperglycemia -Pancreatic burnout
Meglitinides	-Stimulate insulin release from the pancreas	-Lowers blood glucose	-Hyperglycemia -Pancreatic burnout *both less likely than with sulfonylureas
Thiazolidinediones (Glitazones)	-Activates the PPARγ receptor which causes ↑ number of glucose receptors	-Lowers blood glucose	-Fluid retention/edema -Headache -Myalgia

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Alpha Glucosidase Inhibitors	-Inhibits the metabolism of complex carbohydrates by inhibiting the enzyme alpha-glucosidase	- ↓ Intestinal glucose absorption, therefore lowers blood glucose	-Flatulence -Cramps -Abdominal distention -Diarrhea - ↓ Iron absorption
Gliptins	-Inhibit the enzyme dipeptidyl peptidase (DPP-4)	- ↑ Levels of GLP-1 & GIP and therefore ↑ insulin release, ↓ glucagon release -Net effect is lowering glucose	-N/A
Incretin Mimetics	-Mimic the actions of incretin hormones by binding to and activating incretin receptors	- ↑ Insulin release - ↓ Glucagon release -Net effect is decreased blood glucose	-Hyperglycemia -Pancreatitis
Antibiotics			
Penicillins	-Inhibit transpeptidases and activate autolysins	-Inhibit cell wall synthesis -Bactericidal	-Potential for allergic reaction
Cephalosporins	-Inhibit transpeptidases and activate autolysins	-Inhibit cell wall synthesis -Bactericidal	-Potential for allergic reaction

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Vancomycin	-Blocks the transglycosylation step in cross bridge synthesis	-Inhibit cell wall synthesis -Bactericidal	-Ototoxicity -Red person syndrome
Tetracyclines	-Bind to 30S ribosomal subunit to prevent addition of amino acids to the peptide chain	-Inhibit bacterial protein synthesis -Bacteriostatic	-GI Irritation -Photosensitivity -Superinfection
Macrolides	-Bind to 50S ribosomal subunit and therefore block the addition of amino acids to the peptide	-Inhibit bacterial protein synthesis -Bacteriostatic	-GI upset -QT interval prolongation
Oxazolidinones	-Bind to 50S ribosomal subunit and therefore block the addition of amino acids to the peptide	-Inhibit bacterial protein synthesis -Bacteriostatic	-Reversible myelosuppression
Aminoglycosides	-Bind to the 30S ribosomal subunit to prevent protein synthesis	-Inhibit bacterial protein synthesis -Bactericidal	-Ototoxicity -Nephrotoxicity

DRUG	MECHANISM OF ACTION	EFFECT	ADVERSE EFFECTS
Sulfonamides/ Trimethoprim	-Inhibit bacterial folic acid synthesis	- ↓ Bacterial DNA synthesis -Bactericidal	-Fever -Photosensitivity -Stevens-Johnson syndrome
Fluoroquinolones	-Inhibits DNA gyrase and Topoisomerase IV	-Inhibits bacterial DNA replication -Bactericidal	-Nausea -Vomiting -Diarrhea
Isoniazid	-Inhibits mycolic acid synthesis	-Inhibits cell wall synthesis -Bactericidal	-Peripheral neuropathy -Hepatotoxicity