

D027 – Advanced Pathopharmacology

1. Celiac Disease

- a. Lining of the small intestine and intolerant of gluten.
 - i. More pronounced in the duodenum and jejunum.
- b. Signs and Symptoms
 - i. Abdominal pain and distention
 - ii. Diarrhea – pale, greasy, bulky, foul
 - iii. Malnutrition complications
 - 1. Rickets
 - 2. Occult blood
 - 3. Anemia
 - iv. Early bleeds and/or bruises
 - v. Hypomagnesemia and hypocalcemia
 - 1. Irritability, tremors, convulsions, tetany, bone pain, osteomalacia
- c. Lab Value:
 - i. IgA-tTg
 - ii. IgA-EMA
 - iii. Total IgA
 - 1. If deficient, IgG, IgA-DGP, or IgG-AGA may also be ordered.
- d. Testing:
 - i. Serologic measurements of IgA antibodies and HLA-DQ2 or HLA-DQ8
 - ii. Endoscopy with small intestine biopsy
 - iii. Duodenal biopsy
- e. Avoid BROW
 - i. Barley, Rye, Oats, Wheat

2. Sjogren's Syndrome

- a. Mostly in older women but can occur at any age and affects primarily those with Rheumatoid arthritis or SLE
- b. Dry eyes and dry mouth
- c. Testing: SSA+ and SSB+

3. Herbs

- a. Cinnamon
 - i. Uses
 - 1. Lowers blood glucose
 - 2. Lowers cholesterol
 - 3. Lowers hypertension
 - 4. Lowers risk for bleeding
 - ii. Adverse Effects
 - 1. Breastfeeding women should avoid as treatment.
 - 2. Avoid with diabetic drugs, anticoagulants, and heart medications.
- b. Gingko Biloba
 - i. Uses
 - 1. Halt progression of dementia.
 - 2. Used for erectile dysfunction
 - ii. Adverse Effects
 - 1. Increases bleeding
 - a. Avoid anticoagulants and antiplatelets.
 - 2. Lowers seizure threshold.
- c. Glucosamine
 - i. Uses
 - 1. For osteoarthritis
- d. Green Tea
 - i. Uses

1. Lose weight, mental clarity
- ii. Adverse Effects
 1. Hepatotoxicity.
 2. Avoid taking with vasodilators, stimulants, and psychoactive medications.
 3. Contains small amount of vitamin K – may decrease effects of warfarin.
- e. Lavender
 - i. Uses
 1. Increases relaxation
 2. Used for anxiety, stress, and insomnia
 - ii. Adverse Effects
 1. Constipation, HA, and increased appetite
 2. Caution when using CNS depressants.
 3. May decreased blood pressure. Avoid taking with anti-hypertensives.
4. Hypoplastic Left Heart Syndrome
 - a. Structures
 - i. LEFT ventricle is underdeveloped or too small.
 - ii. Mitral valves are not formed or are very small.
 - iii. Aortic valve is not formed or is very small.
 - iv. Ascending aorta is underdeveloped or very small.
 - v. Atrial septal defect – a hole between the left and right atria.
 - b. Fetal shunts
 - i. Patent ductus arteriosus: artery connecting aorta to pulmonary artery.
 - ii. Patent foramen ovale: hole connecting right atrium to left atrium.
 - c. Survival rates
 - i. 3–5-year survival rates of 70% for infants who have the Stage I repair.
 - ii. Children who survive to 12 months have 90% survival rate.
 - d. Testing: echocardiogram
 - e. Treatment: 3 stages of surgical procedure
 - i. Stage I (Norwood Procedure): 1-2 weeks old
 1. Enlarges aorta and connect to the right ventricle.
 2. Shunt to the pulmonary artery is created (either from aorta or right ventricle).
 3. Patent ductus arteriosus is closed.
 - ii. Stage II (Glenn Procedure): 4-6 months old
 1. SVC is connected to the pulmonary artery.
 2. Shunt from Norwood is removed.
 - iii. Stage III (Fontan Procedure): 18 to 36 months old
 1. IVC is connected to the pulmonary artery.
 2. Hole made from the IVC conduit attached to the right atrium.
 - f. Signs and Symptoms: oxygen-rich blood bypasses poorly-functioning left heart through the PDA and PFO.
 - i. Cyanosis of the skin, lips, and nails
 - ii. Pallor
 - iii. Sweaty, clammy, or cool skin
 - iv. Trouble breathing
 - v. Rapid or pounding heart rate
 - vi. Cold feet
 - vii. Poor pulses in the feet
 - viii. Poor feeding
 - g. Tests
 - i. During pregnancy
 1. Prenatal tests to check for birth defects and other conditions
 2. Ultrasound to identify HLLS
 3. Echocardiogram to show the structures of the heart and how it's

working with the defect.

ii. After birth

1. Based on signs and symptoms through pallor and cyanosis.
2. Newborn will experience signs and symptoms once ductus arteriosus and foramen ovale close.

h. Medications

- i. Tube feedings
- ii. Medications to strengthen heart muscles, lower blood pressure, and remove extra fluid.

5. Parathyroid

a. Function

- i. Produces parathyroid hormone that regulates calcium in the bloodstream and tissues.
 1. The more PTH hormone released, the more calcium the bones release to the blood stream, losing density and hardness.

b. Lab Values

- i. Calcium (8.6-10.3 mg/dL)
- ii. PTH: 11-51 pg/mL

c. Signs and Symptoms

i. Hyperparathyroidism

1. Osteoporosis
2. Kidney stones
3. Excessive urination
4. Abdominal pain
5. Fatigue, tiring easily
6. Forgetfulness
7. Bone and joint pain

ii. Hypoparathyroidism: High PTH, low T3 and T4.

1. Paresthesia
2. Twitching facial muscles
3. Muscle pains and cramps
4. Mood changes
5. Dry and rough skin

d. Tests

- i. Ultrasound
- ii. Bone densitometry
- iii. Body CT/MRI

e. Medications

i. Hyperparathyroidism

1. Calcimimetics
2. Hormone replacement therapy: helps bones retain calcium
3. Bisphosphonates: slows and prevents bone loss

f. Treatment

i. Hypoparathyroidism

1. Maintain a low serum calcium level in the low normal range or 0.5 mg/dL below normal.

6. Hutchinson-Gilford Progeria Syndrome

a. Progressive genetic disorder causing children to age rapidly. No cure.

- i. Appears in the first year or two in life.

b. Caused by aberrant splicing of the LMNA making protein-progerin.

- i. Abnormal version of lamin A protein causes the nuclear envelope surrounding the nucleus to be unstable and progressively damages the nucleus, causing it to die prematurely.
- ii. Test for LMNA mutation.

- c. Assessment
 - i. Measure height and weight
 - ii. Plot measurements on a normal growth curve chart.
 - iii. Test hearing and vision.
- d. Signs and Symptoms
 - i. Short stature or slow growth
 - ii. Slow hair growth
 - iii. Alopecia
 - iv. Joint abnormalities
 - v. Wrinkle and dryness of skin
 - vi. FTT and delayed tooth development.
- e. Treatment
 - i. Statins – decrease liver’s production of harmful cholesterol
 - ii. Nitroglycerin
 - iii. NSAIDs to relieve pain and decrease inflammation.
 - iv. Bone medications for strengthening and building.
 - v. Occupational/Physical therapy to restore muscle strength and function.
- f. Life Expectancy
 - i. Ages 10x faster
 - ii. 13-20 years. Average is 13 years.
- 7. Neuropathy
 - a. Diabetic Neuropathy Medication and Alternatives to gabapentin (Neurontin)
 - i. Duloxetine (Cymbalta)
 - ii. Pregabalin (Lyrica)
- 8. Hydrotherapy
 - a. Helps with multiple sclerosis (MS) and Myasthenia Gravis (MG)
- 9. Pneumothorax vs hemothorax – both decreased or absent lung sounds
 - a. Pneumothorax: collapsed lung
 - i. Air between the lungs and the chest cavity
 - ii. Percussion: hyper-resonant
 - b. Hemothorax:
 - i. Blood between lungs and chest cavity
 - ii. Percussion: dullness both anterior and posterior on the left.
- 10. Tuberculosis
 - a. Testing
 - i. Tuberculin skin test:
 - 1. Injecting 0.1 of tuberculin PPD into forearm intradermally.
 - 2. After 48 to 72 hours, if induration is >15mm, test is positive.
 - a. >5mm positive to immunocompromised.
 - b. >10mm positive to people born in countries with TB and/or work in areas at high-risk, such as nursing homes.
 - ii. Chest Xray or CT scan
 - 1. White spots in the lungs where the immune system has walled off TB.
 - b. Medications
 - i. Isoniazid
 - ii. Rifampin
 - 1. Don’t take with oral contraceptives.
 - iii. Ethambutol
 - iv. Pyrazinamide

11. Thyroid

a. Thyroid Levels

i. Lab values

1. TSH: 0.5 to 5.0 mIU/L
 - a. Treatment range: 0.5 to 3.0
2. T3: 80-220 ug/dL
3. T4: 5-12 ug/dL

ii. Thyroid peroxidase antibodies (TPO)

1. Hashimoto disease – autoimmune disease most common cause of hypothyroidism.
 - a. High levels of thyroglobulin (Tg) and TPO.
2. Graves' disease – autoimmune disease most common cause of hyperthyroidism.

b. Hyperthyroidism

i. Assessment (thyrotoxicosis)

1. Increased HR, dysrhythmia, angina
2. Stimulated CNS – nervousness, insomnia, rapid thought flow, rapid speech
3. Skeletal muscles weak and atrophy
4. Increased metabolic rate, increased appetite
5. Warm and moist skin
6. Intolerant to heat, increased body temperature
7. Graves' – exophthalmos

ii. Medications

1. Propylthiouracil (PTU)
2. Methimazole (Papazole)

c. Hypothyroidism

i. Assessment

1. Pale, puffy, expressionless face
2. Cold and dry skin
3. Brittle hair, hair loss
4. Lowered HR and temperature
5. Lethargy, fatigue, cold intolerance

ii. Medications

1. Levothyroxin (Synthroid)

12. Crohn's vs Ulcerative Colitis

a. Crohn's

i. Inflammation and scarring of the lining of all digestive tract.

1. Throughout the intestines, but generally isolated in the small intestines.
2. Patients with atopic dermatitis and eczema have increased risk of inflammatory bowel disease.

ii. Signs and Symptoms

1. Skip lesions – mucosal lesions where inflammation exists.
2. Appears as cobble stones on biopsy.
3. Intestinal bleeding, chronic diarrhea, abdominal pain, cramping, fistula, fissure, ileus, mouth ulcers
4. Worsens after eating – pain around navel or lower right abdomen.

iii. Tests

1. Antibody tests
 - a. Anti-Saccharomyces cerevisiae antibody test for ASCA protein.
2. CBC for H/H to look for bleeding.
3. Heme occult for blood in the stool
4. CRP and ESR for inflammation

5. Electrolyte panel to see if diarrhea is chronic.
6. Iron and B12 to see absorption
- iv. Diagnostics
 1. Kidney, ureter and bladder Xray
 2. Colonoscopy and sigmoidoscopy to look for lesions in the large intestines
 3. Barium Xray or video capsule endoscopy for small intestines.
- v. Medications
 1. Aminosalicylate
 - a. Sulfasalazine
 - b. Mesalamine
 2. Oral steroids if aminosalicylate not effective or for exacerbation
 - a. Taper steroids within 1-2 months
 3. Immunosuppressive therapy
 - a. Methotrexate
 4. Antibiotics to manage intestinal bacterial overgrowth
 5. IV corticosteroids for 3-10 days.
- vi. Diet
 1. Low residue
 - a. Low fiber
 - b. Lean proteins
 - c. Refined grains
 - d. Low fat food
 2. Avoid
 - a. Caffeine and alcohol: dehydration and diuretics
 - b. No sharp edges or large grains
- b. Ulcerative colitis
 - i. Chronic inflammation of the digestive tract.
 1. Only in the innermost lining of the large intestine and rectum.
 - ii. Signs and Symptoms
 1. Diarrhea, often with blood or pus
 2. Abdominal pain and cramping
 3. Rectal pain and bleeding
 4. Urgency to defecate and the inability despite urgency
 5. Weight loss
 6. Fatigue, fever, FTT
 - iii. Tests
 1. Perinuclear anti-neutrophil cytoplasmic antibody test for pANCA.
 2. Colonoscopy, flexible sigmoidoscopy
 3. Blood tests for anemia and inflammation
 - a. Anemia
 - i. CBC
 - ii. LFT – liver function tests
 - iii. Electrolytes
 - iv. ANA – antinuclear antibodies
 - b. Inflammation
 - i. CRP
 - ii. ESR
 4. Stool studies: white blood cells
 5. Xray: to rule out complications, such as perforated colon
 6. CT scan: to see how much of the colon is inflamed
 - iv. Medications
 1. Anti-inflammatory drugs
 2. Corticosteroids
 3. Immune system suppressors
 4. Anti-diarrhea, antispasmodics, iron supplements

13. Sickle Cell

a. Newborn Sickle Cell

- i. Under 5 years old increased risk for pneumococcal infections due to non-functional spleens and decreased immune response.
- ii. Infants will be anemic.
 1. May have spleen or liver damage and involvement causing jaundice.
 2. Crying episodes from pain and swelling of extremities.

b. Crisis

i. Types

1. Vaso-occlusive Crisis
 - a. Dactylitis – severe pain and swelling of both hands and feet.
 - b. Pain affecting extremities, back, and chest areas.
 - c. Fever
2. Splenic Sequestration
 - a. Acute painful enlargement of the spleen.
 - b. Drop in hemoglobin levels.
 - c. Hypovolemic shock
 - d. Seen in CT
3. Aplastic Crisis
 - a. Sudden pallor and weakness.
 - b. Dropping hemoglobin levels.
 - c. Reticulocytopenia (low immature RBCs)

ii. Prevention

1. Hydrate
2. Avoid being too hot or too cold.
3. Avoid high altitudes or places with low oxygen.

iii. Treatment

1. Vaso-occlusive crisis
 - a. IV fluids for hydration first!!
 - b. IV analgesia
 - c. High flow oxygen.
2. Oxygen, transfusion, and hydration.

c. Medications

- i. Ibuprofen or IV analgesia therapy
- ii. Hydroxyurea to reduce painful episodes by preventing abnormal RBCs.
 1. Increases risk of infection.
- iii. Avoid iron medications.
- iv. Prophylaxis for newborns
 1. Penicillin

d. Prevention

- i. Hydration, especially during exercise, fever, or infection.
- ii. Dressing warmly in cold weather.
- iii. Plenty of sleep.
- iv. Reduce and manage stress.
- v. Infants
 1. Hydration
 2. Vaccines and antibiotics
 3. Folic acid
 4. Regular eye exam

14. UTI and medications

a. Pregnancy

- i. Fosfomycin (Monurol): one-time dose is safe
- ii. Cefalexin (Keflex) is appropriate.
- iii. Avoid
 1. Nitrofurantoin (Furadantin, Macrobid)
 2. Trimethoprim-sulfamethoxazole (Bactrim)
 3. Penicillin
 4. Fluoroquinolones
 - a. Levofloxacin (Levaquin)
 - b. Ciprofloxacin (Cipro)
- iv. Safe
 1. Fosfomycin (Monurol) – one time is safe
 2. Cefalexin (Keflex)
 3. Ofloxacin (Floxin)

b. Pediatrics

i. Safe

1. Initial
 - a. Trimethoprim-Sulfamethoxazole (Bactrim)
2. Alternative
 - a. Amoxicillin-Clavulanate (Augmentin)
3. Cephalosporin
 - a. Cefixime (Suprax)
 - b. Cefpodoxime
 - c. Cefprozil (Cefzil)
 - d. Cephalexin (Keflex)
4. When vomiting
 - a. IV Dose administration of cephalosporin

15. Pregnancy Immunizations

a. Recommended

- i. Influenza
- ii. TDAP – 27-36 weeks
- iii. Pneumococcal
- iv. Hep A and B
- v. Meningococcal

b. Contraindicated

- i. Varicella vaccine
- ii. MMR

16. Varicella (chicken pox)

a. Contagious disease caused by the varicella-zoster virus.

b. Assessment

- i. Pleomorphic rash (all stages of rash, such as papules, vesicles, and crusts)
 1. Small, itchy blisters which eventually scabs over.
 2. Starts on the chest, back, and face.
- ii. Low-grade fever preceding skin manifestations by 1-2 days.
- iii. Abdominal pains for some children

c. Testing

- i. Rash assessment
- ii. Blood tests
- iii. Culture of lesion sample

d. Treatment

i. Antivirals

1. Acyclovir (Zovirax)
- ii. Immune globulin IV (Privigen) given 24 hours after the rash first appears.
- iii. Acetaminophen (Tylenol) for varicella rash pain in children.
 1. Ibuprofen worsens varicella lesions.

- iv. Calamine lotion
- v. Cool bath with baking soda, uncooked oatmeal, or colloidal oatmeal to relieve itching.

17. Schizophrenia medications

a. Schizophrenia Signs and Symptoms

i. Positive Symptoms – in psychotic episodes

- 1. Hallucinations: auditory, visual, olfactory, gustatory, tactile
- 2. Delusions: persecutory, referential, somatic, erotomaniac, religious, grandiose
- 3. Confused thoughts and disorganized speech

ii. Negative Symptoms

- 1. Anhedonia
- 2. Flat affect
- 3. Withdrawal
- 4. Alogia – lack of speech
- 5. Avolition – lack of motivation or ability to do tasks or activities

b. First Generation

i. Medications (-dazine)

- 1. Chlorpromazine (CPZ, Thorazine, Largactil)
- 2. Haloperidol (Haldol)
- 3. Fluphenazine (Modectate)

ii. Indications

- 1. Positive symptoms of schizophrenia

iii. Side Effects

1. Extrapyramidal Symptoms

- a. Dystonia – continuous spasms and muscle contractions
- b. Akathisia – restlessness
- c. Parkinsonism – rigidity
- d. Bradykinesia – slowing of movement
- e. Tardive dyskinesia – irregular jerky movements of the lower face and distal extremities

2. Antimuscarinic effects

- a. Dry mouth
- b. Constipation
- c. Blurred vision
- d. Urinary retention

3. Alpha-1 receptor antagonism

- a. Orthostatic hypotension

4. Histamine antagonism

- a. Weight gain
- b. Sedation
- c. Second Generation

i. Medications

- 1. Risperdal (Ritalin)
- 2. Aripiprazole (Abilify)
- 3. Olanzapine (Zyprexa)
- 4. Quetiapine (Seroquel)
- 5. Ziprasidone (Geodone)

ii. Indications

- 1. Positive and negative symptoms of schizophrenia

iii. Side Effects

1. Antimuscarinic effects

2. Metabolic side effects

- a. Weight gain
- b. Dyslipidemia
- c. Hyperglycemia

- 3. Agranulocytosis and neutropenia for clozapine
 - a. Seizure, myocarditis
 - 4. Neuroleptic malignant syndrome
 - a. Fever
 - b. Altered mental status
 - c. Muscle rigidity
 - d. Autonomic dysfunction
 - d. Vitamins that help schizophrenia
 - i. Folic acid
 - ii. Thiamine (B vitamins)
- 18. PPD
 - a. Bacillus Calmette-Guérin (BCG) vaccine for TB
 - i. Expected to be >10mm but not positive
 - b. After 48 to 72 hours
 - i. Skin test is checked.
- 19. BPH
 - a. Tamsulosin (Flomax) to relax the muscles in the prostate and the bladder.
 - i. Alpha-1 Antagonist – hypotension education!!!
- 20. CHF
 - a. Congestive Heart Failure
 - i. Volume overload in pulmonary area; left ventricular dysfunction
 - ii. Left vs. Right
 - 1. Left – pulmonary cause
 - a. JVD, FVE, Rales, S3 murmur
 - 2. Right – peripheral vascular cause
 - a. LE edema, abdominal distention
 - b. Assessment
 - i. Normal Ejection Fraction: 55-60%
 - 1. Heart.org: 55-70%
 - ii. Reduced vs. Preserved Ejection Fraction
 - 1. Reduced (HFrEF) – systolic heart failure
 - a. Ineffective contraction and less oxygen-rich blood pumped to the body.
 - b. Less than 40%
 - 2. Preserved (HFpEF) – diastolic heart failure
 - a. Ineffective relaxation during filling.
 - b. 40-49%
 - c. Testing
 - i. BNP – over 100% heart failure is present and more severe.
 - ii. Echocardiogram to evaluate structure and function.
- 21. Pleural Effusion
 - a. Symptoms
 - i. Chest pain
 - ii. Dry, nonproductive cough
 - iii. Dyspnea
 - iv. Orthopnea
 - v. Fever
 - b. Testing
 - i. Chest Xray
 - ii. CT
 - iii. Ultrasound
 - c. Medications
 - i. Diuretics – CHF and pulmonary edema
 - ii. Antibiotics – parapneumonic effusion and empyema
 - iii. Anticoagulation - PE
 - d. Treatment

- i. Thoracentesis – needle decompression
- ii. Tube thoracostomy (chest tube)
- iii. Pleural drain
- iv. Oxygen
- v. Positioning
- vi. Avoiding exacerbating activities and conservation of energy

22. Diabetes

- a. Antihypertensive Medications
 - i. ACE inhibitors, such as captopril (Capoten) or ARBs.
- b. Insulin

Route	Onset	Peak	Duration
Regular (only IV insulin) Clear insulin	30-60 min	2-4 h	6-12 h
NPH (Humulin N) Cloudy insulin	1-1.5 h	4-12 h	24 h
Ultralente (Humulin Ultralente)	4-8 h	10-30 h	20-36 h
Lispro (Humalog)	<15 min	30-90 min	2-5 h
Aspart (Novolog)	10-20 min	1-3 h	3-5 h
Glargine (Lantus) Stings to some patients	60-70 min	None	24 h
Glulisine (Apidra)	2-5 min	30-90 min	2 h
Detemir (Levemir)	1-2 h	3-6 h	5.7-23.3 h

Contraindications: Beta blockers (masks hypoglycemia), MAOI (glucose reduction)

No peak, no mix.

Drawing: clear (Regular) to cloudy (NPH)

23. Asthma medication contraindications

- a. Beta blockers
- b. CCB

24. Migraine patient

- a. Botox treatment

25. Priority questions and SDOH

26. SLE

- a. Lupus
 - i. Inflammatory disease caused when the immune system attacks its own tissues
 - ii. Can affect joints, skin, kidneys, blood cells, brain, heart, and lungs.
- b. Assessment
 - i. Fatigue
 - ii. Joint pain
 - iii. Rash
 - iv. Fever
- c. Treatment
 - i. Prednisolone

- ii. Methylprednisolone
- 27. Diabetic Ketoacidosis
 - a. DKA
 - i. Diabetic complication where the body produces excess blood acids (ketones).
 - ii. >300
 - b. Assessment
 - i. Fruity-scented breath
 - ii. Thirst and dry mouth
 - iii. Frequent urination
 - iv. Fatigue
 - v. Dry or flushed skin
 - vi. Vomiting
 - vii. Confusion
- 28. Cellulitis
 - a. Treatment of antibiotics-induced cellulitis
 - i. Start IV antibiotics
 - ii. PO antibiotics
 - iii. Treat temperature
 - iv. Educate medication regimen
 - v. Wrap wound
- 29. Panic Attack, hallucinations, and nightmares
 - a. Clonazepam (Klonopin) for anxiety
 - b. Clonidine (Catapres) for hypertension
 - c. Prazosin (Minipress) for stress nightmares
- 30. Multiple sclerosis
 - a. Demyelinating disease that results in damage to the protective covering (myelin sheath) that surrounds nerve fibers in the brain, optic nerves, and spinal cord.
- 31. Kidney and blood pressure regulation
 - a. Blood pressure regulation through hormones that cause the kidneys to increase the reabsorption of sodium and water into the bloodstream.
 - i. Antidiuretic hormone (ADH)
 - ii. Aldosterone
 - iii. Renin-angiotensin system
- 32. Human Leukocyte Antigen (HLA-B*58:01) allele on allopurinol (Zyloprim)
 - a. Allopurinol (Zyloprim) used to reduce uric acid to treat gout and kidney stones.
 - b. HLA-B*58:01 with allopurinol is strongly associated with severe cutaneous adverse reactions (SCAR), such as Steven-Johnson Syndrome and toxic epidermal necrolysis.
 - i. Most common in Korean, Han-Chinese, and Thai descenets.
- 33. Doxycycline (Vibramycin)
 - a. Enhances anticoagulant effect of warfarin (Coumadin). Monitor INR!
 - i. Normal INR is 0.8-1.2.
- 34. Muscle spasms
 - a. Medications
 - i. Baclofen (Gablofen) – treat muscle spasms
 - ii. Gabapentin (Neurontin) – anticonvulsant and nerve pain medication
- 35. Subdural vs epidural vs intracerebral hematoma
 - a. Anatomy
 - i. Skull
 - ii. Epidural hematoma
 - iii. Dura mater

- iv. Subdural hematoma
 - v. Arachnoid mater
 - vi. Pia mater
 - vii. Brain
 - b. Assessment
 - i. Epidural hematoma
 - 1. CNIII Palsy
 - 2. Lucid interval
 - a. Patient could be comfortable and alert
 - b. Followed by rapid deterioration to unconsciousness
 - 3. Biconvex disk on CT
 - ii. Subdural hematoma
 - 1. Crescent shape on CT
36. Ashkenazi Jewish patients at a higher risk for Tay-Sachs.
- a. Tay-Sachs (GM2 gangliosidosis)
 - i. Lack of enzyme that breaks down fatty substance, building up toxic levels in the brain and affect the function of the nerve cells in the brain and spinal cord.
 - ii. Loss of muscle control, cherry-red spots in the eyes, vision and hearing loss.
 - 1. Loss of motor skills, such as turning over, crawling, and sitting up.
37. CKD Stages
- a. Stage 1: normal or high GFR (90-120 mL/min NORMAL)
 - i. Normal renal function with proteinuria for 3+ months.
 - b. Stage 2: GFR 60-89
 - i. Mild loss of renal function with proteinuria.
 - c. Stage 3: GFR 30-59
 - d. Stage 4: GFR 15-29
 - e. Stage 5 (ESRD): GFR <15
38. Uncomplicated otitis media
- a. Amoxicillin – first line treatment in pediatric patients.
 - b. Mainly caused by *S. pneumoniae*.
39. Fludrocortisone (Florinef)
- a. Indications
 - i. Glucocorticoid to treat Addison's disease and adrenocortical insufficiency.
 - b. Side Effects
 - i. Upset stomach, headache, menstrual changes
 - ii. Color changes of skin or increase in fat
 - iii. Easy bleeding/bruising
 - iv. Slow wound healing, signs of infections
 - v. Bone, joint, and muscle pain
 - vi. Puffy face, swelling of hands/feet
 - vii. Increased thirst and urination
 - viii. Weight gain and muscle weakness
40. Prazosin (Minipress)
- a. Indications
 - i. Relaxes the outflow of the bladder and helps with prostate enlargement with BPH.
 - ii. PTSD-associated nightmares
 - iii. Raynaud's phenomenon
41. Antihypertensive for diabetes
- a. ACE is best for first-line treatment.
 - i. Captopril (Capoten)

42. Asthma

a. Assessment

- i. Dry cough
- ii. Wheezing, breathing through the mouth
- iii. Chest pressure, fast HR, throat irritation

b. Medications

i. Short-Acting Beta Agonists

1. Indications

a. Step 1: SABA PRN

- i. Used for environmental triggers, exercise-induced, virus-induced, allergies.
- ii. Safe and recommended during pregnancy.
- iii. Newborn or children should use nebulizers, instead of inhalers.

2. Medications

- a. Albuterol (Salbutamol, Proventil, Ventolin)
- b. Levalbuterol (Xopenex)

ii. Inhaled Corticosteroids

1. Indications

a. Step 2: Low-dose ICS or Alternatives

- i. Worsening respiratory symptoms from asthma
- ii. Nighttime awakening
- iii. No systemic effects from taking oral corticosteroids.

b. Step 3: Medium-dose ICS

- i. Assess teenagers before stepping up from Step 2 to Step 3 since Medium-dose ICS may not be beneficial for their growth.

2. Medications

- a. Fluticasone (Flovent)
- b. Budesonide (Pulmicort)
- c. Mometasone (Asmanex)
- d. Beclomethasone (QVar)

iii. Leukotriene Receptor Antagonist

1. Indications

a. Step 2: Low-dose ICS or Alternatives

- i. Usually prescribed to growing children, such as teenagers, due to the long-term effects of a medium-dose ICS in Step 3.

2. Medications

- a. Montelukast (Singulair)

iv. Mast Cell Stabilizer

1. Indications

a. Step 2: Low-dose ICS or Alternatives

- i. Usually prescribed to growing children, such as teenagers, due to the long-term effects of a medium-dose ICS in Step 3.

2. Medications

- a. Cromolyn (Intal)

v. Long-Acting Beta Agonists

1. Medications

- a. Formoterol (Foradil, Perforomist)
- b. Salmeterol (Serevent)
- c. Indacaterol (Arcapta)

- vi. Oral Corticosteroids
 - 1. Indications
 - a. Step 6
 - i. All-day coughing and wheezing
 - ii. Acute exacerbations
 - 2. Medications
 - a. Prednisone
 - vii. ICS + LABA
 - 1. Medications
 - a. Fluticasone/Salmeterol (Advair)
 - b. Fluticasone/Vilanterol (Breo Ellipta)
 - c. Budesonide/Formoterol (Symbicort)
 - d. Mometasone/Formoterol (Dulera)
43. Myasthenia Gravis
- a. Diagnosis
 - i. Autoimmune neuromuscular disease that causes weakness in the skeletal muscles that worsens after periods of activity and improves after periods of rest.
 - 1. Antibodies against nicotinic acetylcholine receptors at the junction between the nerve and muscles.
 - a. Sometimes caused by MuSK (Muscle-Specific Kinase)
 - 2. Prevents nerve impulses from triggering muscle contractions.
 - ii. Thymus gland causes autoimmune disease.
 - b. Signs and Symptoms
 - i. Ocular myasthenia – weakness of eye muscles.
 - ii. Ptosis – drooping of one or both eyelids.
 - iii. Diplopia – blurred or double vision.
 - iv. Difficulty swallowing, inability to cough or gag
 - v. Shortness of breath
 - vi. Slurred speech
 - vii. Weakness in arms, hands, fingers, legs, and neck
 - viii. Increased heart rate and BP
 - c. Myasthenic Crisis
 - i. Severe muscle weakness
 - ii. Respiratory failure
 - d. Testing
 - i. Tensilon Test
 - 1. Edrophonium briefly relieves weakness by blocking the breakdown of acetylcholine and increasing levels at the neuromuscular junction.
 - a. Will differentiate between myasthenic vs cholinergic crisis.
 - 2. 10mg tensilon prepared lasting 10 minutes.
 - a. 2mg atropine in case of cholinergic crisis.
 - ii. Blood Tests
 - 1. Acetylcholine
 - 2. Anti-MuSK antibody
 - iii. Electrodiagnostics
 - 1. Single fiber electromyography (EMG)
 - iv. CT or MRI
 - 1. Detect presence of a thymoma.
 - e. Treatment
 - i. Medications
 - 1. Cholinesterase Inhibitors
 - a. Neostigmine
 - i. Side Effects

1. Increased mucus, salivation, urination, sweating
 2. Abdominal cramps, muscle twitching
 3. Nausea, vomiting, diarrhea
 4. Decreased pupil size, slowed or slurred speech
 5. Convulsion, dizziness, headache
 6. Low blood pressure, shortness of breath
 - b. Pyridostigmine
 2. Autoimmune treatments
 - a. Prednisone
 - i. Use 4-6 weeks then taper.
 - ii. Non-Pharmacologic Treatments
 1. Plasmapheresis
 2. IV immunoglobulin
 3. Thymectomy
 4. Hydrotherapy
 - iii. Therapeutic levels of Cholinesterase Inhibitors.
 1. Produce mild stimulation.
 2. Toxic levels depress the CNS.
 - a. Treat with respiratory support and atropine.
 - iv. Cholinergic Crisis
 1. Increased salivation, lacrimation, sweating, urination, abdominal cramping, emesis.
 2. Bronchospasm, tachycardia
 3. Muscular weakness, fatigue, fasciculation leading to the paralysis
 4. Respiratory muscle weakness, respiratory failure
44. Thyrotoxicosis or thyroid storm
 - a. Crisis
 - i. Rare but dangerous worsening of the thyrotoxic state, in which death can occur within 48 hours without treatment
 - ii. May develop spontaneously, but occurs in individuals who have undiagnosed or partially-treated severe hyperthyroidism who are subjected to excessive stress from other cause
 - b. Causes
 - i. Inflection
 - ii. Pulmonary or cardiovascular disorders
 - iii. Trauma
 - iv. Burns
 - v. Seizures
 - vi. Surgeries, especially thyroid surgeries
 - vii. Obstetric complications
 - viii. Emotional distress
 - ix. Dialysis
 - c. Assessment
 - i. Sudden release and increased action of thyroxine (T4) and triiodothyronine (T3).
 1. Hyperthermia
 2. Tachycardia
 - a. Atrial tachydysrhythmias
 3. High-output HF
 4. Agitation or delirium
 5. Nausea, vomiting, or diarrhea contributing to fluid volume
 - d. Treatment
 - i. Drugs that block TH synthesis
 1. Propylthiouracil (PTU) – inhibits thyroid hormone conversion

- 2. Thiamazole (Tapazole)
 - ii. Beta-blockers to control cardiovascular symptoms
 - iii. Corticosteroids
 - iv. Iodine
 - v. Supportive care
 - vi. Plasma exchange
 - vii. Thyroidectomy
- 45. Uncomplicated HTN
 - a. Medications
 - i. Hydrochlorothiazide (Microzide)
- 46. Ataxia
 - a. Degenerative disease of the nervous system
 - Damage to the cerebellum
 - ii. Genetic predisposition or trauma to the spinal cord or other nerves.
 - b. Assessment
 - i. Mimic those of being drunk
 - ii. Slurred speech, stumbling, falling, incoordination
 - iii. Wide-based gait
 - iv. Difficult with writing and eating
 - v. Slow eye movements
 - c. Fragile X Syndrome – microscopically-observed breaks and gaps in the X chromosome.
 - i. Late-onset, usually after 50 years old.
 - ii. Developmental delays, learning disabilities, social and behavior problems.
 - iii. Problems with movement and cognition.
- 47. Acute care prioritizations
 - a.
- 48. Athletic Heart Syndrome
 - a. Enlarged heart and lower HR
 - i. Athletes can have as low as 30 to 40 bpm.
 - b. Send patient home if lower than normal HR because it's expected.
- 49. Hypertension and CKD
 - a. First line antihypertensives is ACE or ARB.
 - b. If ACE in stage 3, start on Amlodipine (Norvasc).
- 50. COPD gold guideline
 - a. Assessment
 - i. Breathing difficulty
 - ii. Cough, wheezing
 - iii. Sputum production
 - b. Causes
 - i. Emphysema – alveoli at the end of the bronchioles are destroyed due to irritating gases and particulate matter.
 - ii. Chronic bronchitis – inflammation of the lining of the bronchial tubes, which carry air to and from the alveoli.
 - 1. Daily cough and sputum production.
 - c. Testing
 - i. Spirometry or Pulmonary Function Test (PFT)
 - 1. Measures lung function and capacity.
 - 2. Exhale forcefully into a tube connected to the spirometer.
 - ii. Chest Xray
 - iii. CT Scan
 - iv. ABGs
 - d. Medications
 - i. SABA + may also have theophylline (relaxes smooth muscles in the

airway to allow better air flow).

1. Increases effects of LABA or LAMA.
2. Works quickly when the patient is short of breath.

ii. LABA

1. Formoterol (Perforomist)
2. Salmeterol (Serevent)
3. Indacaterol (Arcapta)

iii. SAMA

1. Ipratropium bromide

iv. LAMA

1. Tiotropium (Spiriva)

v. LAMA then LAMA + LABA

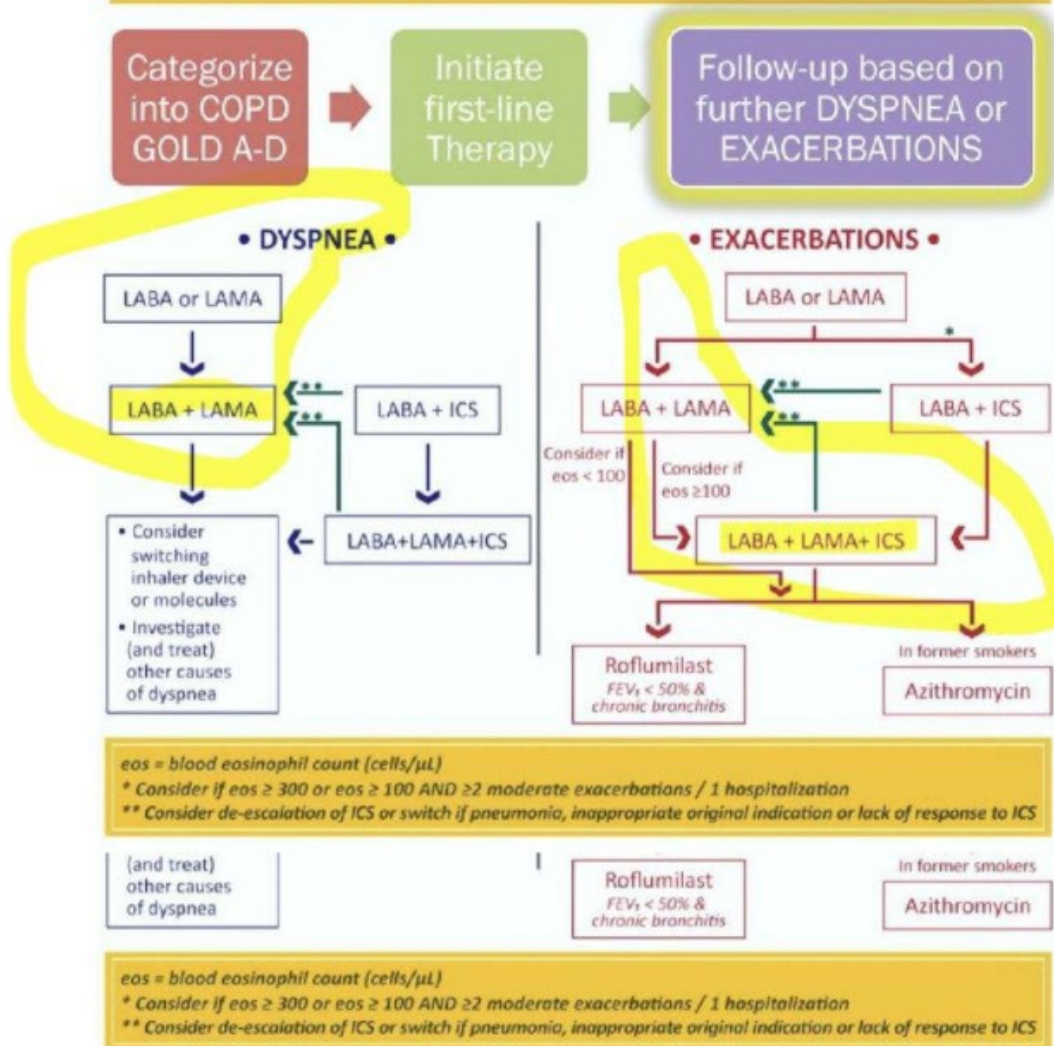
vi. Then LABA + ICS

vii. Then LAMA + LABA + ICS

viii. Then PDE4 inhibitor

1. Roflumilast (Daliresp) with chronic bronchitis
2. Macrolide in former smokers.
 - a. Azithromycin (Zithromax)
 - b. Clarithromycin
 - c. Erythromycin

COPD GOLD Guidelines 2019



51. Medullary thyroid cancer

- Occurs in C cells and secretes calcitonin and carcinoembryonic antigen.
 - RET proto-oncogene is located in chromosome 10.
 - Genetic mutation of RET is seen in hereditary and sporadic MTC.
- Assessment
 - Painless lump on the front neck.
- Testing
 - Fine needle aspiration biopsy of a thyroid nodule.
 - Blood test if positive
 - Calcitonin elevated
 - Carcinoembryonic antigen (CEA) elevated
- Genetic Counseling

- i. To patients and first-degree relatives so thyroid is removed before MTC develops.
- 52. Postural Orthostatic Tachycardia Syndrome
 - a. Criteria
 - i. HR increase >30bpm or >120bpm within the first 10 minutes of standing without orthostatic hypotension.
 - ii. Pediatrics >40bpm
 - b. Assessment
 - i. May or may not be hypotensive.
 - ii. Hypovolemia
 - iii. High levels of norepinephrine while standing – reflects increased sympathetic nervous system activation.
 - iv. Small fiber neuropathy that impacts sudomotor nerves.
 - v. Fatigue, HA, lightheadedness
 - vi. Heart palpitations, exercise intolerance
 - vii. Nausea, diminished concentration
 - viii. Shaking, syncope, chest pain, SOB
 - ix. Coldness or pain in the extremities
 - x. Reddish-purple color in the legs upon standing
 - 1. Blood pooling or poor circulation
 - c. Testing
 - i. Tilt Table Test
 - ii. Bedside Measurements of HR and BP.
 - 1. Taken supine
 - 2. Standing at 2, 5, and 10 minutes.
 - iii. Quantitative Sudomotor Axon Reflex Test (QSART)
 - 1. Measure sweat gland stimulation through mild electric shock.
 - iv. Thermoregulatory Sweat Test
 - v. Skin biopsy for small fiber nerves
 - vi. Gastric motility studies
- 53. Color blindness
 - a. Gene Mutation
 - i. OPN1MW on chromosome-23 (x-linked)
 - 1. Comes from mother to the son.
 - 2. Diseased gene is dominant.
 - a. Only one X gene is necessary to be affected.
- 54. G6PD (hemolytic anemia)
 - a. Glucose-6-phosphate dehydrogenase deficiency
 - i. Genetic disorder in point mutation that causes RBCs to break down prematurely.
 - ii. Associated with hemolytic anemia
 - 1. RBCs are destroyed faster than replacing.
 - iii. Mostly affects males.
 - b. Symptoms
 - i. Pale skin
 - ii. Jaundice
 - iii. Dark-colored urine
 - iv. Fever, weakness, dizziness, confusion
 - v. Trouble with physical activity
 - vi. Enlarged spleen and liver
 - vii. Increased HR, murmur
 - c. Avoid
 - i. Food
 - 1. Fava beans!!!! And all beans!
 - 2. Moth balls (naphthalene)
 - 3. Red wine

- 4. Blueberries
 - 5. Soya products
 - 6. Tonic water
 - 7. Camphor
 - ii. Medications
 - 1. Aspirin
 - a. Acetaminophen (Tylenol) is acceptable).
 - 2. Ascorbic acid (Vitamin C)
 - 3. Chloroquine
 - 4. Methylene blue
 - 5. Methyldopa (Aldomet)
 - 6. Fulfisoazole (Pediazole)
 - iii. Risk of hemolysis is dose-related.
55. Transfusion Reaction
- a. IgM
 - i. Slow rate of transfusion
 - ii. Acetaminophen
 - iii. Diphenhydramine
 - iv. Steroids
 - v. Meperidine (Demerol) given first for rigors.
56. Small cell lung carcinomas
- a. Neuroendocrine lung tumor
 - i. 15% of lung cancer
 - ii. 25% of lung cancer deaths
 - iii. Arises from the central part of the lung ranging from 6-8 um.
 - iv. Worst prognosis
 - b. Causes
 - i. Tobacco smoking
 - c. Testing
 - i. Epidermal Growth Factor Receptor (EGFR)
 - ii. Chest XRay
57. Thrush in infants
- a. Assessment
 - i. White or yellow irregularly shaped patches or sores in the baby's gums or tongue along the sides and roof of the mouth.
 - ii. Cracked skin in the corners of the mouth.
 - b. Causes
 - i. Candida albicans
 - ii. May develop if the breast is not properly dried after feeding and yeast grows.
 - 1. Expose nipples to sunlight for a few minutes each day to prevent yeast from growing.
 - 2. Probiotics!
 - iii. Common in newborns under 2 months.
 - c. Risk Factors
 - i. Very low birth weight
 - ii. Vaginal birth from a mother with a yeast infection
 - iii. Taken antibiotics
 - iv. Taking inhaled corticosteroids for asthma
 - v. Pacifier use
 - vi. Weak immune system
 - d. Medications – should treat both mother and baby.
 - i. Nystatin applied topically to the insides of the mouth and tongue multiple times a day for 10 days.

- ii. Liquid antifungal medicine.
- iii. Fluconazole (Diflucan) – oral medication given via dropper.

58. CYP3A4

- a. Important in metabolism of codeine.
- b. St. John's wort induces CYP3A4 and can accelerate the metabolism of drugs, causing a loss of therapeutic effects.
 - i. Avoid taking with digoxin.

59. Alzheimer's

- a. Most common type of dementia with 60-80% of the cases.
 - i. Progressive symptoms that gradually worsen over number of years.
 - ii. Average lifespan: 4-8 years after diagnosis.
 - 1. As long as 20 years.
- b. Younger-Onset Alzheimer's Disease
 - i. Younger than 66 years old.
 - ii. Many in 40s and 50s.
- c. Assessment
 - i. Brain shrinks dramatically
 - 1. Nerve cell death
 - 2. Tissue loss
 - ii. Plaques
 - 1. Abnormal clusters of protein fragments
 - iii. Tangles
 - 1. Twisted strands of another protein
 - iv. 10 Warning Signs of Alzheimer's
 - 1. Memory loss that disrupts daily life
 - 2. Challenges in planning or solving problems.
 - 3. Difficulty completing familiar tasks.
 - 4. Confusion with time or place.
 - 5. Trouble understanding visual images and spatial relationships.
 - 6. New problems with words in speaking or writing.
 - 7. Misplacing things and losing the ability to retrace steps.
 - 8. Decreased or poor judgement.
 - 9. Withdrawal from work or social activities.
 - 10. Changes in mood and personality.
- d. Stages
 - i. Mild Alzheimer's (Early Stage)
 - 1. Able to function independently
 - 2. Forgetting familiar words, losing everyday objects
 - 3. Trouble remembering names, greater difficulty performing tasks
 - 4. Forgetting material just read, increasing trouble with planning and organizing.
 - ii. Moderate Alzheimer's (Middle Stage)
 - 1. Requires increasing care.
 - 2. Forgetfulness of personal history
 - 3. Confusion about place and time
 - 4. Need for help with bathing, toileting, dressing
 - 5. Increased risk for wandering
 - iii. Severe Alzheimer's (Late Stage)
 - 1. Longest stage
 - 2. Requires full-time care
 - 3. Loss of awareness of recent experiences and surroundings
 - 4. Changes in physical abilities, such as walking, sitting, and swallowing
 - 5. Vulnerable to infections
- e. Medications
 - i. Cholinesterase Inhibitors

1. Donapezil (Aricept), Galantamine (Razadyne), Rivastigmine (Exelon)

- a. Treats symptoms related to memory, thinking, language, judgement, and thought processes.
- b. Prevents breakdown of Ach to support communication among nerve cells by keeping Ach high.
- c. Delays or slows worsening symptoms.
- d. Side Effects
 - i. Nausea, vomiting, loss of appetite, increased bowel movements.

ii. N-Methyl-D-Aspartate receptor antagonist

1. Memantine (Namenda)

- a. Improves memory, attention, reason, language, and ability to perform simple tasks
- b. Regulates glutamate activity to increase information processing, storage, and retrieval.
- c. Improves mental function and ability to perform daily activities for some people.
- d. Side Effects
 - i. Headache, constipation, confusion, and dizziness.

60. Beta Thalassemia

- a. Inherited disorder characterized by reduced or absent amounts of hemoglobin.
 - i. Most common within Mediterranean ancestry.
- b. Symptoms
 - i. Yellowing eyes
 - ii. Fatigue, dizziness, fainting
 - iii. Low blood pressure, palpitations, rapid HR
 - iv. Chest pain, angina
 - v. Paleness, coldness, and yellowing of skin
 - vi. Shortness of breath, muscular weakness
 - vii. Changes in stool color, splenic enlargement
 - viii. Delays in growth and development
 - ix. Bone marrow expansion
- c. Treatment
 - i. Regular blood transfusions to help prevent severe anemia and allows for more normal growth and development.
 - ii. Medications
 - 1. Epoetin Alfa (Epogen)
 - a. Erythropoietin to increase production of red blood cells.

61. Chronic Joint Pain

- a. Pain is chronic when it lasts 3-6 months or longer.
- b. Assessment
 - i. Joint redness, swelling, tenderness, and warmth.
 - ii. Limping, locking of the joint
 - iii. Loss of range of motion of the joint
 - iv. Stiffness, weakness
- c. Testing
 - i. Medical history, physical examination
 - ii. Xray
 - iii. Blood tests
- d. Medications
 - i. NSAIDs
 - ii. Topical analgesics
 - iii. Steroids
- e. Treatments

- i. Physical therapy
 - ii. Transcutaneous Electrical Stimulator (TENS)
 - 1. Low-voltage electrical current to provide pain relief
 - iii. Implanted electric nerve stimulation
 - 1. Surgically placed under the skin and sends a mild electric current to the spinal cord.
 - iv. Deep brain or spinal stimulation
 - 1. Uses electric stimulation to treat movement problems associated with chronic joint pain.
 - 2. DBC can ease symptoms and decrease the amount of medicine needed.
 - v. Acupuncture, meditation
 - vi. Weight loss, diet, exercise
- 62. Community-Acquired Pneumonia
 - a. Risk Factors
 - i. Older age, chronic comorbidities, smoking, alcohol abuse
 - b. Causes
 - i. Streptococcus pneumoniae, influenza A, Mycoplasma pneumoniae, Chlamydia pneumoniae
 - c. Signs and Symptoms
 - i. Cough with or without sputum production
 - ii. Dyspnea
 - iii. Pleuritic chest
 - iv. Tachypnea, increased work of breathing, adventitious breath sounds (rales, crackles, and rhonchi)
 - v. Tactile fremitus and dullness to percussion
 - vi. Fever, malaise, chest pain, chills, fatigue
 - vii. Leukocytosis with a leftward shift, leukopenia
 - viii. Can lead to sepsis, presented as hypotension, altered LOC, and organ dysfunction
 - d. Testing
 - i. Chest radiograph – pulmonary opacities due to WBC and fluid accumulation within the alveoli.
 - 1. Viral – diffuse widespread whitening
 - 2. Bacterial – patchy and consolidated
 - ii. Blood tests – ESR, CRP, procalcitonin
 - iii. Sputum culture and gram stain
 - e. Treatment
 - i. Adequate ventilation and oxygenation
 - ii. Deep breathing, coughing, chest physical therapy
 - iii. Antibiotics within 4 hours of presentation to treat bacterial pneumonia
- 63. Contraception
 - a. Non-hormonal
 - i. Condoms, diaphragm, vaginal sponges
 - ii. Natural family planning
 - 1. Monitoring calendar and days of cycle, basal body temperature, and symptoms
 - a. Thickened cervical mucous
 - iii. Withdrawal
 - iv. Spermicides
 - v. Copper IUD
 - 1. Paragard
 - b. Hormonal
 - i. Progestin only
 - 1. Levonorgestrel – keeps uterine lining thin to prevent implantation

of fertilized egg and may not have menstrual cycles at all.

a. Mirena – good up to 5 years

b. Skyla – good up to 3 years

2. Nexplanon – implantable rod under the skin of the arm.

3. Depo-Provera – injection administered every 12 weeks.

a. May impact ovulation.

4. Oral contraceptive

ii. Combination – both progestin and estrogen

1. Oral contraceptives

2. Patch and ring

c. Contraindications

i. Estrogen

1. Smoking

2. Over 35 years old – increases risk of blood clots

3. Breast feeding – decreases breast milk production

4. Personal or family history of blood clots

ii. Progestin

1. Current pregnancy

2. Unexplained vaginal bleeding

3. Breast cancer

4. Use of medications known to interact with progestin

64. Depression

a. Assessment

i. Depressed or irritable mood

ii. Loss of interest and pleasure

iii. Significant (>5%) weight gain or loss in a month

iv. Insomnia or hypersomnia

v. Psychomotor agitation or retardation

vi. Fatigue, loss of energy, feelings of worthlessness

vii. Poor concentration, indecisiveness, recent thoughts of death or suicide

b. Treatment

i. Medications

1. SSRI

a. Citalopram (Celexa)

b. Escitalopram (Lexapro)

c. Fluoxetine (Prozac)

d. Paroxetine (Paxil)

e. Sertraline (Zoloft)

2. Tricyclic antidepressants (TCAs)

a. Amitriptyline (Elavil)

b. Imipramine (Tofranil)

3. Monoamine oxidase inhibitor (MAOIs) – avoid smoked, aged, and cured food because they cause hypertensive crisis (tyramine)

a. Phenelzine (Nardil)

4. Psychotherapy, electroconvulsive therapy (ECT)

65. Diaper Dermatitis

a. Assessment

i. Patchwork of bright red tender-looking skin on the baby's bottom.

ii. Changes in baby's disposition.

iii. Fussy or cries when the diaper area is washed or touched.

b. Causes

i. Wet or infrequently-changed diapers

ii. Irritation from stool and urine

iii. Chafing

iv. Irritation from a new product

v. Bacterial or fungal infection

- vi. Introduction to new foods
 - vii. Sensitive skin
 - viii. Antibiotics
 - c. Treatment
 - i. Keep the baby's skin as clean and dry as possible.
 - ii. Mild hydrocortisone cream
 - iii. Antifungal cream
 - iv. Topical or oral antibiotics
66. General Anxiety Disorder
- a. Assessment
 - i. Excessive worry and anticipation of disaster
 - ii. Difficulties in controlling worry
 - iii. 6 Major Symptoms
 - 1. Restlessness
 - 2. Muscle tension
 - 3. Irritability
 - 4. Easily fatigued
 - 5. Difficulty concentration
 - 6. Difficulty sleeping
 - b. Testing
 - i. Diagnosed > 6 months of excessive worrying and engages in at least 3 of 6 major symptoms.
 - c. Treatment
 - i. Medications
 - 1. SSRIs – indicated to use for PTSD-related anxiety
 - a. Citalopram (Celexa)
 - b. Escitalopram (Lexapro)
 - c. Fluoxetine (Prozac)
 - d. Paroxetine (Paxil)
 - e. Sertraline (Zoloft)
 - 2. SNRIs
 - a. Duloxetine (Cymbalta)
 - b. Venlafaxine (Effexor)
 - 3. Norepinephrine-dopamine Reuptake Inhibitor (NDRIs)
 - a. Bupropion (Wellbutrin)
 - 4. Antihistamine
 - a. Hydroxyzine (Vistaril) – indicated if there's no depression
 - 5. Benzodiazepines
 - a. Clonazepam (Klonopin) – first-line treatment
 - b. Alprazolam (Xanax)
 - c. Lorazepam (Ativan)
 - d. Diazepam (Valium)
 - 6. Second-Generation Antipsychotics
 - a. Quetiapine (Seroquel)
 - ii. Non-Pharmacologic
 - 1. Cognitive Behavioral Therapy (CBT)
 - a. Teaches different ways of thinking, behaving, and reacting to situations to help decrease anxiety.
67. Influenza
- a. Risk Factors
 - i. Age, living or working conditions
 - ii. Weakened immune system, chronic illnesses
 - iii. Race, aspirin use under age of 19
 - iv. Pregnancy, obesity
 - b. Assessment
 - i. Fever, aching muscles

- ii. Chills, sweats, headache
- iii. Dry, persistent cough
- iv. Shortness of breath
- v. Tiredness, weakness, sore throat
- vi. Runny or stuffy nose
- vii. Eye pain
- viii. Vomiting and diarrhea more common in children

c. Testing

- i. Rapid Influenza Diagnostic Tests (RIDTs) – swab
 - 1. Results in 10-15 minutes
 - 2. Detects antigens that stimulate an immune response
- ii. Rapid Molecular Assays
 - 1. Detect genetic material of the virus
 - 2. More accurate than RIDTs
 - 3. Results in 15-20 minutes

d. Treatment

- i. Annual flu vaccine
- ii. Antiviral drugs
 - 1. Best when taken within 48 hours of onset of symptoms

68. Social Determinants of Health

a. Healthy People 2020 and 2030

- i. Economic Stability
 - 1. Employment
 - 2. Food insecurity
 - 3. Housing instability
 - 4. Poverty
- ii. Education Access and Quality
 - 1. Early childhood education and development
 - 2. Enrollment in higher education
 - 3. High school graduation
 - 4. Language and literacy
- iii. Health Care Access and Quality
 - 1. Access to health care
 - 2. Access to primary care
 - 3. Health literacy
- iv. Neighborhood and Built Environment
 - 1. Access to foods that support health eating patterns
 - 2. Crime and violence
 - 3. Environmental conditions
 - 4. Quality of housing
- v. Social and Community Context
 - 1. Civic participation
 - 2. Discrimination
 - 3. Incarceration
 - 4. Social cohesion

69. Strep A Pharyngitis

a. Causes

- i. Group A streptococcus

b. Assessment

- i. Sudden-onset fever accompanying a sore throat
- ii. Inflammation of the pharynx and tonsils with patchy exudates and cervical lymph node adenopathy

c. Testing

- i. Rapid Antigen Detection Test (RADT)
 - 1. Latex agglutination

d. Treatment

i. Self-limiting

ii. Antibiotic treatment is recommended

1. Macrolides (clarithromycin, azithromycin)

2. Pediatrics – amoxicillin