

This medication's onset time is 5-15 minutes so this medication should be taken in close proximity to a meal

Humalog

On a thin patient, this angle is best when giving a subcutaneous injection
45 degrees

This is what diabetics should do prior to exercise
Eat a snack or a meal

This class of medications can increase sugar levels causing a need for more insulin
Glucocorticoids

This is the drug of choice for a hyperglycemic patient who is unresponsive and has no IV site
Glucagon

If a patient presents with UTI-like symptoms, this must be done prior to administering any antibiotics
Obtain a urinalysis and/or urine culture

These are the routes of administration for glucagon
Subcutaneous, IM, and IV

Stopping the administration of this drug class abruptly can cause Addison's disease
Glucocorticoids

Smoking, age (35 and older), uterine cancer, pregnancy, and a history of DVT are all contraindications for this class of medication
Hormonal contraceptives

Administration of this hormone medication should be first thing in the morning and on an empty stomach
Levothyroxine

For children under 8 years of age, teeth discoloration is a common side effect of this drug
Tetracycline

Steroids, diphenhydramine, and epinephrine can be given to reduce the symptoms of this
Allergic reaction

This class of antibiotics when mixed with alcohol can cause a disulfiram reaction
Cephalosporins

Azithromycin falls into this class of antibiotics
Macrolides

A compromised immune system and antibiotic use can put patients at risk for developing this
Super infection

Antitubercular medications can cause these lab values to be elevated Liver function tests
(LFTs)

Red-pink urine, elevate temperature, and elevated kidney function tests can be caused by this
Urinary tract infection

Elevated serum uric acid and WBCs are expected in this disease process
Gout

This class of antibiotics is associated with hepatotoxicity, so liver function must be closely monitored
Macrolides

This disease process is present when a patient has an elevated TSH and decreased T3 and T4
Hypothyroidism

Patient education for Nystatin/mycostatin includes this
Do not eat or drink anything directly following a dose

A patient on oral contraceptives who is prescribed tetracycline should be told to do what
Use 2 forms of birth control

Patient education for this class of medication should include, avoid minerals such as iron or zinc, avoid direct sunlight, and report calf tenderness
Fluoroquinolones

Tachycardia, hypertension, palpitations, and seizures are all adverse reactions of this thyroid condition
Thyroid Storm

This can be caused when antibiotics are taken for viral infections, stopped prior to therapy condition, or the same medication is used over and over
Resistance

Patient education for this hormone replacement drug is to take the lowest dose possible to achieve the intended effect and to not take for more than 5 years
Premarin

Patient education for this drug includes it can turn urine orange and painful bladder spasms should be reduced
Pyridium

This is the next step for anyone who may have been exposed to tuberculosis

Have a PPD performed

Patients taking this antibiotic should be educated on using a barrier-method form of birth control

Tetracycline

If a patient who is taking an antibiotic notices raised, itchy, red bumps on their body, you should educate the patient to do this

Stop the medication and notify their provider

A term that means, to slow bacteria

Bacteriostatic

A term that means, to kill the bacteria

Bactericidal

A term that refers to a type of infection difficult to treat and often resistant to multiple drugs

Superinfection

A potentially life threatening allergic reaction that causes mucous membrane swelling and airway constriction

Anaphylaxis

The name of a serious side effect of antibiotic use that causes blistering skin and mucous membrane rash

Steven Johnson syndrome

An antibiotic often prescribed when a patient is allergic to penicillin

Erythromycin

An antibiotic used to treat acne and chlamydia

Tetracycline

A fluoroquinolone antibiotic used to treat Anthrax and UTI

Ciprofloxacin (cipro)

Which medication is often prescribed to treat fungal infections of the mouth associated with oral steroid use

Nystatin

The class of antibiotics that is effective against Legionella, Pertussis and H. Pylori

Macrolides

All antibiotics should be taken with adequate amounts of what, in order to protect the kidneys?

Water

If ordered, the antibiotic ceftriaxone (Rocephin) can be mixed with what, to reduce the pain of an IM injection

Lidocaine

If you're administering an IV antibiotic and the patient develops a rash, what should you do

Stop the infusion and alert the physician

Which medication requires peak and trough levels to be drawn to ensure maximum effective as and limit renal injury

Vancomycin

A patient with tuberculosis will likely be on more than one antibiotic due to the likelihood of the bacteria developing what

Resistance

Antibiotic use in women can lead to what type of vaginal infections

Fungal (yeast, candidiasis)

Red man syndrome is associated with what antibiotic

Vancomycin

An antibiotic that can stain the teeth of young children, causes photosensitivity and should not be taken with milk

Tetracycline

These classes of antibiotics can lead to hearing loss

Aminoglycosides, glycopeptides (vancomycin)

A patient taking metronidazole (Flagyl) should avoid

Alcohol

A patient on oral contraceptives who is prescribed antibiotics should be told to do what

Use two forms of birth control

If a patient is started on a new antibiotic and develops wheezing, they should do what

Seek emergency medical treatment

Patients who are taking warfarin (Coumadin) and prescribed antibiotics should be sure that have what checked regularly

The INR

Viruses and fungi are not susceptible to what type of anti-infective medication

Antibiotics

Azithromycin has an extended what, that makes the course needed, shorter than most other antibiotics

Half life

A patient on the antiviral acyclovir should have the function of which organs, closely monitored

Kidneys

Isoniazid, used to treat TB can cause serious problems with which organs

Liver

A patient on antiretroviral medications for HIV, should be told do what, often, in order to prevent opportunistic infections from occurring

Wash their hands

Cyclophosphamide (cytoxan) can cause hemorrhagic inflammation of which organ

Bladder

Cyclophosphamide (cytoxan) should be taken at what time of the day and accompanied by what

Early in the day, water

What % of the world's population is infected with tuberculosis

25

Bodily secretions may be stained orange by which medication

Rifampin

How many people die of malaria each year?

One million

A disulfiram reaction most commonly occurs in what two types of antibiotics

Cephalosporin & metronidazole

How many people are estimated to have died in the influenza pandemic of 1918-1919

30-50 million

A normal CD4 T-helper cell count is

>500 cells/mm (cubed)

Anesthetic eye drops should only be administered under what conditions

Strict medical supervision

Potential side effects of Lantanoprost (xalatan) eye drops include

Permanent darkening of the iris of the eye, increase in length, number, thickness and darkness of eyelashes, respiratory problems

silver sulfadiazine (SSD) cream for burns should not be used on what body parts due to risk of permanent dyeing of the skin?

Face & hands

Isotretinoin (amnestem, Accutane) used to treat severe cystic acne is pregnancy category X

Fluroquinolones antibiotics like ciprofloxacin can result in what connective tissue complication, especially when combined with steroids

Tendon rupture

Patients with a sulfa allergy are at an increased risk for allergies to which medications

Glucotrol, celecoxib, furosemide

If a patient has a mild allergic reaction, they may be treated with an antihistamine such as

Diphenhydramine

A macrolide antibiotic, excreted in the bile of the liver that is a good choice for patients with renal impairment is

Erythromycin

Peak and trough levels are ordered with vancomycin in order to ensure safety, efficacy and what two other things

Metabolism & excretion

Ciprofloxacin (Cipro) should not be taken with products containing which of the following

Antacids, aluminum, iron, zinc

Signs & symptoms of thyroid storm include

Tachycardia, anxiety, hypertension

A patient on desmopressin needs to have what serum lab value monitored closely

Sodium

A patient with hypothyroidism who takes levothyroxine may be expected to experience what effects

Weight loss, increased energy levels, improved cold tolerance

What medication, if abruptly discontinued can cause adrenal gland insufficiency

Prednisone

Levothyroxine does what

Increases improvement in thyroid

What should be administered only if the patient is unresponsive

Glucagon

What medication interaction will you assess for prior to giving a prescription for sildenafil (Viagra)

Nitrates

Hormone replacement should be taken less than how many years

5

Combined hormonal contraceptives are contraindicated for women with what

History of blood clots, currently pregnant, suspected breast cancer, over 35 and smokes >15 cigarettes a day

H2 receptor agonist-Treats

duodenal ulcers and gastric ulcers, also prevents return by decreasing acid release in evenings.

H2 receptor agonist-Side effects

diarrhea, difficulty sleeping, dry mouth, dry skin, headaches, ringing in ears, runny nose, trouble, urinating.

H2 receptor agonist-Teachings

take with 1st meal of day, if missed take asap until next dose is soon.

Cig smoking can decrease effects of H2 receptor's by increasing acid production in stomach.

Proton Pump Inhibitors-Treats

Reduces amount of acid made in stomach. Treats: acid reflux and ulcers.

Proton Pump Inhibitors-Side effects

None

Proton Pump Inhibitors-Teachings

avoid booze, aspirin products, ibuprofen, and certain foods.

Mucosal protectants-Treats

protects the mucosal lining of the stomach from gastric acid.

Mucosal protectants-Side effects

pain, coughing, vomiting of blood

Mucosal protectants-Teaching

increases fluids, dietary bulk, and exercise can relieve constipation, and relaxation techniques.

Mucosal protectants-monitor

severe persistent constipation

Antacids-Treat

relieve acid ingestion, upset and sour stomach, and heart burn. Can also help with ulcers.

Antacids-Side Effects

diarrhea with patients with renal failure. Can increase mag levels in blood.

Antacids-teachings

Antacids with mag and calcium should be avoided with those with renal failure.

Antiemetics- Treat

vomiting and nausea. Some feel antihistamines block H1 receptors in brain that causes nausea.

Antiemetics- Side effects

drowsiness and dizziness, gastrointestinal disturbances.

Antiemetics-Teaching

Lots of fluids, PG or lactating experiencing nausea and vomiting consult physician prior to use.

Laxatives- Treat

loosen stool and increase bowel movement. Does by increasing water secreted into the bowels.

Laxatives-Side effects

Bloating, cramping, diarrhea, nausea, gas, thirst

Laxatives-Teaching

lots of fluids, and 20g of fiber, exercise regularly

Antidiarrheals- Treat

slows movement of the gut. Decrease number of bowel movements and makes stool less watery.

Antidiarrheals-Side effects

Dizziness, drowsiness, tiredness, and constipation

Antidiarrheals-teaching

If you develop blood in stool, fever, or uncomfortable fullness/swelling in abdomen seek medical attention.

Transdermal agents- placement and rotation

put in area on little movement and fat tissue. wash area before and after treatment. Don't put in same skin area.

Transdermal agents-**Scopolamine Patch**

Anticholinergic drug patch applied to skin, prevents nausea and vomiting caused by motion sickness; or from anesthesia for surgery.

Reproductive agents-

What is safe to take while PG? Category A

safest drug to take while PG, no known adverse reactions.

Reproductive agents-

What is safe to take while PG? Category B

No risk has been found in humans.

Reproductive agents-

What is safe to take while PG? Category C

Not enough research has been done to determine if drugs are safe.

Reproductive agents-

What is safe to take while PG? Category D

Adverse reactions have been found in humans.

Reproductive agents-

What is safe to take while PG? Category Z

Should never be taken while PG.

Aspirin while PG- low dose

60-100 mg daily some times recommended for PG women with recurrent pregnancy loss, clotting disorder, and preeclampsia.

Aspirin while PG- higher dose

various risk depending on trimester.

1st-concern for PG loss and congenital effects

3rd-risk of premature closure of fetus's heart. Can also increase bleeding in brain and premature infants.

iron supplements during PG

Greatest demands occurs during 3rd trimester. Those at risk for anemia should take 60-120 mg daily.

Advise patients to take what while PG?

Vitamin C increases absorption of iron.

Reproductive agents-

Premarin- how long is it safe to use?

Only use hormone therapy for treatment of menopausal symptoms, and at lowest possible dose for shortest possible time. FEWER THAN 5 YEARS!!

Reproductive agents-

Premarin- why use it?

improves vasomotor symptoms and vaginal dryness.

vasomotor symptoms- disrupt sleep, irritability, mood swings, depression, and concentration issues.

Reproductive agents-

Premarin- risks with pro-longed use?

Increased risk of myocardial infarction, stroke, breast cancer, pulmonary emboli, DVT, and dementia in post menopausal women.

Reproductive agents-

Premarin- Dosing?

osteoporosis/ menopausal symptoms-PO 0.3-1.25 mg daily (3 wk on 1 off)

Start at lowest dose possible and treat less than 5 years!

Reproductive agents-

Premarin- Dosing? Atrophic Vaginitis

PO 0.3- 1.25 mg daily (vaginal) 0.5- 2 g cream (daily for 3 wks then off for 1 wk, repeat)

Start at lowest dose possible and treat less than 5 years!

Reproductive agents-

Tadalafil (Cialis)- like Viagra-TREATS

erectile dysfunction

Reproductive agents-

Tadalafil (Cialis)- like Viagra-NEED TO KNOW ABOUT PATIENT TAKING MED

If taking any nitrate containing drugs. They can cause life threatening hypotension.

Tadalafil (Cialis)- Contradictions

unstable angina, recent stroke, life threatening heart failure within 6 months, uncontrolled hypertension, arrhythmias, myocardial infarction within 6 months.

Reproductive agents-

Oral birth control- risks with use?

increased hypertension, arterial blood clot and possible myocardial infarction.

SMOKERS RISK FOR BLOOD CLOTS!!

Reproductive agents-

Plan B- important to ask?

How many hours since last sexual intercourse?

Most effective after 72 hours after intercourse may be given up to 120 hours after.

Antineoplastic Agents

most at risk for infection during chemo?

7-10 days after chemo treatment blood count is at its lowest

Antineoplastic Agents

What to watch for during chemo infusions?

Monitor IV site frequently for irritation and phlebitis.

Monitor labs (BUN, CBC, creatinine, liver panel, and electrolytes.)

Antineoplastic Agents

What to watch for during chemo infusions? (low RBC count)

(anemia) Assess fatigue, hypotension, tachycardia, tachypnea, oliguria (< 1 ML urine output)

Antineoplastic Agents

What to watch for during chemo infusions? (low WBC count)

(leukopenia) can get infection easily, avoid sick people.

Antineoplastic Agents

What to watch for during chemo infusions? (low platelet count)

(thrombocytopenia) bruising, gums bleed, and nose bleeds are all signs.

Antineoplastic Agents

What to watch for during chemo infusions? (anorexia)

loss of appetite

Antineoplastic Agents

What to watch for during chemo infusions? (nausea and vomiting)

antiemetics before, during, and after chemo. enforce frequent mouth rinse

Antineoplastic Agents

cyclophosphamide (Cytosan)- TEACHING

take early to prevent accumulation in bladder at night.

diet low in purines (**organ meats, beans, and peas**)- to alkalize urine.

no citric acid

Use soft toothbrush with good oral hygiene

Antineoplastic Agents

cyclophosphamide (Cytosan)- SIDE EFFECTS

Pulmonary fibrosis (lung scarring), myocardial fibrosis, hemorrhagic cystitis (blood in the urine), anorexia, nausea, vomiting, alopecia (hair loss), leukopenia, and thrombocytopenia
Antineoplastic Agents

cyclophosphamide (Cytosan)- USE

activity against Hodgkin and non hodgkin lymphoma, acute/ chronic lymphocytic leukemia, multiple myeloma, breast/ ovarian carcinoma, lung cancer, and retinoblastoma.
Also with Lupus and renal failure
Antineoplastic Agents

cyclophosphamide (Cytosan)-REPORT TO NURSE/DOCTOR

Fever (decreases immunity)
Gout/Rheumatoid Arthritis Agents

Infliximab (Remicade)-TREATS

Rheumatoid arthritis , crohn's disease,
Gout/Rheumatoid Arthritis Agents

Infliximab (Remicade)-LABS TO MONITOR

Liver function test periodically. May cause increase of ALT, AST without progression to liver dysfunction.
Gout/Rheumatoid Arthritis Agents

Infliximab (Remicade)- SIDE EFFECTS

Fatigue, headache, upper respiratory infection, abdominal pain, nausea, vomiting, infections, , malignancy, fever, sarcoidosis (collections of inflammatory cells), infusion reactions.
Gout/Rheumatoid Arthritis Agents

Infliximab (Remicade)- TEACHINGS

Call if fungal infection symptoms occur.
May cause dizziness avoid driving or any other activities that require alertness.
Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-TREATS

Hyperuricemia (excess of uric acid in the blood) associated with gout and gouty arthritis.
Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-MONITOR LABS

Acid based balances (blood gases), serum uric acid, urinary uric acid, renal function, and CBC.
Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-SIDE EFFECTS

Headache, dizziness, hepatic necrosis (toxic injury to the liver), nausea, vomiting, uric acid stones with or without hematuria (RBC in urine), aplastic anemia (deficiency of all types of blood cells), leukopenia, sore gums, anaphylaxis (allergic reaction)

Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-TEACHING

May experience dizziness, headache, lack of appetite, flushing, nausea, vomiting, gum edema/soreness, or alopecia.

Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-TEACHING REPORT ASAP Kidneys

Signs of kidney problems (urinary retention, hematuria (RBC in urine) , change in amount of urine passed, or weight gain.

Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-TEACHING REPORT ASAP Liver

Dark urine, fatigue, lack of appetite, nausea, abdominal pain, light colored stool, vomiting, jaundice, signs of kidney stones.

Gout/Rheumatoid Arthritis Agents

Probenecid (Benemid)-TEACHING Significant reactions

Wheezing, chest tightness, fever, itching, bad cough, cyanosis, seizures, swelling of face, lips, or throat.

Endocrine Agents

Anterior and posterior Pituitary hormones

Growth hormones, Thyroid-stimulating hormone, Adrenocorticotropic hormone (adrenal gland), Prolactin (breast tissue), Gonadotropins (ovaries and testes)

Endocrine Agents

Desmopressin acetate (DDAVP) ASSESS WITH MED

Urine output and serum sodium. Can cause urine retention and dilution of sodium. If low HOLD MED and consult doctor.

Normal sodium 135-145

Low sodium-dilutional hyponatremia can cause edema.

Endocrine Agents

Thyroid Hormones- Hypothyroidism

Increase in thyroid stimulating hormone TSH. Myxedema is severe hypothyroidism.

Endocrine Agents

Thyroid Hormones- levothyroxine sodium (Synthroid) CHANGES IN PATIENT

Increases energy, lower TSH

Thyroid Hormones- levothyroxine sodium (Synthroid)-LABS

Contra in patients with thyrotoxicosis (hyperthyroidism), acute myocardial infraction, adrenal insufficiency. Maybe EKG??

Endocrine Agents

Thyroid Hormones- levothyroxine sodium (Synthroid)- WHEN TO TAKE

Before Breakfast

Endocrine Agents

Thyroid Storm-SIDE EFFECTS

Fever, rapid pulse, insomnia, nervousness, diarrhea.

Endocrine Agents

Hyperthyroidism

Graves disease-hyperfunctioning, rapid pulse, palpitations, excess perspiration, heat intolerance, irritability, bulging eyes, weight loss.

Endocrine Agents

Glucocorticoids/ corticosteroids-TREAT

Cause immunosuppression watch for impaired wound healing **diabetics and fever**

Endocrine Agents

Glucocorticoids/ corticosteroids- MONITOR

watch for impaired wound healing **diabetics and fever.**

If diabetic **blood glucose will rise and require insulin.**

Glucocorticoids/ corticosteroids-TEACH

hand washing to decrease infection.

Endocrine Agents

Glucocorticoids/ corticosteroids-GOALS

RH. Arthritis- increase range of motion,

ulcerative colitis-**decrease inflamm. of colon**

asthma-**decrease inflamm. of lungs** Endocrine Agents

Glucocorticoids/ corticosteroids- EFFECTS ON BODY

Suppresses inflammation, immune responses, and adrenal function.

Endocrine Agents

Glucocorticoids/ corticosteroids-IF STOPPED ABRUPTLY

Addison's disease (adrenal glands dont produce certain hormones) Endocrine Agents

Glucocorticoids/ corticosteroids- TREATS

Rheumatoid arthritis, ulcerative colitis, asthma, and Crone's disease

Tuberculosis

Caused by bacterium called "mycobacterium tuberculosis" attacks lungs, can be fatal if not treated. 2 types: latent TB and TB disease

Latent TB

Lives in body without making you sick. Most people have this form. Breathed in and body fights off infection and stops bacteria from growing. No symptoms and not infectious, cannot spread to others.

TB disease (ACTIVE TB)

Bacteria becomes active if immune system cannot keep bacteria from growing. People become physically sick and can spread this bacteria.

How do you prevent drug resistance?

MULTI DRUG THERAPY

Gold standard

Rifampin

~Antimycobacterial~

Taken daily for several months with NO BREAK. (Breaks cause DRUG RESISTANCE)

-can stain body fluids orange

- can cause hepatotoxicity

- take on empty stomach (or absorption is reduced by 30% and can cause DRUG RESISTANCE)

Isoniazid (INH)

~Antimycobacterial~

BLACK BOX WARNING: hepatotoxicity

-drug to drug reaction>acetaminophen think liver damage!

- drug of choice with pregnant women

- treats latent and active TB

- cause peripheral neuropathy in patients with vitamin B6 deficiency (Malnourished)

Ethambutol

~Antimycobacterial~

-can cause vision problems (Optic neuritis, and red-green color blindness)

- can take while breastfeeding

Pyrazinamide

~Antimycobacterial~

- given in first months of Combo therapy to reduce total length of treatment by months

- can cause ARTHRALGIA (joint pain) peripheral neuropathy and hepatotoxicity (not associated with B6 deficiency)

TB vaccine

LIVE VACCINE

Bacille Calmette-Guérin (BCG)

- WHO recommends infants in countries with high TB rates get this vaccine shortly after birth
- NO PREGNANT WOMEN
- NO IMMUNE COMPROMISED

Fungal infections

- topical or systemic (SYSTEMIC = LIFE THREATENING)
- opportunistic or non- opportunistic
- mild > life threatening
- can be caused by antibiotics or steroids

Thrush

Fungal infection of the mouth including mucous membranes

Nystatin

~antifungals~

MYCOSTATIN

ACTION : bind to fungal cell membrane, causes cell content to leak out = cell death

USE : topical treatments, not absorbed in GI system, safe for oral administration

- SWISH & SWALLOW

Fluconazole (Diflucan)

Treat: candida (YEAST)

And cryptococcal meningitis

Pregnancy category C (caution)

Bacitracin

Peptide antibiotics

OTC availability

Effective for gram positive and some gram negative bacteria

Ointment for skin

Metronidazole (flagyl)

- impaired DNA function of susceptible bacteria
 - primary use: treat organisms in GI tract and treat bacterial vaginosis
- PREVENT DISULFIRAM REACTION: avoid alcohol during and 48 hours after treatment

DISULFIRAM reaction

Facial flush Severe headache Slurred speech

Abdominal cramping

Tachycardia

Palpitations

Hypotension

Dyspnea

Sweating

Nausea

Vomiting

VIRUSES

Must reside in living cell to replicate

> uses own DNA and RNA to generate new viruses within host cell

bully cells to make more of their DNA & RNA

>>Wipes out immune system!

INFLUENZA

> an ounce of prevention (VACCINE) is better than a pound of cure (no cure) <

Mutate quickly and often

~Potential for major pandemic is constant threat!

PANDEMIC of 1918: 30-50 million killed from influenza virus!

Oseteltamivir(tamiflu)

Shortens course of flu symptoms by 2 to 3 days only if given within 48 hours of onset of symptoms

>> children and teenagers with the flu may be at higher risk for seizures, confusion, or abnormal behavior early during their illness

Acyclovir (Zovirax)

Effective against herpes virus

Life threatening side effects:

neuropathy

Seizures

Nephrotoxicity(large doses)

Thrombocytopenia

Leukopenia

Helminths

-Parasitic worms that feed on host tissues

-Most common in intestines

•Flukes

•Round worms

•Hook worms

•Pin worms

~ Can be acquired from poor hand washing, lack of access to clean drinking water, or eating under cooked pork

Anti helminthic drugs

Can cause GI distress, neurologic problems and liver disease

~ Cysticercosis: cysts on the brain caused by larval tapeworms

Malaria

Caused by protozoan parasite " Plasmodium " carried by infected mosquitos

- once human is infected 2 phases occur:

>tissue phase- no symptoms

> erythrocytic phase- (invasion of red blood cells) causing chills, fever, sweating

Over 1 million people die from malaria each year 90% in sub Saharan Africa

Chloroquine

~Antimalarial~

Serious adverse reactions:

ECG changes

Hypotension

Psychosis

Seizures

Antineoplastic agents

Cancer drugs

Cancer

Malignant neoplasm cells are characterized by unregulated growth, lack of differentiation and spread(metastasis) to other places in body.

>> BODY GOING HAYWIRE<<

Chemotherapy

>>use of chemicals to kill cancer cells by inhibiting or preventing cell reproduction

Classes of chemotherapy drugs

Alkylating agents

Antimetabolites

Antitumor agents

Mitotic agents

Hormonal agents

Antimetabolites

Folic acid antagonist

Methotrexate (trexall)

~Antimetabolite~

- treat cancer

- rheumatoid arthritis

-psoriasis

-induce miscarriage in patients with ectopic pregnancy

>>SIDE EFFECT: bone marrow suppression CHECK CBC WBC PH (leads to leukopenia, thrombocytopenia, anemia)

-stomatitis

-vomiting

-alopecia

-hepatic and renal dysfunction

>> patients should report signs of bleeding and have platelets checked

Cyclophosphamide (cytoxan)

~Alkylating drugs~

Treat Hodgkin's disease and other cancers

>>Can cause HEMORRHAGIC CYSTITIS (result of severe bladder inflammation

>>TAKE WITH LARGE AMOUNT OF WATER IN AM<<

Erythropoietin (Epoetin Alpha)

~ biologic response modifier~

>>stimulates red blood cell production

- ^ risk of death when patients Hgb is >12
THINK > BIKE RIDERS
^^ RBC ^^ O2

What vaccine is not an attenuated live vaccine?
Hepatitis B
Tetanus

Which form of the influenza vaccine would be contraindicated in for a patient above the age of 55?
Nasal spray vaccine

Is it possible to die from chicken pox (varicella)
YES
Attaining viral suppression of HIV necessitates the use of at least 2 and preferably 3 active drugs from __ or more classes.
2 or more classes

How many people were estimated to have died in the influenza pandemic of 1918-1919?
30-50 million
A normal CD4 T-helper cell count is?
>500 cells/mm (cubed)

In order to prevent injury to the eye, anesthetic eye drops should only be administered under what conditions?
With strict MEDICAL supervision
Latanoprost (Xalatan) eye drops are used to decrease intra-ocular pressure in glaucoma patients.
Potential side effects of the medication include:
>Permanent darkening of the iris of the eye
> increase in length, number, darkness and thickness of eyelashes
>respiratory problems

Oral decongestants and antihistamines have been shown to have what benefit in treating disorders of the ears.
NO

The use of Silver Sulfadiazine (SSD) cream for burns should not be used where due to the risk of permanent dyeing (tattooing) ok skin?
Face and hands

Isotretinon(Amnesteem, Accutane) a medication used to treat severe cystic acne is what pregnancy category?
X

What percentage of the world is infected with TB
25%

Your patient is starting a medication regimen for TB. You tell him that his bodily secretions may be stained orange by which medication?

Rifampin

You are treating a patient who is a guard in the county jail, she is currently being treated for TB infection acquired on the job. She tells you she has no energy for cooking and eats mostly packaged and easily prepared meals. She reports pain and tingling in her extremities. You suspect she has what vitamin deficiency?

B6

You know your patient needs further teaching about her child's thrush when she states:

If my child swallows the medication, I need to call poison control

How many people (mostly children) die in sub Saharan Africa each year?

One million

A DISULFIRAM REACTION most commonly occurs with which 2 types of medications?

Flagyl metronidazole)

Cephalosporins

Patient on methotrexate reports that she has numerous large bruises on her legs what action should you take?

>ask about recent trauma

> Report bruising to her prescribing physician

> Anticipate an order for a lab draw to check platelets

Cyclophosphamide (cytoxan) an alkalyzing agent can cause hemorrhagic inflammation of which organ?

Bladder

To prevent this serious side effect the patient should be encouraged to take cyclophosphamide when ?

AM with LARGE AMOUNT OF WATER

Fluroquinolone antibiotics (ciprofloxacin or cipro) can result in what connective tissue complication with steroids?

TENDON RUPTURE

Ciprofloxacin should not be taken with products containing the followung

Antacid, Aluminum , Iron, Zinc

Tetracycline antibiotics are associated with which of the following?

>Take on empty stomach (milk and antacids can prevent absorption)

>Can stain teeth of fetus or young children

>Can decrease effectiveness of oral contraceptives

> Can result in photosensitivity reactions

If a patient has a mild allergic reaction such as mild itching or minimal hives to an antibiotic they may be treated with an antihistamine (which might cause drowsiness) such as?
Diphenhydramine (Benadryl)

A well informed nurse knows that patients with a SULFA allergy may be at increased for allergies to which of the following medications
Glucotrol
Celecoxib
Furosemide

Peak and trough levels are ordered on the glycoproteins antibiotic Vancomycin in order to ensure safety, efficacy and
Metabolism and elimination

If a patient is experiencing anaphylaxis the nurse must always be most concerned with the patients what?
Airway

A macro life antibiotic that is excreted primarily in the bile of the liver making it a good choice for renal impairment is:
Erythromycin

Medical term for bladder infection
Cystitis

Medical term for kidney infection
Pyelonephritis

Tolterodine tartrate (detail, detail LA) is contraindicated in which of the following conditions?
Bowel obstruction

Nurse is caring for a patient who complains of urinary urgency and frequency and burning with urination, you anticipate she will be prescribed an antibiotic. What other medication will you suggest to the provider?

Phenazopyridine (pyridium) a bladder analgesic

The first agent used against bacterial infections, derived from coal tar
Sulfonamides

What percentage are Sulfonamides effective against E. Coli bacteria

90% this makes them a good choice for UTI treatment

Because of the decrease of clinical usefulness over time how are sulfonamides frequently given?

In combination with other drugs

Human Immunodeficiency Virus (HIV)

~RNA Retrovirus~

Uses reverse transcriptase to transfer their RNA to DNA in the cell.

- destroys CD4+ T helper lymphocyte cells causing immune deficiency and can be fatal

HIV Treatment

~Antiretroviral Therapy~

To create viral suppression of HIV the use of 2-3 drugs from different drug classes is needed.

Zidovudine (AZT, Retrovir)

Nucleoside reverse transcriptase inhibitors

Tenofovir (Viread)

Nucleotide reverse transcriptase inhibitors

Efavirenz (Sustiva)

Nucleotide reverse transcriptase inhibitors

Atazanavir (Reyata)

Protease inhibitor

HIV lab testing

CD4 T- cell count is monitored when determining when to initiate medication, effectiveness, and indications for changing therapy

Acquired immunity

Immune response is activated when a pathogen invades the body, the body recognizes this pathogen as foreign and begins to produce antibodies

Influenza

>>AN OUNCE OF PREVENTION (VACCINE) IS BETTER THAN A POUND OF CURE
(there is none)

~Influenza virus mutates quickly and often

~ potential for a major pandemic is a constant threat

Influenza vaccine Contraindications

Currently ill

Egg or flu vaccine allergy

Under 2 or over 49 years old

Immune suppression or live with someone who is

Pregnant

Ever had guillain- barre syndrome

Age 2-17 and taking aspirin

Attenuated (Live) vaccine

BCG (tuberculosis)

MMR (measles, mumps, rubella)

Varicella (chicken pox)

Not Live (inactivated)

Hep B (hepatitis B)

Tetanus Toxoid

Varicella (Varivax)

For prophylaxis for outbreak control of local epidemics.

Adverse Reactions:

Anaphylaxis

Thrombocytopenia

Encephalitis

Stevens- Johnson syndrome

Drugs for disorders of the eye

- Diagnostic stains
- Topical anesthetic
- Anti infectives
- Anti- inflammatory
- Decongestants
- Lubricants
- Immunosuppressants
- Anti- Glacoma Agents

Topical Anesthetics

- not for self administration
- GOVERN ONLY UNDER STRICT SUPERVISION
- numbing of the eye could lead to serious injury of the eye by trauma, without the patient being aware of it

Glacoma

Optic nerve damage occurs as a result of increased intraocular pressure(IOP) due to a build up of the fluid, aqueous humor.

- open angle
- narrow angle

Open angle Glacoma

Trabecular network becomes gradually clogged

Narrow Angle

The iris bows and blocks the trabecular mesh work, narrowing the angle where the fluid normally exits the eye (often requires surgery)

Glaucoma treatment

- Prostaglandin Analogues
- Beta- Adrenergic Blockers
- Cholinergic Agents
- Alpha Adrenergic Agonists
- Carbonic Anhydrase Inhibitors
- Osmotics

Lantoprost (Xalatan)

~ Prostaglandin Analogues~

**** DECREASES IOP by INCREASING outflow**

>> SIDE EFFECTS: permanent darkening of the iris

^^ in length, number, darkness, and thickness of lashes

>> ADVERSE EFFECTS: up to 4% of patients report respiratory problems

HOLD TEAR DUCT SO MEDICATION DOES NOT GO INTO SYSTEMIC CIRCULATION

Acute Otitis Media

MOST COMMON IN CHILDREN

First choice of treatment?? AMOXICILLIN (po)

Acute Otitis Externa

SWIMMERS EAR

- Infection of the external auditory canal, when moisture is present with a break in skin allowing bacterial or fungal invasion.

Treatment?? Topical drops

Cerumen Impaction

~ Ceruminolytics ~

topical agents used to soften ear wax

usually use mineral oil with hydrogen peroxide

~ Irrigation ~

body temperature water gently flush into ear canal

can use 3% hydrogen peroxide 1:1 with water

or

vinegar 1:1 with water

Acne Vulgaris

~ non pharmacological ~

- control stress, and diet, gentle cleansing

~ Topical ~

>keratolytics

benzoyl peroxide, salicylic acid, resorcinol, tretinoin

~ Systemic ~

oral antibiotics (tetracycline, doxycycline)

Isotretinoin (Amnesteem Accutane)

TREATS SEVERE CYSTIC ACNE

-decreases sebum formation, anti inflammatory, antikeratinizing

PREGNANCY CATEGORY X!!!!

REQUIRES : registry of patient, provider, pharmacist, and wholesaler for use of this medication, on IPLEDGE registry

Psoriasis

- Erythematous papules (bumps) and Red plaques covered with silvery scales

-Epidermal cell growth and turnover and accelerated to 5 times normal expected growth.

>> REMISSION AND EXACERBATION

~ TOPICAL ~

-keratolytics

-glucocorticoids

-coal tar derivatives

~ Systemic ~

- methotrexate (anticancer drug, can decrease cell growth)

-UV light therapy

- Biologic agents>> Immune Suppression

Burns

~MINOR~

treat with cool water compresses

antibiotic ointment once cooled

~PARTIAL & FULL THICKNESS~

Intensive treatments

SKIN BREAK = POSSIBLE INFECTION

Silver Sulfadiazine (SSD) -prevent infection

works on cell wall to produce bactericidal effect

DO NOT use on the FACE or HAND, causes "tattooing" (permanent staining)

Bacteria

Single celled organism lacking a true nucleus or nuclear membrane

- Some release toxins when cell is dying

- Gram - CAN'T hold stain

- Gram + CAN hold stain

BacterioStatic

SLOWS down bacteria

BacteriCIDAL

KILLS bacteria

5 mechanisms of action --> ANTIBIOTICS

> Inhibition of bacterial cell wall synthesis

> Alteration of membrane permeability

> Inhibition of protein synthesis

> Inhibition of the synthesis of RNA & DNA

> Interference with metabolism within the cell

What do antibiotics do?

work with your immune system to subdue the invading micro – organism

Narrow Spectrum Antibiotics

primarily effective against one organism

Broad Spectrum Antibiotics

FIRST GET ALL CULTURES NEEDED

THEN START BROAD SPECTRUM ANTIBIOTICS

Can be effective against:

Gram -

Gram +

> Often used when the organism causing the infection has not been identified

example - Sepsis

SEPSIS

^ Heart rate

^ Respirations

^ Temperature

^ WBC

decrease Blood Pressure

Adverse Reactions to Antibiotics

Allergy or hypersensitivity

- mild to fatal (anaphylaxis)

> itching & hives >> angioedema

Superinfection

- secondary infection that occurs when normal microbial flora of body is disturbed

> often fungal

> more common in broad spectrum antibiotics

> Example = CDIFF

Organ Toxicity

- hepatotoxic

- nephrotoxic

- ototoxic

ANAPHYLAXIS

*** THINK AIRWAY ***

Skin flush, hives, itchy, >> angioedema (swelling of face, throat, mouth)

TREAT with:

> EPINEPHRINE

> BENADRYL

> STEROID

Amoxicillin

~ PENICILLIN ~

BROAD SPECTRUM

primary:

> respiratory tract

> otitis media

> sinusitis

CONTRAINDICATED:

Penicillin Allergy

Caution:

cephalosporin allergies

amoxicillin / clavulanic acid (Augmentin)

~ Beta Lactamase Inhibitor ~

combined with broad spectrum antibiotic

RESULT> extended microbial effect

>>>Beta- Lactamase: an enzyme produced by some bacteria that make them resistant to penicillin

Ceftriaxone (Rocephin)

Cephalexin (Keflex)

~ CEPHALOSPORINS ~

active against:

GRAM -

GRAM +

resistant to beta lactamase

CAUTION:

patients with penicillin allergy

DISULFIRAM REACTION IF MIXED WITH ALCOHOL

Azithromycin (Zpak)

~ MACROLIDES ~

Treats:

respiratory tract, sinus, GI tract, skin and soft tissue infections (impetigo) and Sexually transmitted infections (STIs)

Life Threatening:

hepatotoxicity, anaphylaxis, Stevens - Johnson syndrome

Erythromycin

~MACROLIDES ~

Frequently prescribed if patient has PCN allergy

allergic reactions are rare

>> Excreted primarily in the bile by the liver, GOOD CHOICE FOR RENAL IMPAIRMENT PATIENTS

Vancomycin

~GLYCOPEPTIDE ~

Treats:

drug resistant staphylococcus aureus

MRSA

>> OTOTOXICITY can lead to permanent hearing loss by damaging cranial nerve VIII (8)

>> Too rapid administration can lead to Red Man Syndrome if this occurs NOTIFY MD and DECREASE DOSE IF NEEDED

PEAK & TROUGH

must be checked to ensure safety and efficacy (metabolism & elimination)

Tetracycline

~ TETRACYCLINE ~

** Take on EMPTY STOMACH

** NO MILK OR ANTACIDS (decrease absorption)

Can stain teeth of fetus or young children

can decrease effectiveness of oral contraceptive

photosensitivity

Doxycycline

~ TETRACYCLINE ~

** Take WITH FOOD (enhances absorption)

>> AVOID MILK and DAIRY

contraindicated if pregnant (USE BARRIER CONTRACEPTIVES)

common side effects:

N/V, diarrhea

Gentamicin

~ AMINOGLYCOSIDE ~

Treats:

serious infections

Can cause:

nephrotoxicity

Ototoxicity

ASSESS:

hearing, balance and urine output while on therapy

ciprofloxacin (Cipro)

~ FLUROQUINOLONES ~

****SHOULD NOT BE FIRST CHOICE***

Broad Spectrum

Treats:

UTI, Lower Resp., skin & soft tissue and bone infections, also anthrax

> ADMINISTER:

empty stomach

magnesium, aluminum, Iron or zinc should be taken 4 hours before or 2 hours after cipro

>> DO NOT TAKE WITH ANTACIDS

>> CAN CAUSE TENDON RUPTURE IF TAKEN WITH STEROIDS<<

Levofloxacin (Levaquin)

~ FLUROQUINOLONES ~

Primary treat:

Resp inf. > pneumonia, chronic bronchitis,

acute sinusitis

UTI and uncomplicated skin inf.

>> CAN CAUSE TENDON RUPTURE WHEN TAKING WITH STEROIDS<<

Sulfonamides

FIRST agent used against bacteria

90% effective against E. Coli

Drug allergies:

if patient reports>>

ask more information about past reactions

IF TRUE ALLERGY they can be allergic to the following also:

glucotrol (Glipizide)

Celecoxib (Celebrex)

Furosemide (Lasix)

trimethoprim - sulfamethoxazole (Bactrim)

~ SULFONAMIDES ~

Treat:

UTI, Otitis media, bronchitis

PHOTO SENSITIVITY: avoid sun exposure, wear sunscreen and protective clothing

Should be avoided in THIRD TRIMESTER

^^ FLUID INTAKE

Urinary Tract Infection (UTI)

UPPER

> Pyelonephritis (Kidney)

- symptoms: fever, chills, flank pain(severe)

LOWER

- > Cystitis (bladder)
 - more common in females due to shorter urethra,
 - frequently --> E. Coli
- > Urethritis
- > Prostatitis

ANTIBIOTIC TREATMENT OPTIONS:

- nitrofurantoin (macrobid)
- trimethoprim/sulfamethox (batrim)
- fluoroquinolones (cipro)
- norfloxacin

nitrofurantoin (Macrobid, Macrochantin)

Bacteriostatic or cidal depending on dose

Treats:

acute or chronic UTI

TAKEN WITH FOOD

Decreased absorption with taken with antacids.

phenazopyridine (Pyridium)

URINARY ANALGESIC

DOES NOT TREAT INFECTION

>> Turns urine ORANGE can stain clothing.

can alter glucose test

TAKE WITH FOOD TO AVOID NAUSEA

Urinary Antispasmodics / Antimuscarinics

Treats:

Urinary tract spasms associated with injury or infection

CONTRAINDICATED:

urinary or GI obstruction is present

CANT SEE

CANT PEE

CANT SPIT

CANT POOP

tolterodine tertrate (Detrol, Detrol LA)

>>CHOLINERGIC RECEPTOR BLOCKER (anticholinergic)<<

-decreases urinary frequency and urgency

-monitor for anticholinergic side effects