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ProntoPharma

A quick & speedy knowledge review

Amy Bachyrycz, Pharm.D.
In Conjunction with Exam Masters
Objectives

- Review the sections of the North American Pharmacist Licensure Exam (NAPLEX) as is currently organized
- Simulate a NAPLEX Exam to review the material and determine your simulated score
- Learn selected pharmacy knowledge based questions (Q and A format)

NAPLEX Sections

- Change in NAPLEX structure of the competency statements
- Revised blueprint to include 2 Competence Areas
  - Competence Area 1: Ensure Safe and Effective Pharmacotherapy and Health Outcomes (approximately 67% of exam)
  - Competence Area 2: Safe and Accurate Preparation, Compounding, Dispensing, and Administration of Medications and Provision of Health Care Products (approximately 33% of exam)
NAPLEX Grading/Scoring

- The NAPLEX consists of 250 multiple-choice questions. 200 questions will be used to calculate the test score (the remaining 50 serve as experimental questions and do not affect score)
- A tabulated or "scaled" score of 75 or higher (out of a possible 150) is required for passing
- Reported scores represent a mathematically calculated "ability measure" of the applicant based on an algorithm developed by the National Associations of Boards of Pharmacy (NABP)
- Applicants not obtaining a score of 75 or higher are given a performance profile, which details their relative areas of strength and weakness

NAPLEX Changes

- Exam is now 6 hours long
- You are allowed a maximum of 5 attempts to pass the NAPLEX ($575.00/attempts)
- After a failed attempt, you must wait 45 days to next attempt the NAPLEX
- The questions do not involve high-tech clinical pharmacy or equipment
- The previously popular K-type questions have been phased out of the NAPLEX
  - K type questions have multiple combination choices of answers
    - 1) A only
    - 2) both A and C
    - 3) both B and D
    - 4) A, B and C
    - 5) All of the Above
**Practice Exam**

**Correct Answer**

- **B) GERD**
- **To Note:**
  - **Hypertension** in itself does not directly cause dull chest pain, nor does diabetes.
  - **Asthma**, while associated with shortness of breath and difficulty breathing, does not cause dull chest pain or pressure.
  - **Diabetes** may cause a central autonomic neuropathy, destroying the nerves that would normally register angina and result in a silent myocardial infarction.
An old man inquires about quitting smoking. He currently smokes 9 cigarettes per day. He is a chronic gum chews and he is concerned about weight gain upon quitting. His medical history is significant for hypertension, depression, epilepsy, and seasonal allergies. He has tried nicotine patches in the past with limited success. QUESTION: What is the most appropriate treatment option for this patient? (hint—may be off label for TC)

<table>
<thead>
<tr>
<th>Option</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bupropion 150mg twice daily</td>
<td></td>
</tr>
<tr>
<td>Nicotine gum 4mg every 1 - 2 hours</td>
<td></td>
</tr>
<tr>
<td>Nicotine patch 21mg daily</td>
<td></td>
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<tr>
<td>Nortriptyline 25mg twice daily</td>
<td></td>
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<tr>
<td>Clonidine 0.1mg patch</td>
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**Practice Exam Correct Answer**

- **D) Nortriptyline 25 mg twice daily**
  
  **Explanation:** Nortriptyline is the best option for this patient because it will assist with quitting smoking and treat signs/symptoms of depression. Although it may cause weight gain, it can also cause nausea, vomiting, and weight loss, so the patient would need to try the medication before the medication’s side effects (for him specifically) could be discerned.

- **To Note:**
  - Bupropion is not an acceptable option for this patient because of his history of seizures.
  - Nicotine gum is not an acceptable option for this patient because he is a chronic gum chews. In order for nicotine gum to be effective, the patient must not chew the gum constantly.
  - The nicotine 21 mg patch is not indicated for patients smoking fewer than 10 cigarettes per day.
  - Clonidine is not as effective as the other options for treatment of smoking cessation. If the nortriptyline does not work for this patient, clonidine therapy may be initiated.
Smith, a 68 y/o male with h/o hypertension, hyperlipidemia, Type II Diabetes, presents to your pharmacy asking for his blood pressure to be taken. According to the 8th Report of the Joint National Committee on Prevention, Detection, Evaluation, Treatment of High Blood Pressure (JNC 8), what is this patient's goal blood pressure reading?

- <150/90 mm Hg
- <140/90 mm Hg
- <145/90 mm Hg
- <140/80 mm Hg
- <140/80 mm Hg

Practice Exam
Correct Answer

- B) <140/90 mmHg
- Explanation: According to JNC 8, patients with diabetes have a goal blood pressure reading of <140/90 mmHg
- To Note: ACE inhibitors or ARBs are the anti-hypertensives of choice in patients with diabetes (unless otherwise contraindicated) to slow the progression of nephropathy
Practice Exam
Correct Answer

- B) Albumin
- Explanation: The physicochemical attributes of an acidic drug that is highly bound in the plasma implies primary binding to albumin
- To Note: Both cytochrome P-450 enzymes, which mediates drug metabolism, and P-glycoprotein, which is a drug efflux transporter, are located outside of the plasma and therefore are not involved in plasma protein binding
A 62-year-old HIV-positive man presents for a follow up. He was diagnosed about 1 year ago and his CD4 count was 450 cells/mm3. Currently he presents with purple skin lesions diagnosed as Kaposi’s sarcoma. Patient is moderately obese and has diet-controlled diabetes and hyperlipidemia. His doctor is considering starting HAART regimen for his AIDS and wants your input on initial therapy. QUESTION: Which medication is likely to increase patient's morbidity?

- Nevirapine
- Stavudine
- Indinavir
- Maraviroc
- Rilpivirine

Practice Exam
Correct Answer

- C) Indinavir

Explanation: Indinavir is a protease inhibitor associated with metabolic abnormalities, including increase in lipids, serum glucose, and fat redistribution. It is wise to avoid protease inhibitors if at all possible in this patient at this time.

- Nevirapine - Non-nucleoside reverse transcriptase inhibitor (NNRTI)
- Stavudine - Nucleoside reverse transcriptase inhibitor (NRTI)
- Maraviroc - C-C chemokine receptor type 5 (CCR5 inhibitor)
- Raltegravir - Integrase inhibitor

Mechanism of Action of ARVs

- Integrase Inhibitor
- Protease Inhibitor
- Fusion Inhibitor & Chemokine Receptor Antagonist
- NNRTI
- NRTI
OK - Your simulated NAPLEX will begin now...

- Feel free to squat, run in place, or exercise while completing your NAPLEX
- You will be given up to 50 questions, answers will be given immediately after each question is read, so please keep track of your total # correct
  - Suggestion; use tally mark’s correct vs incorrect
- Suggestion for your grading:
  - # Questions answered correctly = your percentage (75 or higher)
  - # Questions answered - 10% questions answered

Question 1

- Avelox is also known as?
  - A) Ciprofloxacin
  - B) Gatifloxacin
  - C) Levofloxacin
  - D) Moxifloxacin
  - E) Ofloxacin
Correct Answer

- D) Moxifloxacin
- To Note: Avelox is a fourth generation synthetic, broad spectrum, fluoroquinolone antibiotic. It is indicated for treatment of various infections in adults with susceptible strains of microorganisms.

Question 2

- SH: SF has worked as an engineer for 30 years, drinks 2 glasses of wine weekly, nonsmoker, exercises 4 days per week (aerobics and swimming), does not currently monitor her diet
- FH: Her father died from an MI at age 45, mother (age 84) has diabetes, otherwise alive and well, two sisters alive and well

Question: Which of the following would not contribute to SF’s increased risk of cardiovascular disease?

- A) Rheumatoid Arthritis
- B) Methotrexate and Folic Acid
- C) Ibuprofen
- D) Dyslipidemia
- E) Hypertension
Correct Answer

- B) Methotrexate and Folic Acid does not contribute to risk of CV dx
- **Explanation:** The use of methotrexate with concomitant folic acid may reduce cardiovascular risk by suppressing inflammation and subsequent atherosclerotic plaque formation
- **To Note:**
  - The diagnosis of rheumatoid arthritis confers an increased risk of cardiovascular disease, likely due to the concurrent systemic inflammation
  - Traditional risk factors, such as smoking status, dyslipidemia, and hypertension, are also risk factors for patients with rheumatoid arthritis. Hypertension in patients with rheumatoid arthritis is highly underdiagnosed and undertreated, leading to increased cardiovascular complications. NSAIDs must be used with caution in patients with risk for cardiovascular disease due to the increased risk of myocardial infarction.

Question 3

- SH: A patient lives at home with her husband, daughter, and 2 grandchildren. She works part-time for an insurance company. She quit smoking about 10 years ago and does not consume alcohol.
- FH: Unknown, as the patient was adopted
- Vitals: BP 154/86; P 55; RR 18

**Question:** The patient presents today to refill a pravastatin prescription. Which of the following patient education points will you discuss with this patient? **Mark All that Apply**

- A) Take in the morning first thing without food
- B) Get liver function test every 3 months while on this medication
- C) If you miss a dose, take is as soon as remember, do not double up if it is too close to your next dose
- D) If you notice muscle aches while taking this medication, call your prescriber right away
- E) It is important to follow a low cholesterol diet while taking this medication
Correct Answer

- C) If you miss a dose, take it as soon as you remember. If it is close to your next dose, do not double up.
- D) If you experience bothersome muscle aches that do not go away, notify your prescriber.
- E) It is recommended that you follow a low cholesterol diet while you are taking this medication.

Explanation: Patients receiving pravastatin (Pravachol) should be counseled about missed doses, side effects, and diet while on this medication.

To Note:
- Pravastatin can be administered with or without food
- Routine liver function monitoring is no longer recommended
- The patient should have a baseline evaluation and additional blood work when clinically indicated
- Patients should be counseled about missed doses and what to do if it happens
- A common side effect associated with pravastatin therapy is muscle aches, but they are usually minor and go away & complaints of bothersome muscle aches that do not go away should be evaluated further
- Finally, part of a comprehensive patient education plan is to review any nonpharmacologic recommendations as well. Patients receiving pravastatin should be encouraged to follow a low cholesterol, heart-healthy diet

Question 4

Adam is a 51-year-old highway construction worker. He presents to the pharmacy counter noting that he spends a great deal of time in the sun. He notes now, that after being in the sun for 3-4 hours, his face, neck, and the back of his hands are sunburned. In the past, he could stay in the sun all day without burning. His skin does not blister or form hives. He doesn’t use sunscreen routinely

Medications: HCTZ 50 mg QD, Metoprolol 50 mg BID increased from 25 mg BID, Lansoprazole 30 mg QD increased from 15 mg QD, ASA 325 mg QD

Question: Which recommendation is correct?

- A. A very water resistant sunscreen should be reapplied every 40 minutes for optimal protection.
- B. A sunscreen with SPF 30+ will provide moderate sunburn protection.
- C. If he is wearing shorts instead of long pants, he should apply 1 teaspoon of sunscreen to each leg for maximal protection.
- D. It is not necessary to apply sunscreen on cloudy days.
- E. A water resistant sunscreen product should be reapplied every 80 minutes.
Correct Answer

- C. If he is wearing shorts instead of long pants, he should apply 1 teaspoon of sunscreen to each leg for maximal protection
- Explanation: Sunscreen Application Guidelines (Lexicomp)
- To Note:
  - Reapply sunscreen every 80 minutes
  - Reapply water resistant sunscreen every 40 minutes
  - Very water resistant sunscreen may need more frequent reapplication
  - Use 1 teaspoon on each leg
  - Use 5 teaspoons on entire body
    - Some drugs that cause increased photosensitivity
      - Doxycycline, Amiodarone, NSAIDS

Question 5
A 16-year-old patient calls the pharmacist. His mother purchase Dr. Scholl's Ingrown Toenail Pain Reliever. He cannot read the directions for use and would like help.

Question: The pharmacist should tell him which of the following?

- A) The product should be used 4 times daily
- B) The product should not be used by patients under the age of 18 years
- C) The product should not be used if the patient is diabetic
- D) The product should not be used longer than 2 weeks
- E) The product may be used if there is discharge from under the toenail
Correct Answer

- C) The product should not be used if the patient is diabetic
  - Explanation: The product should not be used by the patient who is diabetic, poor circulation, or has gout.
  - To Note:
    - This product should be used twice daily, for no longer than 7 days, and has no age limit on its use
    - This product should not be used if discharge is present
    - This product contains Sodium Sulfide Gel, which softens the nail for easy trimming

Question 6

- SH: J.B. drinks rarely (less than once a week) and does not smoke
  - She is an aspiring model currently working at a department store
- FH: Maternal grandmother had diabetes and paternal grandmother had a stroke

- Question: Which of the following counseling points should this patient be told about Latisse?
  - A) Blurred vision is to be expected after the first few applications of Latisse
  - B) Increasing frequency of use of this medication will increase eyelash growth
  - C) If the medication gets into the patient’s eye, she should thoroughly rinse her eyes with water immediately
  - D) Pigmentation of the eyelids and iris may occur; iris pigmentation is likely to be permanent
  - E) In case of a missed dose of Latisse, the patient may apply double the amount during the next application
Correct Answer

- D) Pigmentation of the eyelids and iris may occur; iris pigmentation is likely to be permanent

- Explanation: Any darkening of the eyelid skin is expected to reverse after several weeks to months. Any darkening of the iris is not expected to reverse and is likely permanent.

- To Note: Abnormal ocular conditions are NOT to be expected, refer patient’s right away if they experience a sudden decrease in visual acuity, have ocular surgery, or develop any ocular reactions (such as conjunctivitis)

- Using this medication more than once nightly application will not increase the growth of eyelashes

- Do not double the dose, skip the missed dose

- Latisse is not expected to cause harm if it accidentally gets into the eye - it is a sterile ophthalmic solution. Patients should not attempt to rinse it out of their eyes.

Question 7

- A 42-year-old man diagnosed with psoriasis asks the pharmacist about its causes. The pharmacist should mention that its primary etiology is thought to be due to which of the following?

  - A) Bacteria
  - B) Sun Damage
  - C) Fungi
  - D) Genetic Defect
  - E) Specific Virus
Correct Answer

- D) Genetic defect
- **Explanation:** Genetic factors control the occurrence, severity, and manifestations of psoriasis

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**Question 8**

**Patient Name:** Wilbur Miles  
**Address:** 815 Lark  
**Age:** 72  
**Sex:** Male  
**Race:** Caucasian  
**Height:** 170 cm  
**Weight:** 86 kg  
**Allergies:** NKDA  
**BP:** 154/92

**DIAGNOSES** Hypertension, Hyperlipidemia, Mild Seasonal Allergies

- 7/2 HPI: W.M., accompanied by his wife, presents with concerns regarding symptoms of worsening memory loss and confusion. He is having difficulty remembering names/recent events, and performing tasks involving multiple steps. He has become disoriented to time and location on several occasions and frequently forgets which of his daily medications he has taken. He scored a 24 on the MMSE (Mini-Mental State Examination) and underwent a physical/neuro exam, which resulted in his diagnosis of mild Alzheimer’s disease.

- **FH:** Father died at age 81 from an MI, mother died at age 87 from heart failure; mother had Alzheimer’s disease.

- **SH:** Married, retired mechanic. Nonsmoker, drinks about 1 alcoholic beverage per day, denies illicit drug use.

- The medication initiated on 7/2 must be titrated up to a minimal effective dose of 16 mg daily (Razadyne). What is the minimum time that should be allowed between dose adjustments for this medication?
  - A. 3 days
  - B. 5 days
  - C. 1 week
  - D. 2 weeks
  - E. 4 weeks
Correct Answer

- E) 4 weeks

- Explanation: The minimum time between dose adjustments for galantamine (Razadyne) ER caps is 4 weeks

- To Note: The 3 newer cholinesterase inhibitors indicated for Alzheimer's - donepezil (Aricept), galantamine (Razadyne), and rivastigmine (Exelon) - are generally well tolerated
  - Most common adverse effects (nausea, vomiting, diarrhea, and loss of appetite) are more prominent at higher doses and can be minimized by initiating therapy at low doses and gradually increasing the dose
  - All are dosed initially below minimal effective dose
    - Donepezil (Aricept) should be adjusted no sooner than every 4-6 weeks, galantamine (Razadyne) no sooner than every 4 weeks, and rivastigmine (Exelon) no sooner than every 4 weeks for the patch and every 2 weeks for the capsules and oral solution

Question 9

- 10/2 - Patient presents with severe pain and tingling on upper left abdomen as well as flu-like symptoms. Examination reveals a rash on upper left abdomen that the patient claims is new as of the morning of the examination; the patient is diagnosed with herpes zoster.
- She is currently taking Aciphex, Diovan, Calcium, Valtrex, MVI, Zyprexa and Fosamax

- Question: What is the mechanism of action of the medication for her HTN?
  - A) ACE Inhibitor
  - B) Beta-Blocker
  - C) Calcium Channel Blocker
  - D) Thiazide Diuretic
  - E) Angiotensin II Receptor Blocker
Correct Answer

- E) Angiotensin II receptor blocker

- Explanation: Diovan (valsartan) is an angiotensin II receptor blocker
  - Angiotensin II is formed from angiotensin I in a reaction catalyzed by angiotensin-converting enzyme (ACE)
  - To Note: Diovan blocks the vasoconstrictor and aldosterone-secreting effects of angiotensin II by selectively blocking the binding of angiotensin II to the AT1 receptor in many tissues, such as vascular smooth muscle and the adrenal gland

Question 10

- Where is a tinea corporis infection typically located?
  - A) Feet
  - B) Body
  - C) Groin
  - D) Scalp
  - E) Nail
Correct Answer

- B) Body
- **Explanation**: Tinea infections are fungal skin infections. The phrase following tinea describes where the infection is located:
  - Feet = tinea pedis
  - Body = tinea corporis
  - Groin = tinea cruris
  - Scalp = tinea capitis
  - Nail = tinea unguium

Question 11

- JC is a 17-year-old varsity basketball player for the local high school. He comes to the pharmacy today and asks for your opinion about his feet. The itching and scaling he is experiencing are almost identical to an episode 6 months ago when his doctor diagnosed “Athlete's Foot.” He holds a box of Lamisil AT in his hands and asks if there is anything else he should do.
- **Question**: You recommend all of the following EXCEPT?
  - A) Change athletic shoes often
  - B) Wear sandals or water shoes in the locker room
  - C) Wear nylon or wool socks instead of cotton socks
  - D) Put powder in shoes daily
  - E) Wash dirty clothes and towels in hot water
Correct Answer

- C) Wear nylon socks or wool socks instead of cotton socks

Explanation: Patients should be instructed to wear cotton, breathable socks instead of nylon socks that hold the heat and moisture close to the individual’s feet.

To Note:
- Change athletic shoes often to minimize the ideal growing conditions for the fungus
- Wear sandals or water shoes in the locker room to reduce the risk of picking up the infection from another infected individual
- Put powder in shoes daily to reduce the moisture/perspiration in the shoes
- Wash dirty clothes and towels in hot water to kill any remaining particles on the clothing

Question 12

- What are the two active ingredients in Maxzide 37.5mg/25mg?
  - A) Spironolactone and hydrochlorothiazide
  - B) Triamterene and furosemide
  - C) Triamterene and hydrochlorothiazide
  - D) Spironolactone and furosemide
  - E) Hydralazine and hydrochlorothiazide
Correct Answer

- C) Maxzide contains triamterene and hydrochlorothiazide
  - Aldactazide is the brand name that contains the combination of spironolactone and hydrochlorothiazide
  - Hydra-Zide is the brand name that contains the combination of hydralazine and hydrochlorothiazide
  - There are no current products on the market that contain both triamterene and furosemide or spironolactone and furosemide

Question 13

- What side effects are seen with Valtrex 1gm?
  - A) Tinnitus and renal failure
  - B) Photosensitivity and constipation
  - C) Headache and nausea
  - D) Abdominal pain and vertigo
  - E) Ankle edema and thrombotic thrombocytopenic purpura
Correct Answer

- C) Headache and nausea

Explanation: The most common side effects reported with Valtrex (valacyclovir hydrochloride) are headache, nausea, and abdominal pain

To Note:
- Photosensitivity, vomiting, and dizziness are other observed side effects
- Serious side effects seen are thrombotic thrombocytopenic purpura/hemolytic uremic syndrome; acute renal failure; and central nervous system effects, including agitation, hallucinations, confusion, delirium, seizures, and encephalopathy.

Question 14

- What is the reason that ethanol does not have a listed elimination half-life in most drug resources?
  - A) It follows a zero order kinetics
  - B) It follows non-linear kinetics
  - C) It follows exponential kinetics
  - D) It is not a recognized drug
  - E) All of the above
Correct Answer

- A) It follows a zero order kinetics
- **Explanation:** The clearance of ethanol is dependent on the dose and decreases with increasing blood level. Its kinetic profile is zero order with no constant elimination half-life
- **To Note:** We can never assume how long a patient may be intoxicated for

Question 15

- **Which route of administration is inappropriate for nitroglycerin?**
  - A) Transdermal
  - B) Intravenous
  - C) Sublingual
  - D) Topical
  - E) Oral
Correct Answer

- E) Oral
- **Explanation:** Extensive first pass effects will occur when nitroglycerin is administered orally, and a very small amount of the drug will reach systemic circulation
- **To Note:** It is usually administered by intravenous infusion, transdermal patch, topical ointment, or sublingual tablet

Question 16

- Which of the following dextrose solutions is isotonic?
  - A) 50% dextrose in water
  - B) 20% dextrose in water
  - C) 10% dextrose in water
  - D) 5% dextrose in water
  - E) 2.5% dextrose in water
Correct Answer

- D) 5% dextrose in water

  Explanation: Dextrose at 5% concentration is isotonic and has the same osmotic pressure as blood. To determine the tonicity of the solution one can convert the concentration of dextrose to an equivalent concentration of sodium chloride using the E-value ($E_{\text{dextrose}} = 0.18$)

<table>
<thead>
<tr>
<th>5 gm dextrose</th>
<th>$\times 0.18$</th>
<th>= 0.9gm NaCl</th>
</tr>
</thead>
<tbody>
<tr>
<td>100ml</td>
<td>100ml</td>
<td>100ml</td>
</tr>
</tbody>
</table>

Question 17

- What has the greatest potential to interact negatively with Zyban?
  - A) Cheese
  - B) Alcohol
  - C) Grapefruit juice
  - D) Licorice
  - E) Chocolate
Correct Answer

- B) Alcohol
- **Explanation:** Using Zyban (bupropion) with alcohol may increase the risk of seizures, hallucinations, delusions, paranoia, mood and behavioral changes, depression, suicidal thoughts, anxiety, and panic attacks. Also, sudden withdrawal from alcohol following regular or chronic use can also increase the risk of seizures during treatment with Zyban.
- **To Note:**
  - Patients who are prone to frequent or excessive alcohol use should discuss their habits with a doctor before starting Zyban.
  - In general, patients should avoid or limit their use of alcohol while being treated with Zyban.
  - None of the other options listed interact significantly with Zyban.

Question 18

- A 17-year-old male cocaine addict develops substernal chest pain and is rushed to the emergency room by his friends. They reveal that he had been smoking 'crack' when the symptoms developed. An ECG is consistent with anterior wall myocardial ischemia. This effect on the heart is attributed to the drug. What is the mechanism of this effect?
  - A) Direct inhibition of beta-adrenergic receptors
  - B) Direct stimulation of adenosine receptors
  - C) Direct stimulation of beta-adrenergic receptors
  - D) Indirect inhibition of alpha-adrenergic receptors
  - E) Indirect stimulation of alpha-adrenergic receptors
Correct Answer

- E) Indirect stimulation of alpha-adrenergic receptors
- Explanation: Cocaine causes indirect stimulation of the alpha-adrenergic receptors
- To Note:
  - Cocaine inhibits the cellular uptake of norepinephrine in the adrenergic neurons
  - Increased levels of norepinephrine result in enhanced sympathetic activity
  - Stimulation of the alpha-receptors on the coronary arteries produces vasoconstriction and myocardial ischemia

Question 19

- What should the patient be advised of when taking Haldol?
  - A) Take Haldol every evening before bedtime
  - B) Take Haldol with food to prevent nausea
  - C) Haldol may cause increased excitability and insomnia
  - D) Do not discontinue Haldol therapy without consulting a healthcare provider
  - E) Muscle rigidity and dyskinesia are common side effects that will dissipate over time
Correct Answer

- D) Do not discontinue Haldol therapy without consulting a healthcare provider

Explanation: Patients should not discontinue Haldol therapy without consulting a healthcare provider.

To Note: Haldol (haloperidol decanoate) injection is a long-acting injectable form of haloperidol that is administered by deep IM injection every 4 weeks. Haldol can cause impaired mental or physical abilities and postural hypotension.

Patients should consult their healthcare providers if they note excessive dizziness, drowsiness, altered mental status, high fever, increased aggression/agitation, involuntary body/facial movements, or muscle rigidity, which could indicate potential neuroleptic malignant syndrome (NMS).

Question 20
Which of the following statements below is TRUE?

- A. To prevent tinea pedis reinfection, patients should be instructed on the importance of wearing socks made of wool or synthetic fabrics.
- B. To prevent tinea cruris reinfection, patients should be counseled on the importance of washing contaminated clothes in soap and cold water.
- C. In the treatment of tinea ungium, the course of oral itraconazole therapy may conclude before the complete resolution of the nail discoloration.
- D. Tolnaftate is the only nonprescription medication approved for the prevention and treatment of tinea capitis (ringworm).
- E. It is not necessary to treat tinea ungium if a patient is experiencing concomitant tinea pedis
Correct Answer

- C) In the treatment of tinea ungium, the course of oral itraconazole therapy may conclude before the complete resolution of the nail discoloration.
  - Explanation: Non-pharmacological measures are important in tinea infections
  - To Note:
    - Patients with tinea pedis should be counseled to wear socks made of cotton or other breathable materials.
    - Patients with any tinea infection should be counseled to wash all contaminated items with soap and HOT water.
    - Patients with tinea ungium (onychomycosis) should be counseled that the nail discoloration may not resolve until long after the course of treatment is complete. As the nail grows out, discoloration will subside.
    - Patients with concomitant tinea ungium and tinea pedis should receive treatment for both conditions. Otherwise, one infection may fuel the other and prevent resolution of the signs and symptoms.

Question 21
Which of the following statements is true regarding topical application of nitroglycerin ointment?

- A. It should only be applied after symptoms occur
- B. The dose to be applied is measured in mg
- C. The dose to be applied is measured in inches
- D. The appropriate dose amount should be applied to the skin area with maximal rubbing in
- E. There is no need to cover the applied area with plastic wrap
Correct Answer

- C) The dose to be applied is measured in inches
- Explanation: Doses of topical nitroglycerin are measured in inches and the appropriate amount is then applied to the skin with minimal rubbing
- To Note:
  - The applied area should be covered with plastic wrap to facilitate drug absorption as well as preventing staining of clothes
  - It works by relaxing (widening) blood vessels. Chest pain occurs when the heart needs more oxygen than it can get. Relaxing blood vessels allows blood to flow more easily. This reduces the heart's workload and the amount of oxygen needed by the heart
  - Nitro-Bid ointment lasts for about 6 hours, it is important to have a "nitrate-free" period of time for 10 to 12 hours each day for the nitrate to continue to work well and to decrease the risk of physical dependence

Question 22
Patient Name: Willard Stone Address: 1816 Quinlan Age: 64 Sex: M Race: Caucasian Height: 5' 11” Weight: 179 Allergies: NK
DIAGNOSES: Depression, Motion sickness, Psoriasis Xerostomia, BPH, Shingles, Insomnia

On 7/30 Willard picked up MTX 2.5mg (2 tablets weekly) #12. What counseling advice should Mr. Stone be given on 7/30?

A. Stay well hydrated while taking this medication.
B. Each dose must be taken in the morning, preferably with breakfast.
C. If a dose is forgotten, skip it and return to the normal schedule.
D. Do not take with a high-fat meal.
E. The urine may discolor red to brown.
Correct Answer

- A) Stay well hydrated while taking this medications

- Explanation: Patients should stay well-hydrated while taking MTX to reduce the risk of toxicity

- To Note:
  - Doses are preferably taken on an empty stomach
  - If a dose is skipped by patients on a weekly regimen, advise to take the dose ASAP & restart the weekly schedule from that date

Question 23
A patient purchased Collyrium for Fresh Eyes Eye Wash (boric acid/sodium borate) for an eyelash in his eye. He calls later to ask the pharmacist how to use it. He is puzzled about the eyecup that was packaged inside the product. What should the pharmacist advise?

- A. Before using the eyecup, rinse it with alcohol
- B. Discard the eyecup without using it
- C. Use the eyecup by placing it against the eye with the eyewash
- D. Only use the eyecup after warming it to body temperature
- E. Rinse the eyecup in hot water before using it
Correct Answer

- B. Discard the eyecup without using it

  ▶ Explanation: Eyecups are outdated devices that should never be used. They are not sterile and are a danger to the delicate ophthalmic tissues.
  ▶ To Note: Since they carry a risk of eye infection, they must be discarded as soon as the bottle is opened.

Question 24
Which of the following questionnaires can be administered to determine a patient's level of nicotine dependence?

- A. CAGE
- B. Fagerstrom
- C. CRAFFT
- D. DAST
Correct Answer

- B) Fagerstrom

**Explanation:** The Fagerstrom Tolerance Test for Nicotine Dependence is a 6-item questionnaire for nicotine dependence

**To Note:**
- The CAGE questionnaire assesses alcohol use through 4 questions (Cut-Annoyed-Guilty-Eye)
- The CRAFFT questionnaire (first letter of each of the 6 questions), administered to determine drug and alcohol use in adolescents
- The Drug Abuse Screening Test (DAST) is a 28-item test to determine an individual's drug use. If the patient responds positively to 6 or more items, they must be assessed further to determine if the problem is use or dependence

**Question 25**
A male & his partner have been using Detane Gel (benzocaine) prior to sex. They use spermicidally lubricated latex condoms. His partner has developed a rash, burning, & itching in the genital area since he started using it. He asks the pharmacist if Detane might have caused it. What should the pharmacist tell him?

- A. Benzocaine in Detane can cause the symptoms listed. The couple should discontinue and see if the condition improves
- B. Detane is not responsible. The partner should explore the possibility of allergy to a douche product
- C. Detane is not responsible. The partner may have an allergy to latex rubber in the condoms
- D. Detane is not responsible. The partner may have an allergy to the spermicidal lubricant in the condoms
- E. Detane is not responsible. He may have contracted genital herpes
Correct Answer

- A. Benzocaine in Detane can cause the symptoms listed. The couple should discontinue and see if the condition improves

- Explanation: As many as 10% of the population are allergic to benzocaine

- To Note: Benzocaine in Detane can cause rash, burning, and itching

Question 26
A patient with seborrheic dermatitis asks the pharmacist for assistance in choosing a product. Which of the following contains ingredients approved by the FDA for treatment of seborrheic dermatitis?

- A. MG 217 Medicated Tar Lotion (coal tar solution)
- B. Nizoral A-D (ketoconazole)
- C. PanOxyl Bar (benzoyl peroxide)
- D. Purpose Gentle Cleansing Bar (sodium tallowate, sodium cocoate, glycerin)
- E. Zapzyt Cleansing Bar (sulfur)
Correct Answer

- A) MG 217 Medicated Tar Lotion (coal tar solution)
  - Explanation: The only FDA-approved nonprescription ingredients proven safe and effective for seborrheic dermatitis are coal tar, zinc pyrithione, selenium sulfide, hydrocortisone, and salicylic acid (all when used in appropriate concentrations)
  - To Note:
    - Often times, products cause worsening of skin conditions before improvement
    - Do NOT confuse coal tar with Ichthammol (ammonium bituminosulphonate) salve is an alternative home herbal remedy used as a drawing salve
      - A salve is reputedly able to remove, or to draw out, things like infections, insect stingers, splinters, boils or other foreign particles from the skin

Question 27

A mother is asking for assistance. Her 6-year-old son has white bumps on his fingers that appear to be warts. The warts do not seem to bother him but he keeps injuring the warts. She is also afraid someone else in the family will "get these things."

- Question: A child with warts on the hands should be counseled to use a nonprescription product that contains what concentration of salicylic acid?
  - A. 10%
  - B. 17%
  - C. 25%
  - D. 60%
  - E. 80%
Correct Answer

- B) 17%

- Explanation: Nonprescription salicylic acid is available in 17% and 40% (Mediplast) concentrations

- To Note:
  - A concentration of 17% is recommended for common warts, especially in a child
  - A concentration of 40% is recommended for the treatment of plantar warts

Question 28
Which of the following federal laws is related to approval of generic drugs?

- A. Food and Drug Act (1906)
- B. Food, Drug, and Cosmetic Act (1938)
- C. Durham-Humphrey Amendment (1951)
- D. Kefauver-Harris Amendment (1962)
Correct Answer

  - The Hatch-Waxman Act, formally known as The Drug Price Competition and Patent Term Restoration Act of 1984 governs FDA approval of generic drugs
  - The Food and Drug Act established standards for purity and quality
  - The Food, Drug, and Cosmetic Act created new standards for safety
  - The Durham Humphrey Amendment established legend drug status
  - In response to the thalidomide tragedy, the Kefauver-Harris Amendment mandated a safety and efficacy review of all prescription and OTC drugs

Question 29
A 7-year-old white male is brought in by his mother to the pharmacy. The boy complains of perianal itching, worsening at night. She used a flashlight at night to take a look around the anus area and found a small worm.

- What is the most common side effect of the medication used to treat his condition?
  - A. Hepatotoxicity
  - B. Renal toxicity
  - C. Stomach pain
  - D. Constipation
  - E. Headache
Correct Answer

- C) Stomach pain
- Explanation: The patient presents with enterobius vermicularis infection, which is treated with mebendazole and may cause Mebendazole may cause some diarrhea and stomach pain, which are the most common adverse effects
- To Note:
  - Usually it is a 1 dose regimen with repeat in 1 week (drug is not effective for parasite eggs), thus hepatotoxicity is unlikely, but has been reported with prolonged use
  - Renal toxicity, if it occurs, is extremely rare
  - Headache may occur rarely in this population as well, but it is less frequent

Question 30
A 23-year-old woman with plaque psoriasis on the scalp asks the pharmacist to recommend a product. Which of the following is effective?

- A. DHS Tar Shampoo (coal tar extract)
- B. Head & Shoulders Intensive Treatment (selenium sulfide)
- C. Head & Shoulders (zinc pyrithione)
- D. Lomalux Psoriasis Liquid (potassium, sodium, bromide, nickel, zinc, sulfur)
- E. Nizoral A-D (ketoconazole)
  - The only nonprescription ingredients proven safe and effective for psoriasis are coal tar, hydrocortisone, and salicylic acid, in appropriate concentrations
Correct Answer

- A. DHS Tar Shampoo (coal tar extract)
- To Note: The only nonprescription ingredients proven safe and effective for psoriasis are
  - Coal tar
  - Hydrocortisone
  - Salicylic acid

Question 31

- HPI: Patient presents to ED with c/o dizziness and palpitations the previous 6 days; ECG reveals atrial fibrillation with ventricular rate of 128 bpm.
  
  FH: Mother and father both had cardiovascular disease, brother has Type 2 diabetes.
  
  SH: Married, no children; denies illicit drug use, alcohol, and smoking.
  
  **Test**
  Transesophageal echocardiogram
  **Results:**
  Presence of thrombus: Negative

- Question:
  After the initial cardioversion, this patient has recurrent episodes of atrial fibrillation. Which one of the following anti-arrhythmics should be recommended for chronic therapy?
  - A) Amiodarone
  - B) Esmolol
  - C) Flecainide
  - D) Ibutilide
  - E) Sotalol
Correct Answer

- A) Amiodarone
- **Explanation:** Amiodarone is the best choice of those listed for maintaining sinus rhythm.
- **To Note:**
  - The Cardiac Arrhythmias Suppression Trial (CAST) showed that patients with heart failure should avoid class Ic agents (i.e. flecainide and propafenone) due to increased mortality risk
  - Sotalol may aggravate and worsen heart failure
  - Ibutilide is administered for immediate chemical conversion only, not for long-term maintenance of sinus rhythm
  - Esmolol aids in controlling ventricular rate, but has no effect on maintaining sinus rhythm

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Question 32

- **HPI:** Patient (67 y/o male) is newly diagnosed with Parkinson's disease and accompanying depression
- **FH:** Father had CAD, mother had diabetes
  - **SH:** Married, 2 grown children, has worked as a store manager for 23 years; denies smoking or illicit drug use, drinks about 1 alcoholic beverage per week and drinks 1 cup of coffee per day
  - **Immunization History:** Influenza vaccine 2 years ago, pneumococcal vaccine 7 years ago, tetanus booster 8 years ago
- **Question:** Which of the following vaccinations should be recommended to this patient?
  - A) Influenza only
  - B) Pneumococcal only
  - C) Influenza, pneumococcal, and herpes zoster
  - D) Influenza, pneumococcal, and tetanus
  - E) Tetanus booster only
Correct Answer

- C) Influenza, pneumococcal, and herpes zoster

**Explanation:**
- The influenza vaccine is recommended annually
- This patient should be advised to revaccinate 1 time with the pneumococcal vaccine since he is older than 65. It has been more than 5 years since his first vaccination, and he was less than 65 years of age at the time of his first vaccination
- A single dose of zoster vaccine is recommended for all adults over age 60
- This patient does not need a tetanus booster for 2 more years.

Question 33

- What is a common side effect of Paxil?
  - A) Hypertriglyceridemia
  - B) Hyperglycemia
  - C) Hypertension
  - D) Decreased libido
  - E) Increased libido
Correct Answer

- **D) Decreased libido**

**Explanation:** Paxil (paroxetine), which is a selective serotonin reuptake inhibitor (SSRI) commonly used to treat depression. Like other SSRIs, Paxil often causes **decreased libido**

**To Note:**
- Decreased libido has been reported in approximately 10% of patients
- Paxil is not commonly known to cause hypertriglyceridemia, hyperglycemia, hypertension, or increased libido

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**Question 34**

- A 75-year-old male patient taking metoprolol, verapamil, ginkgo biloba, ginseng, aspirin, fluoxetine, and a multivitamin is hospitalized after his family saw him seize on a bedroom floor. He was in his usual state of health up until a week ago when he felt a burning sensation in his chest and sour taste in the back of his throat. His son remembers him coming to the pharmacy and buying something for those particular symptoms. About 4 days ago he seemed to be more confused, depressed, and disinterested. His vital signs include T 98.6, P 64, BP 140/80, RR 14. His labs include CMP: Na 110, K 3.4, Cl 105, CO2 24, BUN 12, Scr 1, Glu 100. Serum osmolality 230, urine osmolality 375, low urine sodium.

**Question:** What is the **most likely** medication causing the patient’s symptoms?

- A) Gingko biloba
- B) Fluoxetine
- C) Metoprolol
- D) Verapamil
- E) Aspirin
Correct Answer

- B) Fluoxetine

**Explanation:** Fluoxetine rarely produces Syndromes of Inappropriate Anti-Diuretic Hormone Secretion (SIADH), but the elderly seem to be at an increased risk for this event.

- It is an idiosyncratic reaction rather than dose related, thus the information provided regarding him buying something for GERD is likely irrelevant.

- Some of the symptoms of SIADH may mimic depression in elderly.

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**Causes of SIADH**

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<thead>
<tr>
<th>Neoplastic</th>
<th>Pulmonary</th>
<th>CNS</th>
<th>Drugs</th>
<th>Other</th>
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<td>Ascess</td>
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**Question 35**

- A set of parents approach the pharmacist to ask about their 2-month old child. They believe he has colic. He has violent paroxysms of irritability, unexplained fussiness, and full-force crying. He cries more than 3 hours daily, 4-5 days each week. The situation has been going on for 5 weeks. He is breast-fed. What can the pharmacist do?

- A) Recommend an immediate physician visit, as crying that has lasted for 5 weeks is clearly not due to colic.
- B) Recommend an immediate physician visit, as full-force crying is never a component of colic.
- C) Recommend Baby’s Bliss Gripe Water, a nonprescription product that contains ginger and fennel.
- D) Recommend Beano (alpha-galactosidase), a product that can reduce gas in breast-fed infants.
- E) Recommend Infant’s Mylicon Drops, which contains simethicone, which seems to provide relief for colic.
Correct Answer

- E) Recommend Infant’s Mylicon Drops, which contains simethicone, which seems to provide relief for colic

- **Explanation:** This baby’s manifestations fall within the guidelines for colic, known as the rule of 3 times 4: (1) usually occurs within the first 3 months of life in an otherwise healthy and well-fed infant, with violent paroxysms of irritability, unexplained fussiness, or full-force crying, which can develop into agonized screaming, and which (2) lasts more than 3 hours a day, (3) occurs on more than 3 days in any 1 week, and (4) continues for at least 3 weeks

- **To Note:**
  - Baby’s Bliss Gripe Water contains unapproved ingredients that are not known to be safe and effective for infants and should never be recommended
  - Beano is not known to be effective for colic
  - Simethicone, as found in Infant’s Mylicon Drops, is not FDA-approved for colic, but various reports demonstrate safety and efficacy when used for colic

Question 36

- A patient with compromised renal function was to be prescribed morphine for pain management. You explained to the physician that even though morphine is eliminated primarily by the liver, increased adverse CNS effect of morphine can result from:
  - A) Accumulation of an active, renally cleared metabolite
  - B) Sensitization of opiate receptors by uremic toxins
  - C) Reduced hepatic clearance of the active parent drug
  - D) Greater free-fraction of morphine associated with hypoalbuminemia
  - E) Greater free-fraction of morphine associated with uremia
Correct Answer

- A) Accumulation of an active, renally cleared metabolite
- Explanation: The glucuronides of morphine are biologically active and rely on the kidney for elimination, and are primarily responsible for CNS toxicity in patients with compromised renal function

Question 37

- What is a warning or precaution to consider when dispensing Prilosec?
  - A) Risk of aggravation of migraine
  - B) Risk of precipitating Prinzmetal’s angina
  - C) Risk of atrophic gastritis
  - D) Risk of gastric carcinoma with long-term therapy
  - E) Risk of hypertriglyceridemia in diabetic patients
Correct Answer

- **C) Risk of atrophic gastritis**
- **Explanation:** Atrophic gastritis is found in patients treated with long-term Prilosec (omeprazole)
- **To Note:**
  - Headache is a common side effect of Prilosec, but it does not aggravate migraines
  - There is a risk of concomitant gastric malignancy, and symptomatic response to therapy with omeprazole does not preclude the presence of gastric malignancy

Question 38

- A weakly acidic drug with a pKa of 3.5 would be most soluble at which pH?
  - A) pH = 2
  - B) pH = 3
  - C) pH = 4
  - D) pH = 5
  - E) pH = 6
Correct Answer

- E) pH = 6
- **Explanation:** The Henderson-Hasselbalch equation is used to calculate the relative concentrations between the ionized and the unionized forms of a weakly acidic compound in a solution
- Increased solubility is observed when the pH of the solution, relative to the pKa of the drug, favors the ionized form of the drug
- For a weak acid, the Henderson-Hasselbach equation is:
  - $\text{pH} = \text{pK}_a + \log \frac{[A^-]}{[HA]}$ which rearranges to $10^{\text{pH}-\text{pK}_a} = \frac{[A^-]}{[HA]}$
- Substituting pKa of 3.5 and each of the pH values above, we find that at a pH of 6 the ionized form of the drug (A-) is most favored at a ratio of approximately 316:1. Therefore, the drug would be most soluble at pH of 6

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Question 39

- Serum protein binding is important in comparing the antimicrobial effect of different antibiotics because of which of the following?
  - A) Only the bound drug can reach the site of infection
  - B) Only the bound drug can be eliminated
  - C) Only the bound drug can be absorbed orally
  - D) Only the unbound drug can reach the site of infection
  - E) Only the bound drug can exert a pharmacological effect
Correct Answer

- D) Only the unbound drug can reach the site of infection
- **Explanation:** It is the unbound form of the antibiotic that can move from the site of administration to the site of action (in this case the site of infection) to exert the antimicrobial effect. It is also the unbound form that can be eliminated from the body.

Question 40

- How long should patients use a laxative product before consulting a physician?
  - A) 3 days
  - B) 5 days
  - C) 7 days
  - D) 14 days
  - E) 3 weeks
Correct Answer

- C) 7 days
- **Explanation:** Patients may self-treat constipation for no longer than 7 days. If they remain constipated after using a laxative for 7 days, they must see a physician to rule out serious medical conditions.

Question 41

- Which of the following is a contraindication to Cipro?
  - A) History of liver damage
  - B) Concurrent use of tizanidine
  - C) Concurrent use of theophylline
  - D) Epileptic patient
  - E) Impairment of renal function
Correct Answer

- B) Current use of tizanidine

**Explanation:** Concomitant administration of Cipro with tizanidine is contraindicated because Cipro is potent CYP 1A2 Inhibitor (Cipro slows down how long the liver processes tizanidine)

**To Note:**
- Previous liver damage, concurrent theophylline use, and epilepsy/CNS disorders that may predispose to seizures or lower the seizure threshold are warnings for treatment with Cipro
- Impairment of renal function is a precaution for treatment with Cipro, and dosage should be altered in such patients

<table>
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<tr>
<th>Isoenzyme</th>
<th>Substrate</th>
<th>Inhibitor</th>
<th>Inducers</th>
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<tbody>
<tr>
<td>CYP1A2</td>
<td>Theophylline, Caffeine, Propranolol etc.</td>
<td>Cimetidine, Ciprofloxacin, Erythromycin etc.</td>
<td>Hydrocarbon, Omeprazole, Phenobarbital etc.</td>
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<td>Ibuprofen, Tolbutamide, Torsemide etc.</td>
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<td>Paracetamol, Ethanol, Halothane etc.</td>
<td>Disulfiram</td>
<td>Ethanol and isoniazid</td>
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**Question 42**

- A 71-year-old male presents to his primary care physician for evaluation. Over the last few years, he has noticed progressive difficulty achieving an erection suitable for intercourse, he has not tried any medications for his Erectile Dysfunction (ED) in the past
  - PMH: depression, chronic sinus infections, and GERD
  - Medications: omeprazole 20 mg once daily in the morning, cimetidine 400 mg at bedtime, sertraline 50 mg once daily, and amoxicillin/clavulanate potassium 1000 mg every 12 hours for 10 days
  - SH: smokes 1 pack per day, consumes alcohol only on holidays, and does not exercise

**Question:** Which of the following is the most appropriate treatment for ED in this patient?
- A) Alprostadil
- B) Vardenafil
- C) Testosterone
- D) Penile prosthesis
- E) Saw palmetto
Correct Answer

- A) Alprostadil
- **Explanation**: This patient has no contraindications to alprostadil making it the most appropriate treatment option of those listed
- **To Note**:
  - While phosphodiesterase inhibitors are first line therapy, vardenafil is not appropriate treatment in this patient due to concomitant cimetidine therapy and the potential drug interaction (vardenafil is metabolized via CYP3A4, cimetidine is a CYP3A4 inhibitor)
  - Testosterone is not appropriate because the patient does not exhibit signs of hypogonadism
  - Saw palmetto is not appropriate therapy because there is limited evidence demonstrating efficacy
  - Penile prosthesis might be considered if drug therapy is not effective or if the patient has contraindications to pharmacotherapeutics options

Question 43

- What is the mechanism of action for Valium?
  - A) Inhibits reuptake of serotonin, dopamine, and norepinephrine
  - B) Selectively antagonizes dopamine D1 receptors
  - C) Selectively antagonizes dopamine D2 receptors
  - D) Binds to benzodiazepine receptors, enhancing GABA effects
  - E) Binds to benzodiazepine receptors, inhibiting GABA effects
Correct Answer

- D) Binds to benzodiazepine receptors, enhancing GABA effects
- Explanation: This long-acting benzodiazepine is used to treat anxiety, alcohol withdrawal, muscle spasm, and status epilepticus
  - Valium works by binding to benzodiazepine receptors, enhancing GABA effects
- To Note:
  - Valium has no documented effects on dopamine receptors; it has not been shown to inhibit the reuptake of serotonin, norepinephrine, nor dopamine

Question 44

- If 250 mL of a 20% (v/v) solution is diluted to 2000 mL, what will be the final percent strength (v/v)?
  - A) 2.5%
  - B) 5%
  - C) 8%
  - D) 16%
  - E) 25%
Correct Answer

- A) 2.5%
- Explanation: The final percent strength would be 2.5% (v/v).
- To find the final dilution:
  - \( Q_1 \) (quantity) \( \times C_1 \) (concentration) = \( Q_2 \) (quantity) \( \times C_2 \) (concentration)
  - \( (250 \text{ mL}) \times (20\%) = (2000 \text{ mL}) \times (x\%) \)
  - \( x = 2.5\% \)

Question 45

- What is the advantage of calcium citrate (Citracal) over calcium carbonate (Os-Cal) tablets?
  - A) Calcium citrate should only be taken with meals
  - B) Each calcium citrate tablet contains more calcium than a single calcium carbonate tablet
  - C) Calcium citrate is less likely to produce diarrhea
  - D) Calcium citrate will not interact with vardenafil (Levitra)
  - E) Calcium citrate causes less gas and constipation
Correct Answer

- E) Calcium citrate causes less gas and constipation
- **Explanation:** Major adverse reactions to calcium supplementation include constipation and gas, and it is reported that calcium citrate is less likely to produce gas and constipation, which also increases the likelihood of adherence
- **To Note:**
  - Calcium citrate is absorbed in a less acidic environment, so it may be taken with or without food, which increases adherence
  - Calcium carbonate is dependent on a high level of gastric acidity for dissolution and absorption, so it is best absorbed when taken with meals
  - Neither interacts with vardenafil, nor does either product commonly cause diarrhea

Question 46

- Which of the following is NOT an appropriate route of administration for heparin?
  - A) As a heparin flush
  - B) Subcutaneous
  - C) Intravenous infusion administered intermittently
  - D) Intramuscular
  - E) Continuous intravenous infusion
Correct Answer

- D) Intramuscular

**Explanations:** Intramuscular administration of heparin is painful and can cause hematomas

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Question 47

- A woman would like you to make a product selection to help her in case she experiences motion sickness on a deep sea fishing trip she plans to take during her summer vacation.

**Question:** The long-acting agent used to treat motion sickness in a healthy adult is?

- A) Cyclizine
- B) Dimenhydrinate
- C) Diphenhydramine
- D) Meclizine
- E) Promethazine
Correct Answer

- D) Meclizine
- Explanation:
  - Meclizine is available OTC as Bonine for motion sickness and also as a legend agent, Antivert, for vertigo
  - Meclizine has a long duration of action and its dosing is once daily
  - The manufacturer promotes the agent as lasting 4 times longer than other agents
- To Note: Cyclizine (Marezine), Dimenhydrinate (Dramamine), Diphenhydramine, and Promethazine (Phenergan) all have dosing schedules of every 4-6 hours. Further, diphenhydramine is not labeled for motion sickness and promethazine is not available as a nonprescription product.

Question 48

- Good oral hygiene is important to prevent a specific drug-related effect of which of the following drugs?
  - A) Carbamazepine
  - B) Lamotrigine
  - C) Phenobarbital
  - D) Phenytoin
  - E) Valproic Acid
Correct Answer

- D) Phenytoin
- **Explanation:** Gingival hyperplasia, an overgrowth of gum tissue inside the oral cavity, predisposes a patient to loss of tooth integrity and oral infection
- **To Note:** It is a known side effect of phenytoin and patient receiving this anticonvulsant should be advised to have good oral hygiene

Question 49

- Which of the following a possible diagnosis for a patient being prescribed Vistaril?
  - A) Contact dermatitis
  - B) Insomnia associated with anxiety
  - C) Absence seizures
  - D) Anorexia nervosa
  - E) Restless leg syndrome
Correct Answer

- A) Contact dermatitis
- **Explanation:** The correct response is contact dermatitis
- **To Note:** Vistaril (Hydroxyzine pamoate) is indicated for symptomatic relief of anxiety and tension associated with psychoneurosis and as an adjunct in organic disease states in which anxiety is manifested, pruritus due to allergic conditions (e.g., chronic urticarial), atop and contact dermatoses, and histamine-mediated pruritus.

Question 50

- What side effects should be mentioned by the pharmacist when counseling on Celexa?
  - A) Suicidal thoughts and constipation
  - B) Diarrhea and amnesia
  - C) Proteinuria and impotence
  - D) Pancytopenia and severe allergic reactions
  - E) Manic episodes and thrombosis
A) Suicidal thoughts and constipation

Explanation: Serious side effects seen with Celexa (Citalopram hydrobromide) are suicidal thoughts or actions

To Note: Other side effects include changes in the electrical activity of the heart, serotonin syndrome, severe allergic reactions, abnormal bleeding, seizures/convulsions, manic episodes, changes in appetite/weight and low salt (sodium) levels in the blood. Constipation, diarrhea, sexual problems (ejaculatory disorder, impotence, and decreased libido)