DUMPSARENA

North American Pharmacist Licensure Examination

Test Prep NAPLEX

Version Demo

Total Demo Questions: 20

Total Premium Questions: 200

Buy Premium PDF

https://dumpsarena.co

sales@dumpsarena.co

sales@dumpsarena.co
dumpsarena.co

Topic Break Down

Topic	No. of Questions
Topic 1, Identify and Manage Drug Therapy Problems	145
Topic 2, Safe and Accurate Preparation, Compounding, Dispensing, and Administration of Medications and Provision of Health Care Products	40
Topic 3, Health Care Systems and Population Health	15
Total	200

QUESTION NO: 1

A 49-year-old male with HIV infection is receiving a regimen containing dolutegravir. He also takes an over-the-counter calcium carbonate supplement each morning.

Which of the following is the most appropriate counseling recommendation?

A. Separate dolutegravir from calcium carbonate administration

B. Take calcium carbonate with dolutegravir to increase absorption

C. Discontinue dolutegravir because it causes hypercalcemia

D. Double the dolutegravir dose whenever calcium is taken

E. Take calcium carbonate only at bedtime without changing dolutegravir timing

ANSWER: A

Explanation:

Separate dolutegravir from calcium carbonate is correct because polyvalent cations can chelate integrase strand transfer inhibitors in the gastrointestinal tract and reduce their absorption. Reduced dolutegravir concentrations may compromise virologic suppression and promote resistance. Dolutegravir may be taken 2 hours before or 6 hours after calcium-containing products when fasting. It may be taken together with calcium or iron if both are taken with food.

The interaction is due to impaired gastrointestinal absorption rather than renal elimination or increased metabolism. Similar precautions apply to magnesium-, aluminum-, and iron-containing products. See the DailyMed dolutegravir prescribing information and the NIH HIV clinical guidelines.

QUESTION NO: 2

Which of the following antidiabetic medication works by inhibiting carbohydrate breakdown?

A. Acarbose

B. Metformin

C. Dapagliflozin

D. Pioglitazone

E. Sitagliptin

ANSWER: A

Explanation:

Acarbose is correct because it is an alpha-glucosidase inhibitor that acts locally in the gastrointestinal tract. Alpha-glucosidase enzymes at the intestinal brush border normally break down complex carbohydrates and certain disaccharides into absorbable monosaccharides, principally glucose. By competitively and reversibly inhibiting these enzymes, acarbose slows carbohydrate digestion and delays glucose absorption after a meal. This reduces postprandial blood-glucose elevations rather than directly increasing insulin secretion or providing insulin itself. Because its principal action depends on carbohydrate exposure in the gut, acarbose is administered with the first bite of a meal containing carbohydrates. Its mechanism also explains why gastrointestinal effects such as flatulence, abdominal discomfort, and diarrhea can occur: more undigested carbohydrate reaches the lower intestine and is metabolized by colonic bacteria. The FDA prescribing information identifies acarbose as an alpha-glucosidase inhibitor and describes delayed digestion of ingested carbohydrates as its pharmacologic effect. This makes acarbose the antidiabetic medication in the list whose therapeutic action is inhibition of carbohydrate breakdown. See the DailyMed acarbose prescribing information and the NCBI overview of alpha-glucosidase inhibitors.

QUESTION NO: 3

JT is a 58-year-old women who is on vancomycin empirically for pyomyositis confirmed by MRI. Surgical debridement has successfully removed infected tissue and pus. C&S of the infected tissue comes back MSSA sensitive to everything on the panel. JT is allergic to PCN (rash), she has had cephalosporin for her UTI in the past with no problem.

What would be the most appropriate antibiotics to switch to while JT is still in the hospital?

A. Oxacillin

B. Doxycycline

C. Ceftaroline

D. Daptomycin

E. Cefazolin

ANSWER: E

Explanation:

Cefazolin is the most appropriate directed intravenous therapy for methicillin-susceptible *Staphylococcus aureus* pyomyositis after successful surgical source control. Once culture and susceptibility testing identify MSSA, treatment should be narrowed from empiric vancomycin to an antistaphylococcal beta-lactam. Cefazolin has reliable MSSA activity, is commonly used for serious MSSA soft-tissue and deep-muscle infections, and is suitable for inpatient parenteral treatment.

The reported penicillin reaction was a rash rather than a severe immediate or severe cutaneous reaction, and the patient has subsequently tolerated a cephalosporin. This history supports use of cefazolin, particularly because cefazolin has a distinct side-chain structure and a low likelihood of clinically significant cross-reactivity with penicillins. Culture-directed cefazolin therefore provides effective, narrower therapy consistent with antimicrobial stewardship while treating the confirmed pathogen. The IDSA pyomyositis guidance recommends cefazolin as a definitive option for MSSA infection after initial empiric treatment and drainage when indicated. See the IDSA Skin and Soft Tissue Infection guideline and the CDC resource on penicillin allergy assessment.

QUESTION NO: 4

If a patient is getting NS IVF at 120mls/hr, how much Sodium Chloride in grams is this patient getting in 24 hours? NS is 0.9% sodium chloride.

A. 25.92gm

B. 25.92kg

C. 25.92mg

D. 90mg

E. 90gm

ANSWER: A

Explanation:

25.92gm is correct. Normal saline (NS) labeled as 0.9% sodium chloride contains 0.9 g of sodium chloride per 100 mL of solution. This can also be expressed as 9 g/L, which is a convenient concentration for an infusion-volume calculation. First, calculate the total volume infused over 24 hours: 120 mL/hour × 24 hours = 2,880 mL. Converting this volume to liters gives 2.88 L. Next, multiply the volume by the sodium chloride concentration: 2.88 L × 9 g/L = 25.92 g of sodium chloride delivered during the 24-hour period. The same result follows directly from the percentage ratio: (0.9 g/100 mL) × 2,880 mL = 25.92 g. This calculation concerns the mass of sodium chloride, not the amount of elemental sodium or chloride ions, so the result should be reported in grams of NaCl. Standard labeling for 0.9% Sodium Chloride Injection identifies the solution as

containing 9 g sodium chloride per liter; see DailyMed. For additional medication-calculation practice relevant to pharmacy education, see NABP's NAPLEX information.

QUESTION NO: 5

Which of the following are non-pharmacological measure that may control symptoms of gastroesophageal reflux disease?

A. Remain upright after a meal

B. Increase fat intake to reduce gastric emptying time Reduce intake of food or beverage that may reduce

C. lower esophageal sphincter tone

D. Wear tight fitted cloths to increase intra-abdominal pressure.

E. Discontinue nicotine use in patients that uses tobacco product.

ANSWER: E

Explanation:

"Discontinue nicotine use in patients that uses tobacco product.

" is an appropriate nonpharmacological intervention for gastroesophageal reflux disease (GERD). Nicotine exposure from tobacco products can adversely affect the lower esophageal sphincter, the muscular barrier that normally limits movement of acidic stomach contents into the esophagus. Reducing this barrier's effectiveness makes reflux more likely and can worsen typical symptoms such as heartburn and regurgitation. Tobacco cessation therefore addresses a modifiable contributor to reflux rather than simply treating symptoms after they occur.

Smoking cessation is also clinically valuable because GERD management should include lifestyle interventions tailored to factors that provoke or perpetuate reflux. Counseling should be practical and patient-centered: assess tobacco and nicotine-product use, encourage complete cessation, provide behavioral support, and consider appropriate evidence-based cessation therapy when indicated. This intervention can be used alongside other lifestyle approaches and acid-suppressing pharmacotherapy when needed. The National Institute of Diabetes and Digestive and Kidney Diseases identifies quitting smoking as a lifestyle change that may improve GERD symptoms. See the NIDDK GERD diet and lifestyle guidance and the CDC tobacco-cessation resources.

QUESTION NO: 6

Pyridoxine is often used in pregnancy to manage which of the following conditions?

A. Hot flushes

B. Diarrhea

C. Nausea / vomiting

D. Mood disturbances

E. Insomnia

ANSWER: C

Explanation:

Pyridoxine (vitamin B6) is used during pregnancy to manage nausea and vomiting, commonly termed morning sickness. It is particularly important because nausea and vomiting are frequent in early pregnancy and can impair oral intake, hydration, daily functioning, and adherence to prenatal vitamins. Pyridoxine is recommended as a first-line pharmacologic treatment option, either alone or, when symptoms persist, in combination with doxylamine. The delayed-release combination of doxylamine succinate and pyridoxine hydrochloride is specifically approved in the United States for nausea and vomiting of

pregnancy in patients who have not responded adequately to conservative measures such as dietary changes. Pyridoxine's established use and favorable pregnancy safety experience make it a standard component of treatment for this condition. Management should also include assessment for dehydration, weight loss, or severe persistent symptoms that could indicate hyperemesis gravidarum and require more intensive care. The American College of Obstetricians and Gynecologists identifies vitamin B6, alone or combined with doxylamine, as a safe and effective approach for nausea and vomiting in pregnancy. See ACOG: Morning Sickness—Nausea and Vomiting of Pregnancy and FDA prescribing information for Diclegis.

QUESTION NO: 7

What is the mEq/ml (Milliequivalents) of 50% Magnesium Sulfate? (Molecular weight of MgSO4 is 120.4g/mol.)

A. 8.3mEq/ml

B. 4.11mEq/ml

C. 62mEq/ml

D. 50mEq/ml

E. 2.06mEq/ml

ANSWER: A

Explanation:

8.3mEq/ml is correct when using the molecular weight supplied in the question. A 50% weight/volume magnesium sulfate solution contains 50 g per 100 mL, which is equivalent to 0.5 g/mL. Magnesium sulfate has a molecular weight of 120.4 g/mol, so the concentration is 0.5 g/mL ÷ 120.4 g/mol = 0.00415 mol/mL, or 4.15 mmol/mL.

To convert mmol to mEq, the ionic valence must be included. Magnesium is divalent (Mg^{2+}), meaning each mmol of magnesium sulfate represents 2 mEq. Therefore, 4.15 mmol/mL × 2 mEq/mmol = 8.30 mEq/mL, rounded to 8.3 mEq/mL. The same result can be obtained by using the equivalent weight: 120.4 g/mol ÷ 2 = 60.2 g/Eq; then 0.5 g/mL ÷ 60.2 g/Eq × 1,000 mEq/Eq = 8.3 mEq/mL.

This calculation specifically follows the stated molecular weight for anhydrous $MgSO_4$. Magnesium sulfate's molecular and ionic information can be reviewed at PubChem: Magnesium sulfate. For the clinical definition and use of milliequivalents in medication calculations, see the Merck Manual overview of drug administration and kinetics.

QUESTION NO: 8

Which of the following is/are appropriate for pseudomonas skin/soft tissue infections?

A. Ertapenem

B. Cefepime

C. Ceftaroline

D. Cefazolin

E. Vancomycin

ANSWER: B

Explanation:

Cefepime is appropriate because it is an antipseudomonal fourth-generation cephalosporin with activity against susceptible *Pseudomonas aeruginosa*, a gram-negative pathogen that can cause serious skin and soft-tissue infection, particularly in patients with extensive wounds, burns, immunocompromise, or healthcare exposure. Cefepime's antibacterial activity results

from binding penicillin-binding proteins and inhibiting bacterial cell-wall synthesis. For a clinically significant pseudomonal skin or soft-tissue infection, treatment should be guided by culture and susceptibility results whenever possible, because resistance patterns can vary substantially by institution and patient history. The cefepime prescribing information includes *P. aeruginosa* among susceptible organisms and provides dosing information for moderate-to-severe infections; renal-dose adjustment is necessary when kidney function is reduced. In severe presentations, source control—including drainage or debridement when indicated—and assessment for deeper infection are essential parts of management. The selected agent specifically provides the needed gram-negative antipseudomonal coverage. See the FDA prescribing information for cefepime and the IDSA skin and soft-tissue infection guideline.

QUESTION NO: 9

Your patient is a 43-year-old male who is experiencing post-operative voiding difficulty after an elective inguinal hernia repair. His post void residual volume was 280 cc.

Which of the following medications is the most appropriate choice of therapy for this patient?

A. Bethanechol

B. Oxybutynin

C. Phenylephrine

D. Finasteride

E. Imipramine

ANSWER: A

Explanation:

Bethanechol is the appropriate medication for postoperative urinary retention characterized by incomplete bladder emptying after surgery. This patient's elevated post-void residual volume and difficulty voiding are consistent with impaired detrusor contraction and reduced micturition reflex that can occur after anesthesia, perioperative analgesics, and lower abdominal procedures. Bethanechol is a direct-acting muscarinic cholinergic agonist. Its parasympathomimetic activity stimulates muscarinic receptors in the urinary bladder, increasing detrusor-muscle tone and contraction to facilitate bladder emptying in nonobstructive urinary retention.

This use is specifically consistent with bethanechol's labeled role in acute postoperative and postpartum nonobstructive urinary retention. Before treatment, clinicians should assess for mechanical urinary obstruction and monitor the patient's ability to void; patients with clinically significant retention may also require prompt bladder decompression. In the medication-focused setting presented, however, bethanechol directly addresses the reduced detrusor activity responsible for the postoperative voiding difficulty. Further pharmacology and labeled indications are available from StatPearls: Bethanechol and postoperative urinary-retention management is reviewed in StatPearls: Postoperative Urinary Retention.

QUESTION NO: 10

A Physician orders amiodarone 1 mg/min for six hours, then 0.5 mg/min thereafter. The patient's weight is 156 lbs. The concentration of the IV bag comes as 1.8 mg per ml. Calculate the infusion rate in mL/hr.

A. 33.33mls/hr then /16.67mls/hr

B. 60mls/hr then 30mls/hr

C. 30mls/hr then 15mls/hr

D. 16.67mls/hr then 8.3mls/hr

E. 8.3mls/hr then 4.15mls/hr

ANSWER: A

Explanation:

The correct infusion rates are **33.33 mL/hr for 6 hours, then 16.67 mL/hr thereafter**. First, convert the initial prescribed dose from minutes to hours: 1 mg/min × 60 min/hr = 60 mg/hr. The IV solution contains 1.8 mg/mL, so divide the required hourly dose by the concentration: 60 mg/hr ÷ 1.8 mg/mL = 33.33 mL/hr. After the first 6 hours, the ordered dose is reduced to 0.5 mg/min. Converting this dose gives 0.5 mg/min × 60 min/hr = 30 mg/hr. Dividing by the same bag concentration gives 30 mg/hr ÷ 1.8 mg/mL = 16.67 mL/hr. The patient's weight is not needed because the order is expressed as an absolute dose in mg/min rather than a weight-based dose such as mg/kg/min. In clinical practice, the calculated pump settings should be rounded according to the institution's infusion-pump capabilities and medication-administration policy. This calculation follows the standard dimensional-analysis approach of converting the prescribed dose to mg/hr and then using the medication concentration to obtain mL/hr. See NCBI Bookshelf: Dosage Calculations and DailyMed: Amiodarone Hydrochloride Injection.

QUESTION NO: 11

A 7-year-old boy has been suffering from influenza and had been given a drug by his father to decrease his high fever. A few hours later, his father brought him to the emergency room in a comatose state with a papulovesicular rash all over the body, moderate hepatomegaly, and asterixis. Laboratory studies reveal elevated levels of blood ammonia, AST, ALT, and PT. CT scan findings are suggestive for generalized cerebral edema.

The drug the father gave his son is most likely which of the following drugs?

A. Aspirin

B. Acetaminophen

C. Indomethacin

D. Mefenamic acid

E. Diclofenac

ANSWER: A

Explanation:

Aspirin is the most likely drug. This presentation is characteristic of Reye syndrome, a rare but life-threatening acute encephalopathy with hepatic dysfunction that can occur in children recovering from certain viral illnesses, especially influenza or varicella, after exposure to salicylates. The rapid progression to altered consciousness or coma, cerebral edema, hepatomegaly, hyperammonemia, elevated aminotransferases, and prolonged prothrombin time reflects severe mitochondrial dysfunction and impaired hepatic metabolic function. Asterixis is also consistent with metabolic encephalopathy from hepatic failure and elevated ammonia. The papulovesicular rash may reflect a concurrent or recent viral exanthem, but the key medication association in a child with influenza-like illness and this hepatic-neurologic syndrome is aspirin. Because of this recognized association, aspirin and other salicylate-containing products should not be used to treat fever or viral symptoms in children and adolescents unless specifically directed by an appropriate clinician. The U.S. Food and Drug Administration warns against aspirin use in children and teenagers with chickenpox or flu symptoms because of the risk of Reye syndrome. The American Academy of Pediatrics likewise advises avoiding aspirin for fever and viral illnesses in this population. See the FDA information on aspirin and Reye syndrome and the American Academy of Pediatrics overview of Reye syndrome.

QUESTION NO: 12

LN is 84 YOM who is in hospital for a back surgery. His height is 5 feet and 4 inches, weight 85 kg and NKDA. His past medical history includes hypertension, diabetes mellitus, major depression, hypothyroidism and chronic back pain.

Post-op day 1, LN's medication includes Dexamethasone 8 mg iv q6h with taper dosing, Ondansetron 4 mg iv q6h prn for N/V, Levothyroxine 0.075 mg po daily, Lisinopril 10 mg po daily, Citalopram 20 mg po daily, Docusate sodium / Senna 1 tab po twice a day, Bisacodyl 10 mg suppository daily prn for constipation, Famotidine 20 mg iv q12hr, Metoclopramide 10 mg iv q6h, Metformin 500 mg po bid, D51/2NS with 20 K at 125 mls/hour and Hydromorphone PCA at 0.2 mg/hour of basal rate, demand dose 0.1 mg. lock-out every 6 min, one hour limit 2.2 mg/hour. Pertinent morning labs includes serum creatinine 1.4 mg/dl, Mg 1.5 mg/dl, K 5.0 mmol/L, Na 135 mmol/L.

Which of the following medication may cause tardive dyskinesia when given at a higher dose and for a long duration?

A. Lisinopril

B. Dexamethasone

C. Famotidine

D. Metoclopramide

E. Hydromorphone

ANSWER: D

Explanation:

Metoclopramide is correct because it is a dopamine-receptor antagonist that can produce extrapyramidal adverse effects, including tardive dyskinesia. Tardive dyskinesia is characterized by potentially persistent, involuntary, repetitive movements, commonly affecting the face, tongue, and extremities. The risk rises with longer treatment duration and greater cumulative exposure. Older adults, particularly older women, and patients with diabetes are among groups with increased risk; this patient's advanced age and diabetes make avoidance of unnecessary prolonged exposure especially important. Metoclopramide carries an FDA boxed warning stating that treatment longer than 12 weeks should generally be avoided except in rare situations where the anticipated benefit outweighs the risk. If manifestations of tardive dyskinesia occur, metoclopramide should be stopped promptly. Although symptoms may lessen or resolve in some individuals after discontinuation, the condition can be irreversible. In the postoperative setting, metoclopramide may be used for nausea, vomiting, or impaired gastrointestinal motility, but its ongoing need should be reassessed and the shortest effective duration used. See the FDA prescribing information for metoclopramide and the NCBI StatPearls review of metoclopramide.

QUESTION NO: 13

A patient with acute pharyngitis caused by group A Streptococcus (strep throat) is allergic to penicillins (non-immediate type), which of the following is NOT recommended as treatment?

A. Clindamycin

B. Amoxicillin

C. Cefalexin

D. Clarithromycin

ANSWER: B

Explanation:

Amoxicillin is the treatment that is not recommended for a patient reported to have a penicillin allergy. Amoxicillin is an aminopenicillin, so it belongs to the penicillin class implicated by the allergy history. Although a non-immediate reaction generally carries less risk of severe, immunoglobulin E-mediated hypersensitivity than an immediate reaction, standard acute management should avoid administering the implicated penicillin-class drug unless the allergy has been formally evaluated and removed from the patient record. For confirmed group A streptococcal pharyngitis, antibiotic therapy is used to eradicate the organism, reduce transmission, and prevent acute rheumatic fever. The Centers for Disease Control and Prevention identifies penicillin or amoxicillin as preferred therapy when no penicillin allergy is present, while providing non-penicillin regimens for patients with allergy histories. Therefore, given the stated penicillin allergy and the request for the treatment that should not be used, amoxicillin is the appropriate selection. See the CDC clinical guidance for group A streptococcal pharyngitis and the Infectious Diseases Society of America guideline resource.

QUESTION NO: 14

Which of the following would be most appropriate to treat infections associated with stenotrophomonas maltophilia?

A. Meropenem

B. Vancomycin

C. Ciprofloxacin

D. Sulfamethoxazole/trimethoprim

E. Ampicillin

ANSWER: D

Explanation:

Sulfamethoxazole/trimethoprim is the most appropriate selection because it has long been a key active agent for *Stenotrophomonas maltophilia*, a nonfermenting gram-negative organism with intrinsic resistance mechanisms that limit many common antibacterial choices. Trimethoprim-sulfamethoxazole achieves clinically useful systemic concentrations and is commonly used when the isolate is susceptible, with dosing tailored to infection severity, renal function, and toxicity risk. Clinicians should obtain susceptibility testing and assess whether the organism represents true infection rather than colonization, particularly when it is isolated from respiratory specimens. For moderate to severe infection, contemporary guidance increasingly supports use of combination therapy with two active agents initially, owing to limited clinical data and concern for resistance or inadequate activity with a single agent in severe disease. Nevertheless, among the listed treatments, sulfamethoxazole/trimethoprim is the established and most appropriate therapy. The Infectious Diseases Society of America provides detailed recommendations for managing infections caused by *S. maltophilia* in its guidance on antimicrobial-resistant gram-negative infections. Additional organism and susceptibility context is available through the CDC antimicrobial-resistance laboratory resources.

QUESTION NO: 15

LN is 84 YOM who is in hospital for a back surgery. His height is 5 feet and 4 inches, weight 85 kg and NKDA.

His past medical history includes hypertension, diabetes mellitus, major depression, hypothyroidism and chronic back pain. Post-op day 1, LN's medication includes Dexamethasone 8mg iv q6h with taper dosing, Ondansetron 4 mg iv q6h prn for N/V, Levothyroxine 0.075 mg po daily, Lisinopril 10 mg po daily, Citalopram 20 mg po daily, Docusate sodium / Senna 1 tab po twice a day, Bisacodyl 10 mg suppository daily prn for constipation, Famotidine 20 mg iv q12hr, Metoclopramide 10mg iv q6h, Metformin 500 mg po bid, D51/2NS with 20K at 125 mls/hour and Hydromorphone PCA at 0.2mg/hour of basal rate, demand dose 0.1 mg. lock-out every 6min, one hour limit 2.2 mg/hour. Pertinent morning labs includes serum creatinine 1.4 mg/dl, Mg 1.5 mg/dl, K 5.0 mmol/L, Na 135 mmol/L.

Which of the following medication/s should LN be on to prevent the most common side effect of hydromorphone?

A. Ondansetron for N/V

B. Dexamethasone for N/V

C. Insulin Sliding scale for hyperglycemia

D. Docusate sodium / Senna for Constipation

E. Docusate sodium / Senna for Constipation and ondansetron for N/V

ANSWER: E

Explanation:

Docusate sodium / Senna for Constipation and ondansetron for N/V is correct because hydromorphone, like other opioid agonists, commonly causes both gastrointestinal hypomotility leading to constipation and activation of pathways associated with nausea and vomiting. Opioid-related constipation is especially important to address proactively in an older postoperative patient receiving a continuous basal PCA infusion, since it can develop early and persist while opioid therapy continues. A bowel regimen containing senna provides stimulant-laxative activity to counter reduced intestinal motility; docusate is commonly co-prescribed as a stool-softening component. Ondansetron is appropriate as needed to prevent or treat postoperative opioid-associated nausea and vomiting, helping the patient tolerate analgesia and oral medications. The hydromorphone prescribing information identifies constipation, nausea, and vomiting among commonly reported adverse reactions, supporting preventive management of these predictable effects. This combined regimen addresses the clinically

relevant common gastrointestinal adverse effects anticipated during postoperative hydromorphone use. See the DailyMed hydromorphone label and the CDC guidance on managing common opioid adverse effects.

QUESTION NO: 16

A physician needs your help to calculate the protamine dose on a patient who started hemorrhaging while on heparin. Patient has been receiving heparin at a dose of 13mls/hr for 2 hrs when the physician decides to use protamine to reverse the heparin. Heparin bag says concentration of 50 units/ml. The half-life of heparin is 60 minutes. 1 mg of protamine reverses 100 units of heparin.

How much protamine should be given to this patient?

A. 5mg

B. 10mg

C. 7mg

D. 13mg

E. 9.7mg

ANSWER: E

Explanation:

9.7mg is correct because the infusion delivers 13 mL/hour × 50 units/mL, or 650 units of heparin per hour. At the time reversal is initiated, the 650 units administered during the most recent hour are treated as the current amount requiring neutralization. The 650 units infused during the preceding hour have undergone one 60-minute half-life, so only half of that amount remains active: 325 units. The estimated active heparin burden is therefore 650 + 325 = 975 units. Using the stated neutralization ratio of 1 mg of protamine per 100 units of heparin, the required dose is 975 units ÷ 100 units/mg = 9.75 mg, reported as 9.7 mg. This calculation applies the clinical principle that protamine dosing should account for both the amount of heparin given and the time elapsed, because circulating heparin declines over time. Protamine sulfate labeling likewise directs clinicians to adjust the dose based on the amount of heparin administered and elapsed time, while administering protamine cautiously and slowly because excessive doses can themselves have anticoagulant effects. See Pfizer Medical Information: Protamine Sulfate dosage and administration and StatPearls: Heparin.

QUESTION NO: 17

LN is 84 YOM who is in hospital for a back surgery. His height is 5 feet and 4 inches, weight 85 kg and NKDA.

His past medical history includes hypertension, diabetes mellitus, major depression, hypothyroidism and chronic back pain. Post-op day 1, LN's medication includes Dexamethasone 8 mg iv q6h with taper dosing, Ondansetron 4mg iv q6h prn for N/V, Levothyroxine 0.075 mg po daily, Lisinopril 10mg po daily, Citalopram 20mg po daily, Docusate sodium / Senna 1 tab po twice a day, Bisacodyl 10mg suppository daily prn for constipation, Famotidine 20mg iv q12hr, Metoclopramide 10mg iv q6h, Metformin 500mg po bid, D51/2NS with 20K at 125mls/hour and Hydromorphone PCA at 0.2mg/hour of basal rate, demand dose 0.1mg. lock-out every 6min, one hour limit 2.2mg/hour. Pertinent morning labs includes serum creatinine 1.4mg/dl, Mg 1.5mg/dl, K 5.0mmol/L, Na 135 mmol/L.

Which of the following medication may cause psychotic episode such as emotional lability, hallucinations, mania, mood swings and schizophrenic reasons?

A. Lisinopril

B. Dexamethasone

C. Famotidine

D. Metoclopramide

E. Hydromorphone

ANSWER: B

Explanation:

Dexamethasone is correct because systemic corticosteroids can cause clinically significant neuropsychiatric effects, including mood changes, emotional lability, insomnia, mania, depression, delirium, hallucinations, and psychosis. These reactions may arise early in therapy, including after only a few doses, and their occurrence is more likely with higher systemic doses. This patient is receiving dexamethasone 8 mg intravenously every 6 hours, a substantial total daily corticosteroid dose in the immediate postoperative period. His history of major depression also warrants close monitoring for a change in mood, behavior, thought processes, sleep, or perception while corticosteroid therapy is given. If concerning psychiatric symptoms occur, the care team should promptly assess for medication-related toxicity and other acute contributors, such as postoperative delirium or metabolic abnormalities, while considering whether the corticosteroid dose can be reduced or discontinued safely. The FDA-approved dexamethasone labeling specifically reports psychic disturbances, ranging from euphoria and insomnia to severe depression and frank psychotic manifestations, and notes that pre-existing emotional instability may be aggravated. See the DailyMed dexamethasone drug information and the NCBI StatPearls review of corticosteroid adverse effects.

QUESTION NO: 18

What is the Osmolarity in mOsm/L of 40mEq of KCl in 100ml sterile water? (Molecular weight of KCl is 74.5gm/mol.)?

A. 400mOsm/L

B. 800mOsm/L

C. 80mOsm/L

D. 200mOsm/L

E. 1600mOsm/L

ANSWER: B

Explanation:

800mOsm/L is correct. Potassium chloride contains monovalent potassium and chloride ions, so 40 mEq of KCl equals 40 mmol of KCl. The specified volume is 100 mL, or 0.1 L. Therefore, the concentration is 40 mmol ÷ 0.1 L = 400 mmol/L.

For osmolarity calculations, KCl is treated as dissociating into two osmotically active particles in solution: one potassium ion and one chloride ion. Multiplying 400 mmol/L by two particles per formula unit gives 800 milliosmoles per liter. Thus, the osmolarity is 800 mOsm/L.

The supplied molecular weight produces the same result if a mass-based method is used: 40 mEq corresponds to 40 mmol, which is 2.98 g of KCl. In 100 mL this is 29.8 g/L; converting grams to moles and then accounting for dissociation into two ions yields 0.8 Osm/L, or 800 mOsm/L. This uses the conventional ideal-dissociation approximation used in pharmacy calculations. See the NCBI overview of osmolality and osmolarity and the PubChem record for potassium chloride.

QUESTION NO: 19

After talking to the patient you find out LT has been incompliant with her three times a day Valproic acid, level came back at 35 mmol/L.

What is the most appropriate course of action?

A. Notify the physician to decrease the dose of Valproic acid.

B. Notify the physician to increse the dose of Valproic acid.

C. Albumin needs to be obtained to calculate corrected Valproic acid level

D. Valproic acid level is within normal limit, no adjustment is needed.

E. Notify the physician to change to a less-frequently dosed divalproex formulation to improve adherence.

ANSWER: E

Explanation:

Changing the patient from three-times-daily valproic acid to a less-frequently administered divalproex formulation is most appropriate because the identified reason for the low concentration is nonadherence to a burdensome dosing schedule. Divalproex sodium contains valproate species and produces the same active valproate exposure; its delayed-release formulation can generally be administered in fewer daily doses than immediate-release valproic acid. Reducing dosing frequency directly addresses the practical barrier uncovered during the patient interview and can improve the likelihood of consistent administration. The reported level of 35 is below the usual total valproate therapeutic range commonly targeted for many indications (often 50–100 mcg/mL, with indication-specific clinical interpretation), but a dose escalation should not be based on a concentration obtained while doses are being missed. Instead, the prescriber should select an appropriate equivalent regimen, provide adherence counseling, and reassess clinical response and a properly timed concentration after the new regimen has reached steady state. Product-specific conversion and monitoring are important because valproate formulations have different absorption characteristics. The FDA prescribing information discusses divalproex delayed-release dosing and monitoring: FDA Depakote prescribing information. Additional clinical pharmacology information is available from NCBI StatPearls: Valproic Acid.

QUESTION NO: 20

A 63-year-old male with type 2 diabetes mellitus takes metformin 1,000 mg twice daily. His hemoglobin A1c remains 8.4% despite adherence to therapy. He has established atherosclerotic cardiovascular disease following a myocardial infarction 2 years ago. His eGFR is 72 mL/min/1.73 m^2.

Which of the following medications is most appropriate to add to reduce his risk of major cardiovascular events?

A. Empagliflozin

B. Glipizide

C. Insulin glargine

D. Saxagliptin

E. Acarbose

ANSWER: A

Explanation:

Empagliflozin is the most appropriate addition because it is a sodium-glucose cotransporter 2 inhibitor with demonstrated cardiovascular benefit in patients with type 2 diabetes mellitus and established atherosclerotic cardiovascular disease. In addition to lowering glucose, empagliflozin reduces the risk of cardiovascular death and heart-failure hospitalization in appropriate patients. His renal function is adequate for use of this medication.

Glipizide and basal insulin can lower hemoglobin A1c but do not provide the same established cardiovascular benefit and may increase hypoglycemia risk. Saxagliptin has not demonstrated cardiovascular risk reduction and has been associated with increased heart-failure hospitalization in some patients. See the American Diabetes Association Standards of Care and the DailyMed empagliflozin prescribing information.