

# USMLE-STEP-3<sup>Q&As</sup>

United States Medical Licensing Step 3

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**QUESTION 1**

A 23-year-old woman presents to your acute care clinic with a complaint of fever, sore throat, and malaise of sudden onset. Her prior medical history is significant for schizophrenia. Her vitals signs are: BP 116/80, HR 112, RR 26, Temp 100.6 degrees Fahrenheit. On physical examination, her oral cavity features painful aphthous ulcers as well as swollen gums. Initial laboratory testing includes a CBC which returns with the following results:

- Leukocyte count 800/mm<sup>3</sup>
- Hgb 12.1 g/dL
- HCT 37.0%
- Platelet count 212 × 10<sup>9</sup>/L
- Differential:
  - Neutrophils, segmented 52%
  - Neutrophils, bands 3%
  - Lymphocytes 35%
  - Monocytes 7%
  - Eosinophils 3%
  - Basophils 0%

Which of the following best describes the expected course of the patient's condition?

- A. The condition is usually self-limiting and requires no intervention.
- B. Use of G-CSF has been shown to speed recovery.
- C. Dose reduction of the offending agent often leads to resolution of symptoms.
- D. If discovered earlier, discontinuation of the offending agent would have prevented progression of the condition to its current severity.
- E. Tardive dyskinesia usually develops as a late finding.

Correct Answer: B Section: (none)

Explanation:

This patient's presentation is consistent with agranulocytosis, which is defined by an absolute neutrophil count (ANC) of fewer than 500/mm<sup>3</sup>. ANC is defined as the percentage of the WBC count that is accounted for by segmented

neutrophils and bands. In the case of this patient, the ANC is 55% of the WBC count or 440/mm<sup>3</sup>. Individuals with agranulocytosis commonly experience a sudden onset of malaise, fever, chills, and pharyngitis. They may also develop painful aphthous ulcers affecting the oropharyngeal mucosa. Suppression of the bone marrow, including agranulocytosis, is associated with the use of clozapine. The incidence approaches 1% within several months of treatment, independent of dose. Patients on clozapine should be monitored closely with weekly measurement of the CBC. Mild leukocytosis and other blood dyscrasias occur much less frequently with other antipsychotic drugs. Usually, there is a prodrome of several weeks duration in which the WBC count gradually declines. Decreasing the dose or discontinuing the offending agent does not always prevent progression to full blown agranulocytosis. Patients with drug-induced neutropenia recover more quickly with the assistance of granulocyte colony-stimulating factor (G-CSF). Additionally, individuals suffering from agranulocytosis frequently develop infections which require the use of antibiotic therapy. In these cases, further supportive and symptomatic care may be necessary depending on the severity of infection. Delaying or withholding intervention is inappropriate. Tardive dyskinesia is an adverse effect related to use of antipsychotic medications; it is not inherently related to agranulocytosis.

## QUESTION 2

A 14-year-old boy is brought to the emergency department for evaluation of fever and headache. The mother relates that her son has had a worsening headache for 56 days. She says that she took him to a walk-in clinic, and he was put on amoxicillin for a sinus infection. His headaches have been getting worse and that he is now having fevers as high as 103.6°F. The mother says that he normally is very active and that he currently has a summer job at a local park clearing out underbrush. Since he has become ill, he has had such a decrease in energy that he cannot go to work. He has had a decrease in his appetite and has been sleeping more. He denies any sore throat, abdominal pain, chest pain, dysuria, vomiting, or diarrhea. On examination, he is an uncomfortable young man whose vital signs are: temp 101.9°F, RR 26, HR 124, and BP 79/56. Head, ear, eye, nose, and throat examination reveals normal TMs, a mildly erythematous hypopharynx, and some shotty cervical lymphadenopathy. His lungs are clear. His cardiac examination is normal. His liver edge is palpable just below the right costal margin and is mildly tender. His spleen is not palpable. His skin examination is normal with the exception of scattered petechiae around his ankles and wrists. A CBC reveals WBC 13,000 with 65% segs and 22% lymphs, hematocrit of 35, and platelet count of 95,000. His electrolytes reveal a Na 125, K 5.1, Cl 102, and bicarbonate 21. His BUN and Cr are normal.

What additional testing would be warranted at this point?

- A. serum rickettsial titers
- B. ESR
- C. C-reactive protein (CRP)
- D. enteroviral polymerase chain reaction (PCR) on cerebrospinal fluid (CSF)
- E. head CT without contrast

Correct Answer: A Section: (none)

Explanation:

Typical symptoms include a summertime fever, headache, petechial rash, thrombocytopenia, and hyponatremia. This may be mistaken for a systemic enteroviral infection, or enteroviral encephalitis, but the presence of thrombocytopenia and hyponatremia would exclude this diagnosis. Still disease (systemic onset JRA) would have an elevation of acute-phase reactants, including the WBC and platelet count. Fourteen years old is an unlikely age for Kawasaki disease, and the acute phase reactants would likewise also be elevated.

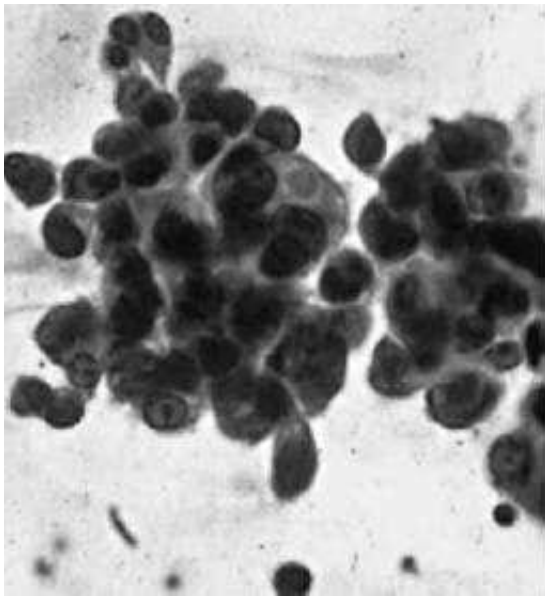
RMSF is a very serious infectious illness. Appropriate antimicrobial therapy, usually doxycycline, needs to be started as

soon as the diagnosis is seriously considered, as this can prevent some of the more severe sequelae. The use of systemic corticosteroids has no place in the management of RMSF. Confirmation of RMSF is serologic. Rising IgG titers or the presence of IgM titers to *R. rickettsii* is a confirmation of RMSF

### QUESTION 3

A 42-year-old woman who previously underwent a vaginal hysterectomy for persistent cervical dysplasia presents to your office for vaginal cytology. Her vaginal cytology is shown in Figure.

Which of the following is the most appropriate next step in management?



- A. repeat vaginal cytology in 6 months
- B. observation
- C. random vaginal biopsies
- D. intravaginal estrogen cream followed by repeat cytology
- E. colposcopic examination of the vaginal canal

Correct Answer: E Section: (none)

Explanation: VAIN is frequently found in women who have a history of cervical dysplasia. Although the etiology of VAIN has not been thoroughly elucidated, like cervical intraepithelial neoplasia (CIN), it is thought that HPV is the carcinogenic agent. Thus, when vaginal cytology is abnormal, the evaluation is very similar to that of an abnormal pap smear. It is important to assess the histologic severity and the extent of the lesion. To do this, the next step in management is a thorough colposcopic evaluation of the entire vaginal canal, especially because many patients will have multifocal disease.

During colposcopy the application of acetic acid (4%) is useful. The speculum should be fully inserted to visualize the upper vagina and then slowly removed while rotating the speculum, being careful to view the entire vaginal mucosal surface. Most vaginal lesions are not grossly visible. However, a raised white epithelium may occasionally be seen. If a

lesion is visible, then directed biopsy of the lesion is indicated to confirm the diagnosis. The image provided shows HGSIL. In the presence of high-grade vaginal cytology, repeat cytology in 6 months, and observation are not viable management options given the concern for carcinoma in situ or for invasive carcinoma of the vagina. Random vaginal biopsies are also not likely to be helpful since they will most likely miss the involved area and lead to a false negative result. Intravaginal estrogen cream is reserved for postmenopausal women with vaginal atrophy and low-grade VAIN without evidence of invasion. Estrogen is not a treatment for VAIN 3, or high-grade VAIN.

**QUESTION 4**

A 53-year-old Black male, with a history of hypertension, hepatitis C, and newly diagnosed nonsmall cell lung cancer, undergoes his first round of chemotherapy, which includes cisplatin. You are called to see this patient 5 days into his hospitalization for oliguria and laboratory abnormalities. Other than the chemotherapy, he is receiving lansoprazole, acetaminophen, and an infusion of D5--0.9% normal saline at 50 mL/h. On examination, his BP is 98/60 and heart rate is irregular, between 40 and 50 bpm. His physical examination shows a middle-aged male in no acute distress. His cardiac examination is unremarkable, his lungs show bibasilar crackles, and the abdominal examination is positive for a palpable spleen tip without any hepatomegaly or abdominal tenderness. He has trace bilateral ankle edema. His distal pulses are irregular. The neurologic examination was unremarkable. His laboratory (serum sample) results are as follows What is the mechanism that best explains this patient's hyperkalemia?

	Day 1	Day 5	
Sodium	135	145	
Potassium	4.4	6.8	
Chloride		100	108
CO2	24	20	
BUN	15	35	
Creatinine	1.5	3.4	
Glucose	118	152	
Uric acid		6.5	15.3
Phosphate	4.4	8.3	
Calcium	9.0	7.5	
Uric acid		6.5	15.3
Lactate	285	994	
dehydrogenase (LDH)			

- A. DKA
- B. acute kidney failure leading to an inability to excrete potassium in the urine
- C. release of potassium from the destruction of neoplastic cells
- D. chemotherapy-induced hyperkalemia
- E. type 4 renal tubular acidosis

Correct Answer: C Section: (none)

Explanation:

The patient has tumor lysis syndrome. The destruction of malignant cells by chemotherapeutic agents will lead to the release of intracellular contents, including potassium, phosphorus, and uric acid (from nucleic acids). This can result in hyperkalemia, hyperuricemia, and hyperphosphatemia. Hyperkalemia will produce significant ECG abnormalities, including peaked T waves and widened QRS complexes. The presence of bradycardia and irregular heart rate on physical examination are suggestive of the cardiac effects of hyperkalemia, which can lead to lifethreatening arrhythmias if not addressed. Patients with tumor lysis syndrome can develop a severe hyperuricemia. The kidneys are responsible for the excretion of uric acid. In acidic urine, the uric acid can crystallize in collecting tubules, resulting in intratubular obstruction and acute kidney failure. Calcium oxalate stones are not a part of this entity. Cisplatin can cause renal potassium and magnesium losses, which is not the case in this patient. The laboratory data suggest the release of intracellular contents (high LDH, uric acid, potassium, and phosphate) and the diagnosis of urate nephropathy as the cause of his acute kidney failure. As mentioned before, hyperkalemia will produce significant ECG abnormalities, including peaked T waves and widened QRS complexes. Prominent U waves are found in hypokalemia, not hyperkalemia. Atrial fibrillation is not typically seen in hyperkalemia

### QUESTION 5

A 34-year-old female sex worker presents with a several week history of fatigue, malaise, fever, and a 10lb weight loss. Over the last 2 weeks, the patient noted a rash on her face, torso, arms, legs, palms, and soles. The patient is HIV negative on a test 2 months ago, has had hepatitis B, gonorrhea, and chlamydia. The patient has an oral temperature of 100.6°F, and generalized lymphadenopathy. The patient does not have any lesions in the mucous membranes.



What is the appropriate treatment?

- A. benzathine penicillin 2.4 million units IM weekly for 3 weeks
- B. azithromycin 1 g orally
- C. aqueous penicillin 4 million units intravenously every 4 hours for 14 days
- D. doxycycline 100 mg twice a day for 2 weeks
- E. oral corticosteroids over 5 days

Correct Answer: A Section: (none)

Explanation:



The skin lesions as shown in Figures show erythematous maculopapular lesions. There are only a few conditions that cause a rash on the palms and soles. These include syphilis, gonorrhea, and Stevens-Johnson syndrome. Disseminated gonorrhea does not cause lesions on the face. This is not a potential presentation of hepatitis B or chlamydia. Askin biopsy is not indicated. RPR and MHA-TP tests will be positive in syphilis in a high titer. All patients with syphilis need to have HIV testing. The rash of primary HIV infection is a faint erythematous rash on the trunk and is not always present. Early in primary HIV infection, a PCR determination can be negative. In the absence of neurosyphilis, benzthine penicillin 2.4 million units IM weekly for 3 weeks is the treatment of choice for patients with syphilis of unknown duration or greater than a year. While azithromycin 1 g orally will treat gonorrhea and chlamydia, it will not treat syphilis. Aqueous penicillin 4 million units intravenously every 4 hours for 14 days is the treatment of choice for neurosyphilis. An alternate treatment for latent syphilis in patients who are penicillin allergic is doxycycline 100 mg twice daily for 30 days. Oral corticosteroids are not indicated in this case.

### QUESTION 6

A 22-year-old female (G3P0020) presents to your office for an initial obstetric visit in her third pregnancy. She reports a sure LMP date approximately 6 weeks ago, with a history of regular cycles. Her two previous pregnancies ended in spontaneous abortions. She denies any significant medical or surgical history. She denies use of alcohol, tobacco, or illicit drugs, though she does report a history of IV drug use as a teenager. She is a full-time student. She reports that twins run in her family, but she does not have any family history of diabetes, hypertension, or congenital anomalies. On review of her prenatal labs that have already been drawn, you find that her human immunodeficiency virus (HIV) antibody test (enzyme-linked immunosorbent assay [ELISA]) is positive. Her test results are otherwise normal. Which of the following indicates how you counsel the patient?

- A. This result is a false positive due to pregnancy, and she does not need any further testing.
- B. She is infected with HIV and will need to begin treatment right away.
- C. She will require an additional, confirmatory test to determine whether or not she has HIV.
- D. She may have HIV, but she should wait until after she delivers her baby to have further testing.
- E. Because it has been years since she participated in high-risk behaviors, she is unlikely to have HIV.

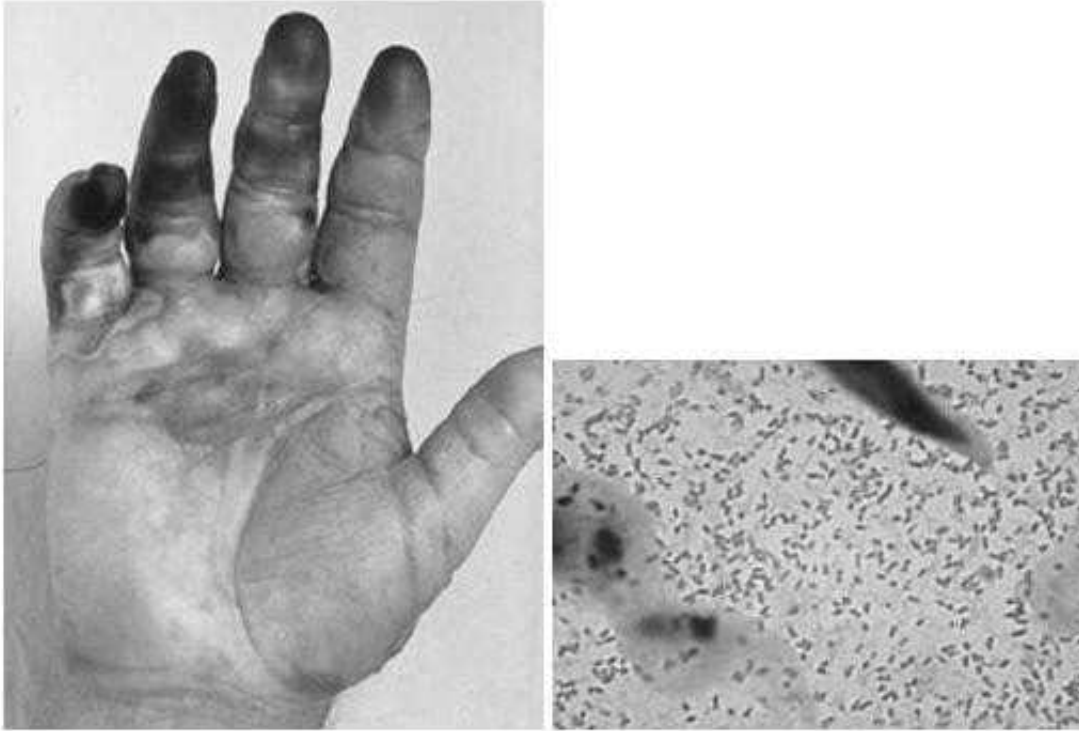
Correct Answer: C Section: (none)

#### Explanation:

Screening for HIV should be offered to all pregnant women as part of routine prenatal care. Screening for HIV infection is done using an enzyme immunoassay (EIA). If the screening test is positive, it may be repeated. Once the screening test is determined to be positive, a Western blot assay or immunofluorescent antibody assay (IFA) is done as a confirmatory test. If the confirmatory test is positive, the patient is then considered to be infected with HIV. Pregnant patients should be treated for HIV by the same standards as any other adult with HIV, though some consideration is given to selection of antiretroviral medications that are safest in pregnancy. Appropriate HIV-related care should not be deferred because of pregnancy. For patients with significant HIV disease, the combination of elective scheduled cesarean and antiretroviral therapy has been shown to be more effective than antiretrovirals alone at reducing perinatal transmission of HIV. In the absence of any therapy, the risk of vertical transmission is estimated at 25%. With zidovudine therapy, the risk is decreased to approximately 58%. When zidovudine is given in combination with elective cesarean for appropriate patients, the risk is decreased to approximately 2%. In a recent meta-analysis, perinatal transmission occurred in only 1% of treated women with RNA viral loads less than 1000 copies/mL. Given the low risk of transmission in this group, it is unclear whether cesarean delivery would provide additional benefit. After reviewing this data, the American College of Obstetricians and Gynecologists Committee on Obstetric Practice has issued a Committee Opinion concerning route of delivery, recommending consideration of scheduled cesarean delivery for HIV-1-infected pregnant women with HIV1 RNA levels >1000 copies/mL near the time of delivery.

**QUESTION 7**

A 53-year-old fisherman develops pain and swelling of the right hand 8 hours after suffering a fish hook injury to the finger. On physical examination, the patient's temperature is 102.8°F and the patient appears septic. The patient's hand and a Gram stain of material aspirated from a bulla are shown in Figures below.



After appropriate wound care and debridement of necrotic tissue as necessary, which antibiotics should be started in this patient?

- A. levofloxacin
- B. vancomycin
- C. doxycycline and ceftazidime
- D. nafcillin and gentamicin
- E. trimethoprim-sulfamethoxazole(TMP-SMZ)

Correct Answer: C Section: (none)

Explanation:

*V. vulnificus* is associated with sepsis in patients with liver disease who eat raw oysters or those with salt water contamination of wounds, like those caused by fish hooks. *P. multocida* is a cause of cellulitis caused by exposure to cat saliva as a result of a bite or a clawing injury. *E. corrodens* is associated with cellulitis caused by a human bite. Staphylococcus and Streptococcus are the most common causes of cellulitis. The Gram stain shows gram-negative, comma-shaped organisms typical for vibrios. Close attention should be paid to the wound site in the setting of a V.



vulnificus infection. The wound site must be thoroughly cleaned and any necrotic tissue debrided. If necessary, fasciotomy or limb amputation should be performed. Antibiotic therapy should begin immediately as well. Use of a combination of doxycycline and a third-generation cephalosporin such as ceftazidime is considered first-line. Quinolones may be considered as alternative therapy in the case of drug allergy or contraindication. A combination regimen using TMP-SMZ and an aminoglycoside is indicated for treatment in children since doxycycline and quinolones are contraindicated.

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**QUESTION 8**

Use of which medication can result in enamel staining of primary teeth?

- A. erythromycin
- B. ciprofloxacin (Cipro)
- C. cephalexin
- D. trimethoprim/sulfamethoxazole (Septra)
- E. tetracycline

Correct Answer: E Section: (none)

Explanation:

Gray or brown teeth staining can be seen with the use of tetracycline in children who still have their primary teeth. Tetracyclines are usually safe as a single course in normal doses in younger children. The use of tetracyclines in children is typically safe after 8 years of age. Teeth staining can also be seen in the children of women who took tetracycline while pregnant.

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**QUESTION 9**

You see a 3 1/2-year-old child in the emergency department who has had fever for the past week. The parents relate that their son has some swollen glands, fever, and now seems to be getting a rash on his arms. On examination, you find an uncomfortable appearing young boy whose vital signs are normal with the exception of a temperature of 104°F. You note that he has a red posterior oropharynx with dry, cracked lips. His TMs are normal. He has mild conjunctival injection bilaterally without any discharge. His chest is clear, and his heart sounds are normal. He does not have any hepatosplenomegaly. He has a lacy, confluent macular rash on his chest and upper arms, with mild peeling of the tips of his fingers.

What is the most likely diagnosis?

- A. group A beta-hemolytic streptococcal pharyngitis
- B. hand-foot-mouth disease (Coxsackie viral infection)
- C. Kawasaki disease
- D. ITP
- E. erythema infectiosum (parvovirus B-19 infection)

Correct Answer: C Section: (none)

Explanation: Kawasaki disease (mucocutaneous lymph node syndrome) is a disease of unclear etiology. The salient diagnostic features include fever for greater than 5 days, cervical lymph node greater than 1 cm, nonpurulent conjunctivitis, oral changes (cracking lips or "strawberry tongue"), polymorphous rash to the trunk, and changes to the hands and feet (peeling of the fingers or toes or edema of the hands or feet). This may be confused with group A beta-hemolytic streptococcal pharyngitis, which usually is not associated with conjunctivitis. Coxsackie viral infection is commonly seen as the "hand-foot-mouth" disease, with shallow ulcers on the palms, soles, and in the mouth. There is nominal fever associated, and conjunctivitis is uncommon. Parvovirus B-19 (erythema infectiosum, "fifth disease") is commonly called "slapped cheek" disease because of the exanthem of bright red cheeks. Adenopathy and conjunctivitis are not features of this infection. Acute phase reactions are often elevated late in the course of Kawasaki disease. The most common blood test result would be a dramatically elevated platelet count. It is usually greater than 750,000 and can be greater than 1,000,000. An ESR is also likely to be elevated, not low. A positive rapid strep test would lead one more toward acute GAS disease. The treatment of choice for Kawasaki disease is IVIG and aspirin. IVIG infusion is usually over 12 hours and will commonly result in rapid defervescence and clinical improvement. Treatment of Kawasaki disease is important as it will prevent long-term sequelae. A common side effect of IVIG is aseptic meningitis. Nearly a quarter of untreated children will develop coronary artery dilatation. This is most common cause of acquired heart disease in children younger than 5 years of age. The coronary artery dilatation can result in aneurysm formation and myocardial infarction.

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#### QUESTION 10

A recent study compared two drugs--exemestane and tamoxifen--for the treatment of estrogenreceptor positive breast cancer in postmenopausal women. At the end of the study, 91.5% of the women treated with the drug exemestane and 86.8% of the women treated with tamoxifen were disease free (P

What is the absolute risk reduction (ARR) for the development of recurrent breast cancer for women taking exemestane compared to women taking tamoxifen?

- A. 95.3%
- B. 72%
- C. 64%
- D. 36%
- E. 4.7%

Correct Answer: E Section: (none)

Explanation: Explanations: Relative risk is the percentage of subjects who achieve an outcome in one experimental group divided by the percentage of subjects who achieve the same outcome in another group. This statistic is used frequently in placebo-controlled trials, where the comparison occurs between the experimental group and the control group. In the study referenced in this set of questions, the comparison is between two groups who were given two different active medications exemestane and tamoxifen. The outcome studied here is the development of recurrent breast cancer. The data presented state that after the course of treatment, 91.5% of the women in the exemestane group and 86.8% of the women in the tamoxifen group were disease free. Therefore, 8.5% in the exemestane group and 13.2% in the tamoxifen group developed the outcome of recurrent breast cancer. The relative risk is then calculated as  $0.085/0.132 = 0.64 = 64\%$ . The relative risk reduction is the percentage by which the risk in one group has been reduced when compared to the other group. In other words, if the rate of an outcome in one group is 100%, the relative

risk reduction is the difference between 100% and the measured relative risk. It is calculated by the formula: Relative risk reduction =  $1 - \text{relative risk}$  In this example, the relative risk reduction is  $1 - 0.64 = 0.36 = 36\%$ .

The ARR, also known as the risk difference, is calculated by subtracting the percentage of subjects who achieve an outcome in one group from the percentage who achieve the outcome in another. In this study, the ARR for those in the exemestane group compared to those in the tamoxifen group is  $13.2\% - 8.5\% = 4.7\%$ . The NNT is the number of subjects who need to receive an intervention (such as a medication) in order for one of them to have a beneficial outcome. In this study, the beneficial outcome would be one less case of recurrent breast cancer. The NNT is calculated as  $1/\text{ARR}$ . In this case, the  $\text{NNT} = 1/0.047 = 21$ . In other words, 21 women need to be treated with exemestane in order for there to be one fewer case of recurrent breast cancer compared to women treated with tamoxifen.

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### QUESTION 11

A patient presents to the ED complaining of abdominal pain out of proportion to her examination. Initial vital signs are: BP 70/30, HR 120. The patient does report a prior history of abdominal pain after eating. Which of the following statements regarding this condition is most accurate?

- A. A CT scan which shows superior mesenteric artery (SMA) thrombosis or bowel wall thickening requires an immediate operation.
- B. The most common site of embolic event is the SMA.
- C. Nonocclusive mesenteric ischemia is treated with arterial bypass.
- D. Patients with cardiac arrhythmias are not at increased risk.
- E. After volume resuscitation, the initial diagnostic study for this patient is esophagogastroduodenoscopy (EGD).

Correct Answer: B Section: (none)

Explanation:

Severe abdominal pain is the hallmark presentation of acute mesenteric ischemia. The pain is often described as being out of proportion to examination. It is most often caused by an embolic event to the SMA. Patients with cardiac arrhythmias are at greater risk for having an embolic event. Nonocclusive mesenteric ischemia is thought to be due to reactive arterial vasoconstriction and is not a surgically correctible disease. CT scan findings of SMA thrombosis or gas in the bowel wall would necessitate emergency surgery.

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### QUESTION 12

A 21-year-old male presents to the ED after sustaining a gunshot wound to the neck. After evaluation, it is determined that he has C6 quadriplegia.

Which of the following activities will be limited by this injury?

- A. wrist extension
- B. elbow extension
- C. elbow flexion

- D. shoulder flexion
- E. raising his arms above his shoulders

Correct Answer: B Section: (none)

Explanation:

This patient should be able to perform any activity that requires innervation from C6 or above. The biceps and deltoid are innervated by C5, so he should be able to lift his arms above his head, have shoulder flexion, and elbow flexion. C6 innervates the extensor carpi radialis, so wrist extension should be preserved. The triceps rely on C7, so he would not be able to perform elbow extension.

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### QUESTION 13

A 42 year old male admitted for pulmonary embolus was placed on heparin, dosed by a weight based protocol. However, later in the day, you receive a call from the floor nurse stating that the patient had spontaneous epistaxis and a very high aPTT. Use of which of the following would be best at this time?

- A. cimetidine
- B. heparinase
- C. clofibrate
- D. protamine sulfate
- E. vitamin K

Correct Answer: D Section: (none)

Explanation:

Protamine sulfate is a strongly basic molecule that is thought to inhibit acidic heparin electrostatically. It may not, however, affect heparin-induced platelet aggregation. Cimetidine is an H<sub>2</sub>-antagonist that increases the anticoagulant response by an as yet unknown mechanism. Clofibrate is an agent used to reduce plasma lipid levels. Vitamin K is used to reverse the effect of warfarin. Heparinase is not used clinically.

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### QUESTION 14

You see a 3-week-old infant in your office for an acute visit. She was born via spontaneous vaginal delivery following a term, uncomplicated prenatal course. The parents are concerned because they have seen some streaks of blood in her diaper over the past few days. The infant's stools have been soft and not difficult to pass. The parents relate that she is eating 2 oz every 2 hours of a cow's milk based formula.

What is the carbohydrate source in most infant formula?

- A. casein

- B. lactose
- C. human milk fortifier
- D. coconut oil
- E. soy oil

Correct Answer: B Section: (none)

Explanation:

Most infant formulas are cow's milk based. The most common form of carbohydrate in these infant formulas is lactose. Soy formulas use corn syrup and/or sucrose as their source of carbohydrate. Casein is a form of protein. Human milk fortifier is a supplement added to breast milk for the premature infant and is a combination of protein and carbohydrate. GBS colitis is an uncommon disease in infants. Cow's milk protein intolerance is a common cause of blood-streaked stool in an infant on cow's milk based formulas. Lactose intolerance is very uncommon in an infant and usually causes chronic, nonbloody diarrhea. Pseudomembranous colitis would be a consideration in a child with diarrhea who recently had been on antibiotics.

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#### QUESTION 15

On a Monday morning you see a 12-year-old otherwise healthy boy in the emergency department. The parents brought the boy in because they noticed that he started to have an abnormal gait in the past few days. He seems to be shuffling his feet. The boy complains that his legs feel heavy and are tingling. He relates that his arms feel fine. His past history is significant for attention deficit/hyperactivity disorder (ADHD) for which he is taking methylphenidate. He denies trauma or taking any other medicines or drugs. On examination, he is afebrile with normal vital signs. His entire physical examination is normal with the exception of the examination of his lower extremities. He has 3/5 strength throughout both of his lower extremities with a normal muscle mass. His all joints have a full range of motion, without any pain or swelling. His reflexes are absent and he describes some paresthesias of his feet and ankles

Which of the following is the most appropriate initial management plan?

- A. hospitalization and close observation for progression of his weakness
- B. high-dose corticosteroids
- C. gastric lavage and activated charcoal
- D. outpatient family counseling
- E. plasmaphoresis

Correct Answer: A Section: (none)

Explanation: Acute inflammatory demyelinating polyneuropathy, commonly called Guillain-Barré syndrome, is an ascending paralysis with a hallmark of absent reflexes. There may also be some nominal sensory deficits as well, but they are not as striking as the paresis. Methylphenidate toxicity usually results in seizures and tachycardia. In children with malingering, reflexes are usually present, as they are not under cognitive control. Reflexes are also present in children with polymyositis. Children with polymyositis will usually have fever and muscle pain with weakness, as well. With the use of the polio vaccines (OPV or IPV), poliomyelitis is no longer present in wild type in the United States.

Guillain-Barré is usually a self-limited disease. The most common complication is respiratory failure. The paresis usually advances for 48-72 hours and then will slowly recede. The use of corticosteroids is not recommended. Plasmapheresis is used in the following situations: progressive paresis, nonambulatory patients, or bulbar or respiratory involvement. As this child's disease has plateaued at the time of evaluation, plasmapheresis would be of little benefit.

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