

QUESTION 1

1. A 52-year-old obese Caucasian male presents to the clinic with a 2-day history of fever, chills, and right great toe pain that has gotten worse. Patient states this is the first time that this has happened, and nothing has made it better and walking on his right foot makes it worse. He has tried acetaminophen, but it did not help. He took several ibuprofen tablets last night which did give him a bit of relief. Past medical history positive for hypertension treated with hydrochlorothiazide and kidney stones. Social history negative for tobacco use but admits to drinking “a fair amount of red wine” every week. General appearance: Ill appearing male who sits with his right foot elevated. Physical exam remarkable for a temp of 101.2, pulse 108, respirations 18 and BP 160/88. Right great toe (first metatarsal phalangeal [MTP]) noticeably swollen and red. Unable to palpate to assess range of motion due to extreme pain. CBC and Complete metabolic profile revealed WBC 14,000 mm³ and uric acid 8.9 mg/dl. The APRN diagnoses the patient with acute gout.

Question 1 of 2:

Describe the pathophysiology of gout.

QUESTION 2

1. A 52-year-old obese Caucasian male presents to the clinic with a 2-day history of fever, chills, and right great toe pain that has gotten worse. Patient states this is the first time that this has happened, and nothing has made it better and walking on his right foot makes it worse. He has tried acetaminophen, but it did not help. He took several ibuprofen tablets last night which did give him a bit of relief. Past medical history positive for hypertension treated with hydrochlorothiazide and kidney stones. Social history negative for tobacco use but admits to drinking “a fair amount of red wine” every week. General appearance: Ill appearing male who sits with his right foot elevated. Physical exam remarkable for a temp of 101.2, pulse 108, respirations 18 and BP 160/88. Right great toe (first metatarsal phalangeal [MTP]) noticeably swollen and red. Unable to palpate to assess range of motion due to extreme pain. CBC and Complete metabolic profile revealed WBC 14,000 mm³ and uric acid 8.9 mg/dl. The APRN diagnoses the patient with acute gout.

Question 2 of 2:

Explain why a patient with gout is more likely to develop renal calculi.

QUESTION 3

1. Stan is a 45-year-old man who presents to the clinic complaining of intermittent fevers, joint pain, myalgias, and generalized fatigue. He noticed a rash several days ago that seemed to appear and disappear on different parts of his abdomen. He noticed the lesion below this morning and decided to come in for evaluation. He denies recent international travel and the only difference in his usual routine was clearing some underbrush from his back yard about a week ago. Past medical history non-contributory with exception of severe allergy to penicillin resulting in hives and difficulty breathing. Physical exam: Temp 101.1 °F, BP 128/72, pulse 102 and regular, respirations 18. Skin inspection revealed a 4-inch diameter bull's eye type red rash over the left flank area. The APRN, based on history and physical exam, diagnoses the patient with Lyme Disease. She ordered appropriate labs to confirm diagnosis but felt it urgent to begin antibiotic therapy to prevent secondary complications.

Question:

What is Lyme disease and what patient factors may have increased his risk developing Lyme disease?

QUESTION 4

1. A 72-year-old female was walking her dog when the dog suddenly tried to chase a squirrel and pulled the woman down. She tried to break her fall by putting her hand out and she landed on her outstretched hand. She immediately felt severe pain in her right wrist and noticed her wrist looked deformed. Her neighbor saw the fall and brought the woman to the local Urgent Care Center for evaluation. Radiographs revealed a Colles' fracture (distal radius with dorsal displacement of fragments) as well as radiographic evidence of osteoporosis. A closed reduction of the fracture was successful, and she was placed in a posterior splint with ace bandage wrap and instructed to see an orthopedist for follow up.

Question:

What is osteoporosis and how does it develop?

QUESTION 5

1. A 42-year-old woman presents to the clinic with a four-month history of generalized joint pain, stiffness, and swelling, especially in her hands. She states that these symptoms have made it difficult to grasp objects and has made caring for her 6 and 4-year-old children problematic. She admits to increased fatigue, but she thought it was due to her stressful job as well as being a single mother. No significant past medical history but recalls that one of her grandmothers had “crippling” arthritis. Physical exam remarkable for bilateral ulnar deviation of her hands as well as soft, boggy proximal interphalangeal joints. The metatarsals of both of her feet also exhibited swelling and warmth. The diagnosis for this patient is rheumatoid arthritis.

Question:

Explain why patients with rheumatoid arthritis exhibit these symptoms and how does it differ from osteoarthritis?

QUESTION 6

1. A 32-year-old Caucasian male presents to the office with complaints of back pain, stiffness, especially in the morning, interrupted sleep due to pain, and difficulty in leaning over to tie his shoes. The patient first noticed these symptoms about 6 months ago but attributed them to his weekend basketball team’s games. He said he is exhausted due to sleep interruption. He has taken acetaminophen with some relief but says the naproxen seems to be working better. Married with 2 small children and works as a bank manager. Physical exam: Lungs clear but decreased chest excursion noted as well as decreased range of motion of hips and forward flexion, rotation, and lateral flexion restricted. Spine radiographs in the office revealed a slight kyphosis along with ankylosis at L5-S1. The APRN suspects the patient may have ankylosing spondylitis (AS). The APRN orders laboratory tests including an HLA-B27.

Question:

Why did the APRN order an HLA-B27 lab? How would that lab result assist in understanding what ankylosing spondylitis?

QUESTION 7

1. A 17-year-old male presents to the clinic with a chief complaint of pain in his right elbow. He says the pain is sharp, especially with pronation and supination. He noticed the pain several weeks ago after his tennis team went to a regional competition. When he rests, the pain seems to go away. The pain is alleviated when he takes Naprosyn. No history of trauma or infection in the elbow. Past medical and social history non contributory. He is a junior at the local high school and just started taking tennis lessons 2 months ago and his coach is working with him on his backhand serve. Focused physical exam revealed point tenderness over the lateral epicondyle which increases with pronation and supination. The APRN diagnoses him with lateral epicondylitis and orders a wrist splint to prevent wrist flexion.

Question:

Why did the APRN feel a wrist splint would be helpful? What patient characteristics lead to this diagnosis

QUESTION 8

1. A 24-year-old Caucasian male was brought to the Emergency Room (ER) by Emergency Medical System (EMS) after suffering a “convulsion” episode at work that didn’t stop. Upon arrival to the ER, the patient was noted to be actively seizing with tonic-clonic movements. The patient’s boss accompanied him to the ER and gave a statement that the patient appeared in his usual good health earlier in the morning when they started working at their jobs in an auto parts store. The boss didn’t know of any past medical history. The boss brought along the patients next of kin information, and the patients mother told the ER that the patient has a prior history of seizures but hadn’t had a seizure in several years. The family thought he had “outgrown them.” Past medical history, other than previous seizures, and social history non-contributory. No history of alcohol or drug abuse and had no history of vaping. The ER APRN diagnoses the patient with status epilepticus and along with the ER staff, initiated appropriate treatment.

Question:

What is a seizure and why is status epilepticus so dangerous for patients?

QUESTION 9

1. A 32-year-old while female presents to the Urgent Care with complaints of blurry vision and “fuzzy thinking” which has been present for the last several weeks or so. She works as an executive for an insurance company and put her symptoms down to the stress of preparing the quarterly report. Today, she noticed that her symptoms were worse and were accompanied by some fine tremors in her hands. She has been having difficulty concentrating and has difficulty voiding. She remembers her eyes were bothering her a few months ago and she went to the optometrist who recommended reading glasses with small prism to correct double vision. She admits to some weakness as well. No other complaints of fevers, chills, upper respiratory tract infections, or urinary tract infections. Past medical and social history noncontributory. Physical exam significant for 4th cranial nerve palsy. The fundoscopic exam reveals edema of right optic nerve causing optic neuritis. Positive nystagmus on positional maneuvers. There are left visual field deficits. There was short term memory loss with listing of familiar objects. The APRN tells the patient that she will be referred to a neurologist due to the high index of suspicion for multiple sclerosis (MS).

Question:

What is multiple sclerosis and how did it cause the above patient's symptoms?

QUESTION 10

1. 61-year-old male complains of intermittent weakness and muscle fatigue that has progressively worsened over the past month. He was an internationally known extreme mountain climber but now he says he has difficulty in getting his morning paper. Initially he thought his symptoms of profound leg weakness and fatigue were due to his age and history of injuries from mountain climbing. Over the past few months, he also reports having noticed “blurriness” when working on his antique train collection or reading for long periods of time. He has developed intermittent double vision that seems to be worse when reading at bedtime. He also reports an occasional “droopy” eye lid. Past medical and social history noncontributory. Physical exam reveals weakness of right extra ocular muscle (EOM) with repetition. There is positive nystagmus and symmetrical upper extremity weakness with fasciculations. Lower extremities within normal limits (WNL). The APRN suspects the patient has myasthenia gravis (MG).

Question:

What is the underlying pathophysiology of MG?

QUESTION 11

1. A 67-year-old male presents to the clinic along with his family with a chief complaint of having problems with his short-term memory. His family had dismissed these problems and attributed them to the aging process. Over time they have noticed changes in his behavior, along with increased confusion and difficulty completing basic tasks. He got lost driving home from the bowling alley and had to be brought home by the police department. He is worried that he may have Alzheimer's Disease (AD). Past medical and social history positive for a minor cerebral vascular accident when he was 50 years old but without any residual motor or sensory defects. No history of alcohol or tobacco use. Current medication is clopidogrel 75 mg po qd. Neurological testing confirms the diagnosis of AD.

Question:

What is Alzheimer's Disease and how does amyloid beta factor into the development and progression of the disease?

QUESTION 12

1. A 22-year-old male was an unrestrained front seat passenger of a car traveling at 50 miles per hour. The driver swerved to avoid hitting a deer that darted in front of the car and hit a tree. The patient was ejected from the vehicle. He was awake and alert at the scene when the paramedics arrived, and his pupils were equal and reactive to light. He was placed in a hard-cervical collar per protocol and log rolled onto a long backboard. He was breathing spontaneously at the scene, but pulse oximetry in the EMS unit revealed a SaO₂ of 88% on room air. He was placed on 100% oxygen via non-rebreather mask and was taken to a Level I trauma center with the following vital signs:

Vital signs: BP 90/50, Pulse 48 and regular, Respirations 24 and shallow with some use of accessory muscles, temp 95.2 F rectally. He was awake and answering questions appropriately but says he cannot feel his arms or legs. Glasgow Coma Scale 14. His skin was warm and dry with minor abrasions noted on his arms. According to family members, past medical history noncontributory and social history reveals only occasional alcohol use and no tobacco or vaping history. Full work up in the ED revealed a

fracture-dislocation of C4 with assumed complete tetraplegia (formerly called quadriplegia). No other injuries noted He was given several liters of IV fluid, but his blood pressure remained low.

Question 1 of 2:

Explain the differences between primary and secondary spinal cord injury (SCI)?

QUESTION 13

1. A 22-year-old male was an unrestrained front seat passenger of a car traveling at 50 miles per hour. The driver swerved to avoid hitting a deer that darted in front of the car and hit a tree. The patient was ejected from the vehicle. He was awake and alert at the scene when the paramedics arrived, and his pupils were equal and reactive to light. He was placed in a hard-cervical collar per protocol and log rolled onto a long backboard. He was breathing spontaneously at the scene, but pulse oximetry in the EMS unit revealed a SaO₂ of 88% on room air. He was placed on 100% oxygen via non-rebreather mask and was taken to a Level I trauma center with the following vital signs:

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Question 2 of 2:

What is spinal shock and how it is different from neurogenic shock?

QUESTION 14

1. A 22-year-old male was an unrestrained front seat passenger of a car traveling at 50 miles per hour. The driver swerved to avoid hitting a deer that darted in front of the car and hit a tree. EMS on the scene noted a stellate fracture of the windshield on the passenger side. The patient was non-responsive at the scene when the paramedics arrived, and his pupils were unequal with the left pupil larger and sluggish to react to light. He was placed in a hard-cervical collar per protocol and log rolled onto a long backboard. He was breathing spontaneously at the scene, but pulse oximetry in the EMS unit revealed a SaO₂ of 78% on room air. He was intubated at the scene for airway protection and transported to a Level 1 trauma center. Glasgow Coma Scale=3

After a full trauma work up, the patient was diagnosed with an isolated traumatic brain injury with acute subdural hematoma secondary to coup-contrecoup mechanism of injury. He was emergently taken to the operating room for craniotomy after which he was taken to the Intensive Care Unit (ICU) for close monitoring. He had an intracranial bolt for measurements of his intracranial pressure (ICP).

Question 1 of 2:

Explain the differences between primary and secondary traumatic brain injuries (TBIs)?

QUESTION 15

1. A 22-year-old male was an unrestrained front seat passenger of a car traveling at 50 miles per hour. The driver swerved to avoid hitting a deer that darted in front of the car and hit a tree. EMS on the scene noted a stellate fracture of the windshield on the passenger side. The patient was non-responsive at the scene when the paramedics arrived, and his pupils were unequal with the left pupil larger and sluggish to react to light. He was placed in a hard-cervical collar per protocol and log rolled onto a long backboard. He was breathing spontaneously at the scene, but pulse oximetry in the EMS unit revealed a SaO₂ of 78% on room air. He was intubated at the scene for airway protection and transported to a Level 1 trauma center. Glasgow Coma Scale=3

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Question 2 of 2:

The APRN is called by the ICU staff because the patient's ICP has risen to 22 mmHg. The APRN recognizes the urgent need to lower the ICP. The APRN institutes measures to decrease the ICP and increase the cerebral perfusion pressure (CPP). What are the factors that determine CPP?

QUESTION 16

1. A 68-year-old man was brought to the emergency department by his family. During his routine morning walk he noticed a sudden onset of left facial numbness associated with a dull headache on the right posterior aspect of his head. He was staggering to the right side and feeling unsteady and nauseated, with no vomiting. He telephoned his wife, who noticed his speech was slow and slurred, but there was no word-finding difficulty. His family immediately took him to the hospital. There was a history of hypertension, hypercholesterolemia, ischemic heart disease (MI and PCI with bare metal stent in 2007) and probable transient ischemic attack (TIA) at the time of cardiac intervention. His medication included atenolol, ramipril, simvastatin, aspirin and clopidogrel.

Within one hour, the patient's symptoms had totally resolved. The diagnosis of transient ischemic attack was made, and the patient was discharged to home with instructions to contact his healthcare provider (HCP) for follow-up.

Question:

Why did the patient's symptoms totally resolve?

QUESTION 17

1. An 83-year-old man presents with a history of atrial fibrillation (AF), hypertension, and diabetes. His daughter, who accompanied the patient, states that yesterday the patient had a period when he could not speak or understand words, and that approximately 4 weeks prior he staggered against a wall and was unable to stand unaided because of weakness in his legs. She states that both instances lasted approximately a half-hour. She was unable to persuade her father to go to the emergency room either time. Today he suffered another episode of right sided weakness, dysarthria, and difficulty with speech. Past medical history: Hypertension for 15 years, well controlled; diabetes for the past 10 years, and hyperlipidemia. Medications: Diltiazem CD 300 mg daily; lisinopril 40 mg daily; metformin 500 mg twice daily; aspirin 81 mg daily and atorvastatin 20 mg po qhs.

Social history: reported former smoker with 40 pack year history. Alcohol -drinks one beer a day. Denies any other substance abuse. Review of systems: Denies dyspnea, dizziness, or syncope; complains that he cannot move or feel his right arm or leg. Difficulty with speech.

Physical exam: Vitals: height = 70 inches; weight = 185 pounds; body mass index = 26.5; BP = 134/82 mm Hg; heart rate = 88 bpm at rest, irregularly irregular pattern.

HEENT remarkable for expressive aphasia, eyes with contralateral homonymous hemianopsia.

No loss of sensation but unable to voluntarily move right arm or leg.

The patient was diagnosed with a right middle cerebral artery vascular accident (CVA) secondary to atrial fibrillation (AF)

Question:

How does atrial fibrillation contribute to the development of a CVA?

QUESTION 18

1. A 57-year-old male construction worker comes to the clinic with a chief complaint of pain in his right hip. The pain has progressively gotten worse over the last 2 months and he has been having trouble sleeping. There is little pain in the morning, but he is a bit stiff. The pain increases as the day wears on. has taken acetaminophen without any relief but states that the ibuprofen does work a little bit. He is anxious since the hip pain has limited his ability to work and he is afraid that his boss will fire him if he cannot perform his usual duties. There is no history of past trauma or infection in the joint. Past medical history noncontributory. Social history without history of alcohol, tobacco, or illicit drug use. Physical exam remarkable for decreased range of motion of the right hip. BMI 34 kg/m². Radiographs in the office demonstrated asymmetrical joint space narrowing of the right hip with osteophyte formation. Several areas of the hip showed bone-on-bone contact with loss of the articular cartilage. The APRN tells the patient he has osteoarthritis (OA) and refers the patient to an orthopedist for evaluation of his need for a total hip replacement.

Question:

Describe how osteoarthritis develops and forms and distinguish primary osteoarthritis from secondary arthritis.

QUESTION 19

1. A 34-year-old Caucasian female presents to the clinic with a chief complaint of widespread pain in her joints and muscles. She states that her skin seems sensitive and sometimes it hurts to be touched. She has had extreme fatigue for the past 4 months. She admits to being depressed and it unable to sleep well. She has had to drop out of her gardening club due to pain. She says that bright lights and loud noises really bother her. Past medical history noncontributory. Social history is significant for her divorce from her husband 14 months ago. She is the mother of 2 small children and works as an administrative assistant as the local insurance company. Physical exam remarkable for tender points over her posterior

supraspinatus muscles, occiput, trapezius, gluteal area, and sacroiliac joints bilaterally. The APRN tells the patient that she most likely has fibromyalgia, based on her physical exam.

Question 1 of 2:

What are the underlying causes of fibromyalgia?

QUESTION 20

1. A 34-year-old Caucasian female presents to the clinic with a chief complaint of widespread pain in her joints and muscles. She states that her skin seems sensitive and sometimes it hurts to be touched. She has had extreme fatigue for the past 4 months. She admits to being depressed and it unable to sleep well. She has had to drop out of her gardening club due to pain. She says that bright lights and loud noises really bother her. Past medical history noncontributory. Social history is significant for her divorce from her husband 14 months ago. She is the mother of 2 small children and works as an administrative assistant at the local insurance company. Physical exam remarkable for tender points over her posterior supraspinatus muscles, occiput, trapezius, gluteal area, and sacroiliac joints bilaterally. The APRN tells the patient that she most likely has fibromyalgia, based on her physical exam.

Question 2 of 2:

The APRN tells the patient that the tender points are no longer used to diagnose FM. She suggests that the patient takes the Widespread Pain Index (WPI) and the Symptom Severity Inventory (SSI). The patient asks the APRN what these tests are for. What is the APRN's best answer?