Internal Medicine End of Rotation (EOR) Practice Exam (Sample)

Study Guide

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Questions

1. **What imaging study should be performed for patients with concerning histories of aortic dissection?**
   - **A. X-ray**
   - **B. CT scan**
   - **C. Ultrasound**
   - **D. MRI**

2. **What distinguishes mechanical valves from porcine valves in terms of anticoagulation requirements?**
   - **A. Mechanical valves require lifelong anticoagulation, while porcine valves do not.**
   - **B. Porcine valves require lifelong anticoagulation, while mechanical valves do not.**
   - **C. Both types require lifelong anticoagulation.**
   - **D. Neither type requires anticoagulation.**

3. **What signifies nephritis compared to nephrosis?**
   - **A. Higher proteinuria levels**
   - **B. Presents with hematuria**
   - **C. Absence of casts in urine**
   - **D. Presence of edema only**

4. **In Cushing's syndrome, excessive cortisol can be either ACTH-dependent or ACTH-independent. What is an example of an ACTH-dependent source?**
   - **A. Adrenal tumor**
   - **B. Pituitary adenoma**
   - **C. Ectopic ACTH syndrome**
   - **D. Sarcoidosis**

5. **Which vascular supply relates to contralateral face and arm weakness greater than leg during a stroke?**
   - **A. Anterior cerebral artery**
   - **B. Middle cerebral artery**
   - **C. Posterior cerebral artery**
   - **D. Vertebrobasilar arteries**

6. Which fungal infection is endemic to certain regions of the United States and can cause severe respiratory illness in immunocompromised patients?

A. Histoplasmosis

B. Candidiasis

C. Cryptococcus

D. Aspergillus

7. Which type of esophageal stricture involves Zenker's diverticulum?

A. Lower esophageal ring

B. Esophageal web

C. Intrinsic stricture

D. Diverticular stricture

8. What type of hiatal hernia is primarily managed conservatively unless complications arise?

A. Sliding hernia

B. Inguinal hernia

C. Umbilical hernia

D. Paraesophageal hernia

9. What is a major contraindication for prescribing metformin?

A. Cardiac failure

B. Hepatic failure

C. Renal failure

D. Gastric failure

10. Which organ can show signs of abnormal filtration indicating glomerular dysfunction?

A. Liver

B. Lung

C. Kidney

D. Heart

Answers

1. B
2. A
3. B
4. B
5. B
6. A
7. D
8. A
9. C
10. C

Explanations

1. What imaging study should be performed for patients with concerning histories of aortic dissection?

A. X-ray

B. CT scan

C. Ultrasound

D. MRI

In patients with concerning histories of aortic dissection, a CT scan is the most appropriate imaging study. This is largely due to its ability to rapidly and accurately visualize the aorta and any potential pathologies associated with dissection. A CT scan, particularly with contrast, offers high sensitivity and specificity for detecting aortic dissection and provides detailed information about the extent of the dissection and involvement of other structures. X-rays, while commonly used for initial imaging, contribute limited information regarding the aorta's condition and are not definitive for diagnosing an aortic dissection. They may sometimes show indirect signs such as a widening of the mediastinum, but they cannot confirm the diagnosis. Ultrasound can be useful in some contexts, particularly for its portability and ability to visualize the heart and large vessels, but it is less effective in evaluating the thoracic aorta compared to CT. It is often utilized in emergency settings for specific scenarios but falls short in providing detailed anatomic information needed in cases of suspected dissection. MRI is excellent for soft tissue evaluation and provides detailed images of the aorta without radiation exposure, making it valuable in certain patient populations. However, due to longer acquisition time and concerns regarding patients with certain devices or conditions, it is not

2. What distinguishes mechanical valves from porcine valves in terms of anticoagulation requirements?

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D. Neither type requires anticoagulation.

Mechanical valves are designed to be durable and have a long lifespan but present a higher risk for thromboembolic events due to their material and design. As a result, patients with mechanical valves require lifelong anticoagulation therapy, typically with warfarin, to minimize the risk of blood clots forming on the valve or within the cardiac chambers. In contrast, porcine (bioprosthetic) valves, made from animal tissue, often present a lower risk of thrombosis compared to mechanical valves. Therefore, routine anticoagulation is not necessary for patients with porcine valves. While some patients may benefit from temporary anticoagulation or antiplatelet therapy, it is not required for life after implantation of a porcine valve. This distinction is crucial for management and patient education regarding the risks and benefits of each type of valve, as well as adherence to anticoagulation therapy post-surgery. Understanding the anticoagulation requirements relative to the types of valves can significantly influence long-term patient outcomes and lifestyle adjustments following valve replacement surgery.

3. What signifies nephritis compared to nephrosis?

A. Higher proteinuria levels

B. Presents with hematuria

C. Absence of casts in urine

D. Presence of edema only

Nephritis is characterized by inflammation of the kidneys, which often leads to the presence of hematuria, or blood in the urine. This is a key distinguishing feature between nephritis and nephrosis. In nephritis, the inflammatory process can damage the glomeruli, allowing red blood cells to leak into the urine. In contrast, nephrosis, such as in minimal change disease or focal segmental glomerulosclerosis, is primarily defined by the presence of significant proteinuria and edema without the prominent inflammatory changes that would cause hematuria. While nephrosis does present with edema due to significant protein loss leading to hypoalbuminemia, it commonly does not show hematuria or inflammatory cells in the urine. Analyzing other aspects: Higher levels of proteinuria are more typical in nephrosis, where the primary issue is the loss of proteins (particularly albumin) through the damaged glomeruli. The absence of tubular casts in the urine is also more aligned with nephrosis, whereas nephritis may present with casts due to inflammation and cell debris. Therefore, the presence of hematuria is a hallmark sign of nephritis.

4. In Cushing's syndrome, excessive cortisol can be either ACTH-dependent or ACTH-independent. What is an example of an ACTH-dependent source?

A. Adrenal tumor

B. Pituitary adenoma

C. Ectopic ACTH syndrome

D. Sarcoidosis

In Cushing's syndrome, an ACTH-dependent source of excessive cortisol production typically stems from increased adrenocorticotropic hormone (ACTH) levels. A pituitary adenoma, often referred to as Cushing's disease when it is the cause of Cushing's syndrome, is a benign tumor that secretes ACTH. This overproduction of ACTH stimulates the adrenal glands to produce more cortisol, leading to the symptoms associated with Cushing's syndrome. The significance of identifying a pituitary adenoma lies in the treatment approach. Surgical removal of the adenoma can often lead to resolution or significant improvement of the symptoms related to Cushing's syndrome. Understanding the source of ACTH is crucial for both diagnosis and management of the condition. Other possible sources of ACTH that are not the primary focus of this answer include ectopic ACTH syndrome, where ACTH is produced by non-pituitary tumors, and adrenal tumors that produce cortisol independently of ACTH. These sources do not directly involve the pituitary gland's secretion of ACTH in the same manner as a pituitary adenoma.

5. Which vascular supply relates to contralateral face and arm weakness greater than leg during a stroke?

A. Anterior cerebral artery

B. Middle cerebral artery

C. Posterior cerebral artery

D. Vertebrobasilar arteries

The middle cerebral artery is responsible for supplying blood to significant areas of the lateral aspect of the cerebral hemisphere, which includes the motor and sensory areas associated with the face and upper limb. A stroke affecting this artery typically results in contralateral weakness and sensory loss, especially impacting the face and upper extremity more than the lower extremity. This phenomenon occurs due to the homunculus arrangement in the motor cortex, where the regions that control the face and arm are located more laterally compared to those that govern the leg. Thus, when an ischemic event or hemorrhage affects the middle cerebral artery, it leads to a predominant weakness in the face and arm on the side opposite to the stroke, often noted as greater than that observed in the leg. The other vascular supplies listed do not present this specific pattern. The anterior cerebral artery primarily supplies the medial portions of the frontal lobes and the superior medial parietal lobes, leading to leg weakness if affected. The posterior cerebral artery provides blood to the occipital lobes and inferior parts of the temporal lobes, mainly affecting vision and some sensory modalities. Lastly, the vertebrobasilar arteries supply the brainstem and cerebellum, which can manifest as different symptoms, such as motor

6. Which fungal infection is endemic to certain regions of the United States and can cause severe respiratory illness in immunocompromised patients?

A. Histoplasmosis

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Histoplasmosis is a fungal infection caused by the organism Histoplasma capsulatum, which is endemic to regions of the United States, particularly in areas near the Ohio and Mississippi River Valleys. The organism is found in soil, often associated with bird and bat droppings. When the spores are inhaled, particularly in immunocompromised individuals, they can lead to severe respiratory illness, including pneumonia and disseminated disease. In immunocompromised patients, such as those with HIV/AIDS, cancer, or even those on immunosuppressive medications, the ability to mount an effective immune response is decreased. This makes them more susceptible to severe manifestations of diseases like histoplasmosis. The infection can range from mild and asymptomatic to severe and life-threatening, depending on the immune status of the individual. While other fungal infections listed, like candidiasis and aspergillosis, also affect immunocompromised individuals, they are not endemic to specific regions of the United States in the same way histoplasmosis is. Candidiasis is commonly associated with opportunistic infections in a variety of clinical settings rather than being tied to geographic locations. Cryptococcus is another significant pathogen that can cause severe illness, especially in immunocompromised patients,

7. Which type of esophageal stricture involves Zenker's diverticulum?

A. Lower esophageal ring

B. Esophageal web

C. Intrinsic stricture

D. Diverticular stricture

Zenker's diverticulum is an outpouching that occurs in the pharyngeal area, typically just above the upper esophageal sphincter. It is characterized by the accumulation of food and saliva in the diverticulum, which can ultimately lead to an obstruction or narrowing of the esophagus. When a stricture is associated specifically with Zenker's diverticulum, it is referred to as a diverticular stricture. In this context, the correct answer points to the relationship between the diverticulum and the resulting stricture. The diverticulum itself can lead to a change in esophageal wall dynamics and may create a narrowing or restriction to flow, making it a diverticular stricture. This type of stricture is distinguished from other forms such as intrinsic strictures (which are related to conditions like cancer or inflammatory processes within the esophagus) or extrinsic causes such as lower esophageal rings and webs, which are not directly related to diverticulums. Understanding the context of Zenker's diverticulum is essential, as it can manifest with symptoms such as dysphagia or regurgitation, ultimately associating it with diverticular strictures that can complicate the clinical presentation of esophageal conditions. This highlights the importance of identifying the underlying

8. What type of hiatal hernia is primarily managed conservatively unless complications arise?

A. Sliding hernia

B. Inguinal hernia

C. Umbilical hernia

D. Paraesophageal hernia

A sliding hiatal hernia is primarily managed conservatively unless complications arise because it is the most common type of hiatal hernia. This condition occurs when the stomach and a portion of the esophagus slide up through the diaphragm into the chest cavity. Many patients with a sliding hiatal hernia are asymptomatic or have mild symptoms, such as gastroesophageal reflux disease (GERD), which can often be managed with lifestyle modifications and medications. Conservative management may include dietary changes, weight management, lifestyle modifications like elevating the head of the bed, and pharmacological treatments such as proton pump inhibitors or H2-receptor antagonists for acid-related symptoms. Surgical intervention is typically reserved for cases where there are significant complications, such as strangulation, severe reflux that doesn't respond to medical therapy, or other complications. On the other hand, paraesophageal hernias, which are less common but more likely to cause complications, may require surgical intervention even if the patient is asymptomatic due to the risk of strangulation or obstruciton. Inguinal and umbilical hernias are often evaluated based on symptoms and may not typically present as a hiatal hernia at all, as they occur in different anatomical locations. Therefore, sliding

9. What is a major contraindication for prescribing metformin?

A. Cardiac failure

B. Hepatic failure

C. Renal failure

D. Gastric failure

The major contraindication for prescribing metformin is renal failure. This is primarily due to the way metformin is eliminated from the body. Metformin is predominantly excreted unchanged by the kidneys; therefore, in patients with renal impairment, the risk of accumulating the drug increases significantly. This accumulation can lead to a severe condition known as lactic acidosis, which is a serious and potentially life-threatening complication associated with metformin usage. When renal function declines, the clearance of the drug diminishes, which in turn raises the serum levels of metformin. Because lactic acidosis can occur when lactic levels rise due to impaired clearance paired with metformin's effects, it is crucial to assess renal function before initiating therapy with this medication. Although cardiac failure and hepatic failure also present concerns for metformin use, current guidelines do not explicitly list them as absolute contraindications in the same way renal failure is. For instance, caution is advised in cases of congestive heart failure (CHF), particularly if it is severe, as it may lead to renal impairment, which then affects metformin clearance. However, the primary concern for prescribing metformin relates to renal function, making renal failure the major contraindication. Gastric failure is not considered a direct contraind

10. Which organ can show signs of abnormal filtration indicating glomerular dysfunction?

A. Liver

B. Lung

C. Kidney

D. Heart

The kidney is the organ responsible for filtration in the body, specifically through the structures known as glomeruli. These glomeruli are tiny blood vessels where the first step of urine production occurs. When glomerular function is compromised, it leads to changes in the filtration process, which can result in abnormal levels of various substances in the blood or urine, such as protein (proteinuria) or blood (hematuria). Signs of glomerular dysfunction may manifest in various laboratory tests, showing decreased filtration rates and changes that indicate an inability to filter waste products effectively. Other organs listed do not primarily function in the filtration of blood and lack the specific structures to indicate glomerular pathology. Thus, the kidney is distinctly associated with glomerular filtration and its dysfunction.