UWorld Internal Medicine Practice Test (Sample)

Study Guide

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Questions

1. In patients with liver cirrhosis, what is the most common cause of ascites?

A. Portal hypertension

B. Peritoneal infections

C. Malnutrition

D. Heart failure

2. Which condition is commonly associated with hyperuricemia?

A. Rheumatoid arthritis

B. Gout

C. Lupus

D. Osteoarthritis

3. What organism is most likely responsible for a urinary tract infection with a urine pH greater than 8?

A. Candida albicans

B. Citrobacter freundii

C. Enterococcus faecalis

D. Proteus mirabilis

4. Which electrolyte imbalance is commonly associated with chronic renal failure?

A. Hypomagnesemia

B. Hypokalemia

C. Hyperphosphatemia

D. Hyponatremia

5. Which condition is characterized by an elevated insulin level and low plasma glucose?

A. Type 1 diabetes mellitus

B. Insulinoma

C. Reactive hypoglycemia

D. Hypopituitarism

6. What is the primary cause of restrictive cardiomyopathy?

A. Coronary artery disease

B. Hypertension

C. Amyloidosis

D. Alcohol use disorder

7. What is the primary treatment for hyperthyroidism caused by Graves' disease?

A. Beta-blockers

B. Antithyroid medications

C. Levothyroxine

D. Thyroidectomy

8. What is the first-line treatment for type 2 diabetes mellitus?

A. Insulin therapy

B. Metformin

C. Sulfonylureas

D. Glitazones

9. For a patient with poorly controlled hypertension whose follow-up is infrequent, what is the best initial management step?

A. Add Chlorthalidone to her medication regimen

B. Reinforce education about hypertension and treatment goals

C. Admit for inpatient management

D. Order diagnostic tests for secondary causes of hypertension

10. In a patient with COPD exacerbation complicated by cardiac issues, what is the main factor to address initially?

A. Rate control of atrial fibrillation

B. Treatment of the underlying COPD

C. Thrombolysis for myocardial infarction

D. Immediate cardioversion

Answers

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

Explanations

1. In patients with liver cirrhosis, what is the most common cause of ascites?

A. Portal hypertension

B. Peritoneal infections

C. Malnutrition

D. Heart failure

The most common cause of ascites in patients with liver cirrhosis is portal hypertension. This condition arises due to increased pressure in the portal venous system, which can result from the scarring and fibrosis of liver tissue associated with cirrhosis. When the liver becomes damaged, blood flow through the liver is obstructed, leading to increased hydrostatic pressure in the portal vein. As a consequence, this increased pressure causes fluid to leak into the abdominal cavity, resulting in the accumulation of ascitic fluid. Ascites itself is particularly associated with cirrhosis because the condition leads to both functional changes in the liver and alterations in the body's fluid balance. Renal responses to portal hypertension further exacerbate fluid retention and contribute to the development of ascites in these patients. While the other factors mentioned can contribute to ascites, they are not the primary or most common causes in the context of cirrhosis. Peritoneal infections can occur as a complication but are usually a result of existing ascites. Malnutrition and heart failure can lead to fluid accumulation as well, but they are not as prevalent or direct in causing ascites specifically related to liver cirrhosis compared to portal hypertension.

2. Which condition is commonly associated with hyperuricemia?

A. Rheumatoid arthritis

B. Gout

C. Lupus

D. Osteoarthritis

Hyperuricemia refers to an elevated level of uric acid in the blood, which can lead to the deposition of urate crystals in tissues, particularly in the joints. Gout is a specific form of inflammatory arthritis associated with hyperuricemia, where the excess uric acid crystallizes in the joint spaces, causing severe pain, swelling, and redness. The relationship between hyperuricemia and gout is well-established, making it the most common condition linked to elevated uric acid levels. This condition is characterized by recurrent acute attacks of joint pain, and over time, can lead to chronic gouty arthritis if not managed properly. Gout typically affects the first metatarsophalangeal joint (big toe) but can involve other joints as well. In contrast, other conditions such as rheumatoid arthritis, lupus, and osteoarthritis do not have a direct association with elevated uric acid levels. While patients with these conditions might occasionally experience hyperuricemia, it is not a defining feature of these diseases as it is with gout. Therefore, gout stands out as the primary condition that is commonly and specifically associated with hyperuricemia.

3. What organism is most likely responsible for a urinary tract infection with a urine pH greater than 8?

A. Candida albicans

B. Citrobacter freundii

C. Enterococcus faecalis

D. Proteus mirabilis

A urinary tract infection (UTI) characterized by a urine pH greater than 8 is most commonly associated with the presence of urease-producing bacteria. These organisms break down urea in the urine, producing ammonia as a byproduct, which leads to an increase in urine pH. Proteus mirabilis is a well-known urease producer. When it infects the urinary tract, it raises the pH of the urine significantly due to the production of ammonium ions from urea breakdown. This is a classic feature of infections caused by this organism and is often observed in patients presenting with struvite stones or persistent UTIs. While other organisms like Enterococcus faecalis can also be associated with UTIs, they are not typically linked with such a significant increase in urine pH. Similarly, while Citrobacter freundii and Candida albicans are possible causative agents of UTIs, they do not consistently lead to a urine pH greater than 8 as commonly as Proteus mirabilis does. Thus, the distinctive attribute of elevated urine pH aligns closely with the infection caused by Proteus mirabilis, making it the most likely organism responsible for the situation described.

4. Which electrolyte imbalance is commonly associated with chronic renal failure?

A. Hypomagnesemia

B. Hypokalemia

C. Hyperphosphatemia

D. Hyponatremia

Chronic renal failure, also known as chronic kidney disease (CKD), commonly leads to several electrolyte imbalances due to the kidneys' diminished ability to filter waste and regulate electrolyte levels. One prevalent and significant imbalance seen in patients with chronic renal failure is hyperphosphatemia. As kidney function declines, the ability of the kidneys to excrete phosphate diminishes, which results in phosphate retention. The kidneys normally play a crucial role in regulating phosphate levels by excreting excess amounts in urine. In CKD, this excretion is impaired, leading to elevated serum phosphate levels. Hyperphosphatemia can contribute to several complications, including the development of secondary hyperparathyroidism and mineral and bone disorders, due to phosphate's role in calcium regulation. Understanding the mechanisms behind this imbalance is essential. Increased phosphate levels can further impair renal function and lead to vascular calcification and cardiovascular complications due to the deleterious effects of phosphate on the cardiovascular system. Recognizing hyperphosphatemia as a common feature in chronic renal failure helps in guiding appropriate management, including dietary phosphate restriction and the use of phosphate binders to lower serum phosphate levels and mitigate associated health risks.

5. Which condition is characterized by an elevated insulin level and low plasma glucose?

A. Type 1 diabetes mellitus

B. Insulinoma

C. Reactive hypoglycemia

D. Hypopituitarism

An insulinoma is a rare tumor of the pancreas that secretes insulin autonomously, resulting in elevated insulin levels. This condition is characterized by the paradox of having high levels of insulin while plasma glucose levels are low. The tumor causes excessive insulin production, leading to episodes of hypoglycemia because the insulin lowers blood glucose levels by promoting its uptake by tissues and inhibiting glucose release from the liver. Patients with insulinoma may experience symptoms such as sweating, palpitations, dizziness, and confusion, especially when fasting or after physical exertion. Diagnostic evaluation often includes measuring insulin and glucose levels during hypoglycemic episodes, which typically show high insulin and low glucose levels. Other conditions listed in the choices have different mechanisms and are not characterized by high insulin levels and low glucose simultaneously. For example, Type 1 diabetes mellitus involves a deficiency in insulin due to autoimmune destruction of pancreatic beta cells, leading to elevated blood glucose. Reactive hypoglycemia occurs after meals when blood glucose drops due to excessive insulin release but does not display elevated insulin levels in a fasting state. Hypopituitarism results in reduced hormone secretion including insulin, and would typically result in low insulin and possibly normal or low glucose levels depending on the overall metabolic state.

6. What is the primary cause of restrictive cardiomyopathy?

A. Coronary artery disease

B. Hypertension

C. Amyloidosis

D. Alcohol use disorder

Restrictive cardiomyopathy is characterized by the stiffening and loss of elasticity of the heart muscle, which leads to impaired filling of the ventricles during diastole. Among the various causes of this condition, amyloidosis is recognized as a primary cause. In amyloidosis, abnormal protein deposits accumulate in the heart tissue, resulting in the stiffening of the myocardium, which directly contributes to the hallmark features of restrictive cardiomyopathy. The unique pathophysiology of amyloidosis involves the deposition of amyloid fibrils, which interfere with normal cardiac function and can lead to subsequent heart failure. This condition often presents with symptoms such as exertional dyspnea, fatigue, and potential arrhythmias due to the structural changes within the heart. While other conditions like coronary artery disease, hypertension, and alcohol use disorder can contribute to various forms of heart disease, they are not the predominant and direct cause of restrictive cardiomyopathy. For instance, coronary artery disease primarily leads to ischemic heart disease, hypertension can result in left ventricular hypertrophy, and alcohol use disorder is more commonly associated with dilated cardiomyopathy rather than restrictive physiology. Thus, amyloidosis stands out as the significant primary cause of restrictive cardiomyopathy, making

7. What is the primary treatment for hyperthyroidism caused by Graves' disease?

A. Beta-blockers

B. Antithyroid medications

C. Levothyroxine

D. Thyroidectomy

The primary treatment for hyperthyroidism caused by Graves' disease is the use of antithyroid medications. These medications, such as methimazole and propylthiouracil, work by inhibiting the synthesis of thyroid hormones. By reducing the production of thyroxine (T4) and triiodothyronine (T3), antithyroid medications help to alleviate the symptoms associated with hyperthyroidism, such as weight loss, anxiety, and increased heart rate. Graves' disease is an autoimmune disorder characterized by the overproduction of thyroid hormones, leading to hyperthyroidism. Antithyroid medications are often the first line of treatment because they are effective and can be used to manage the condition until other definitive treatments, such as radioactive iodine therapy or surgery, are considered based on individual patient factors. While beta-blockers can help manage some symptoms of hyperthyroidism, such as palpitations and tremors, they do not address the underlying hormonal imbalance. Levothyroxine is used to treat hypothyroidism rather than hyperthyroidism, and thyroidectomy, which involves surgically removing the thyroid gland, is typically reserved for specific cases, such as those with large goiters or patients who do not respond to

8. What is the first-line treatment for type 2 diabetes mellitus?

A. Insulin therapy

B. Metformin

C. Sulfonylureas

D. Glitazones

The first-line treatment for type 2 diabetes mellitus is metformin. This medication is primarily recommended due to its effectiveness in lowering blood glucose levels, its favorable safety profile, and additional benefits related to weight management and cardiovascular health. Metformin works by improving insulin sensitivity and reducing hepatic glucose production, which helps control hyperglycemia. Initiating treatment with metformin is supported by various guidelines and clinical studies, which have shown that it not only aids in glycemic control but can also reduce the risk of diabetes-related complications. Additionally, metformin is typically well-tolerated by most patients, making it a suitable choice for individuals starting diabetes management. Other treatments listed have specific roles in diabetes management. Insulin therapy is generally reserved for patients with type 2 diabetes who have poor glycemic control despite oral medications or who present with acute conditions requiring rapid blood sugar lowering. Sulfonylureas and glitazones can also be used in the management of diabetes but are not first-line treatments due to their side effects and less favorable risk-benefit profiles compared to metformin. These factors collectively reinforce the position of metformin as the cornerstone of type 2 diabetes therapy.

9. For a patient with poorly controlled hypertension whose follow-up is infrequent, what is the best initial management step?

A. Add Chlorthalidone to her medication regimen

B. Reinforce education about hypertension and treatment goals

C. Admit for inpatient management

D. Order diagnostic tests for secondary causes of hypertension

The best initial management step for a patient with poorly controlled hypertension and infrequent follow-up is to reinforce education about hypertension and treatment goals. This approach is crucial in ensuring that the patient understands their condition and the importance of adhering to prescribed medications and lifestyle modifications. Education can empower the patient to take an active role in managing their health, which is particularly important in chronic conditions like hypertension. Providing educational reinforcement can also address common misconceptions about hypertension, the importance of regular follow-ups, and the potential consequences of uncontrolled blood pressure. The aim is to improve medication adherence, encourage lifestyle changes (such as dietary modifications and increased physical activity), and ensure the patient understands the importance of regular monitoring of blood pressure. In outpatient settings, especially with patients who have infrequent follow-up, establishing a strong educational foundation can lead to better long-term management of hypertension. It sets the stage for further interventions or adjustments to therapy as needed in future visits. This supportive approach is essential before considering more intensive management options.

10. In a patient with COPD exacerbation complicated by cardiac issues, what is the main factor to address initially?

A. Rate control of atrial fibrillation

B. Treatment of the underlying COPD

C. Thrombolysis for myocardial infarction

D. Immediate cardioversion

In a patient experiencing a COPD exacerbation complicated by cardiac issues, addressing the underlying COPD is the primary focus initially. COPD exacerbations can lead to significant respiratory distress, which may contribute to or worsen cardiac issues such as arrhythmias or heart failure. By improving the respiratory status through the treatment of COPD— which may include bronchodilators, corticosteroids, and oxygen therapy— the overall cardiopulmonary status can stabilize. When respiratory function improves, it can reduce the strain on the heart and improve oxygenation, subsequently alleviating some of the cardiac complications. Effective management of the COPD exacerbation is vital because it directly addresses a significant and potentially reversible cause of the patient's distress. Once respiratory issues are under control, further attention can be given to any cardiac irregularities or conditions that may require specific interventions like rate control for atrial fibrillation or other cardiac treatments, but prioritizing the treatment of the COPD is crucial for stabilizing the patient's overall condition first.