ExamsIndex
Practice Materials & Tests

DEMO VERSION

Radiology

ARRT-Vascular-Interventional-Radiography Exam

ARRT Vascular Interventional Radiography (VI)

Exam Latest Version: 6.1

Question 1. (Single Select)

All of the following are characteristics of polyethyleneterephthalate (PET) balloon catheters EXCEPT:

A: medium tensile strength
B: low profile
C: low compliance
D: stiff material

Correct Answer: A

Explanation:

To answer the question about which characteristic does not belong to polyethyleneterephthalate (PET) balloon catheters, we need to understand the properties of PET materials and compare them with other materials like nylon used in similar applications.

Polyethyleneterephthalate, commonly known as PET, is a type of polyester that is widely used in various applications, including fabric fibers, containers for liquids and foods, and in medical devices like balloon catheters. PET is chosen for these applications due to its significant strength, durability, and chemical stability.

Starting with **high tensile strength**, PET is indeed known for this characteristic. Tensile strength refers to the maximum stress that a material can withstand while being stretched or pulled before breaking. High tensile strength in balloon catheters is crucial as it ensures that the balloon can be inflated to a required size without rupturing. This characteristic is essential for procedures requiring precise dimensional stability of the balloon under pressure.

Moving on to **low profile**, this term typically refers to the thickness of the catheter wall and its ability to be inserted and travel through very small or tight vascular spaces. PET balloons are favored in medical applications because they can be made with thin but strong walls, allowing for a lower profile while maintaining the necessary strength and functionality. This lower profile facilitates easier insertion and navigation through narrow or complicated vascular passages.

Concerning **low compliance**, this means that the balloon does not easily expand beyond its intended size when pressure is applied. PET is known for its low compliance, which is a critical feature in medical applications where the precision of the balloon's diameter and volume under pressure must be strictly controlled. Low compliance ensures that the balloon expands only to its

designed limits, providing predictable and safe outcomes during medical procedures.

Finally, **stiff material** is another characteristic associated with PET. The inherent stiffness of PET helps in maintaining the structural integrity of the catheter during insertion and inflation. This stiffness also aids the pushability and trackability of the catheter through the body's vasculature, making it easier to handle and manipulate during medical procedures.

Given these explanations, the characteristic that does NOT describe PET balloon catheters is **medium tensile strength**. As discussed, PET is known for its high tensile strength, not medium. This characteristic is more applicable to materials like nylon, which is also used in balloon catheters but typically offers medium tensile strength, compliance, and profile, making it suitable for different types of medical scenarios where less rigidity and more flexibility are required.

Question 2. (Single Select)

Which of the following drugs would be given for nausea or vomiting?

A: Cilostazol
B: Abciximab
C: Midazolam
D: Dolasetron

Correct Answer: D

Explanation:

When considering a medication for the treatment of nausea or vomiting, various options are available, each with specific indications and mechanisms of action. Among the options listed - Cilostazol, Dolasetron, Abciximab, and Midazolam - Dolasetron is the most appropriate choice for managing nausea or vomiting.

Dolasetron is classified as an antiemetic drug. It works by blocking serotonin receptors in the brain and gut, which helps in preventing the nausea and vomiting stimuli from being transmitted. This mechanism is particularly effective in controlling nausea and vomiting caused by chemotherapy, radiation therapy, and surgery. Dolasetron can be administered orally or

intravenously, depending on the patient's condition and severity of symptoms. The typical intravenous dose for immediate relief is 12.5 mg administered as a single dose.

While Dolasetron is specifically tailored for nausea and vomiting, other drugs mentioned like Cilostazol, Abciximab, and Midazolam serve different primary purposes. Cilostazol is used primarily for improving symptoms of intermittent claudication and does not have antiemetic properties. Abciximab is an antiplatelet drug used to prevent platelets from clumping together and causing occlusive blood clots; it is not used to treat nausea or vomiting. Midazolam, on the other hand, is a sedative used primarily for inducing drowsiness, anxiety relief, and amnesia before medical procedures; it is not typically used as an antiemetic.

Additionally, there are other antiemetics that can be considered for managing nausea and vomiting, such as metoclopramide, prochlorperazine, and ondansetron. These drugs also work by interfering with the neurotransmitter signals that induce vomiting. Metoclopramide increases stomach contractions to help with faster gastric emptying, prochlorperazine blocks dopamine receptors in the brain, and ondansetron blocks serotonin receptors, similar to Dolasetron, but is often preferred in cases of severe chemotherapy-induced nausea and vomiting.

In conclusion, for a patient experiencing nausea or vomiting, Dolasetron is the best choice among the drugs listed due to its specific antiemetic properties. It should be used following medical advice and considering the specific causes and conditions of the patient's symptoms. Other drugs might be more appropriate under different clinical circumstances or for addressing other primary medical issues.

Question 3. (Single Select)

Which of the following is the normal range for ALP on a liver panel?

A: 8-48 U/L.
B: 7-55 U/L.
C: 48-115 U/L.
D: 125-148 U/L.

Correct Answer: C

Explanation:

A liver panel, also known as a liver function test, is a comprehensive blood test used to assess the health and functionality of the liver. This panel measures various enzymes, proteins, and substances that are either produced or excreted by the liver. The levels of these components can indicate the presence of liver injury or disease, as well as help in monitoring the progress of treatment and the severity of a liver condition.

One of the key enzymes measured in a liver panel is Alkaline Phosphatase (ALP). ALP is an enzyme found in several tissues throughout the body, with significant concentrations in the liver, bones, kidneys, and bile ducts. In the context of the liver, ALP levels can rise due to liver diseases or conditions that block bile ducts. Elevated ALP levels might suggest issues such as hepatitis, cirrhosis, liver cancer, or bile duct obstruction.

The normal range for ALP in a liver panel is typically between 48 to 115 units per liter (U/L). This range can vary slightly depending on the laboratory and the testing methods used. It is important for healthcare providers to compare the test results with reference values specific to the lab that conducted the test. Normal ALP levels within this range suggest that the liver is functioning properly without any significant obstruction or damage affecting the bile ducts or liver cells.

If ALP levels are found to be outside the normal range, further investigations are required to pinpoint the exact cause. Lower levels of ALP might not typically indicate a liver condition and could be associated with other medical issues. On the other hand, higher levels could necessitate additional tests such as imaging studies and more specific liver function tests to determine the cause of liver distress or injury.

In conclusion, the normal range for ALP on a liver panel being 48-115 U/L is crucial for assessing liver health. Physicians use these levels, along with other components of the liver panel, to diagnose, monitor, and manage liver-related conditions effectively.

Question 4. (Single Select)

Which of the following is an antiplatelet medication?

A: Cilostazol
B: Midazolam
C: Lorazepam
D: All of the above.

Correct Answer: A

Explanation:

The question asks which of the options listed is an antiplatelet medication. Among the options provided (Cilostazol, Midazolam, Lorazepam, All of the above), only Cilostazol is correctly identified as an antiplatelet medication.

Cilostazol works by inhibiting platelet aggregation and also acts as a direct arterial vasodilator. Its primary use is in the treatment of intermittent claudication, a condition characterized by pain and cramping in the lower legs due to inadequate blood flow, typically caused by atherosclerosis. By preventing platelet aggregation, Cilostazol helps to improve blood flow and relieve symptoms associated with this condition.

It is important to note the contraindications of Cilostazol. The drug is not recommended for patients who have a history of hypersensitivity to it, as adverse reactions could occur. Additionally, Cilostazol should be used with caution in patients with heart failure.

The administration of Cilostazol is specific; it is usually prescribed at a dose of 100 mg taken orally twice a day. It should be taken about 30 minutes before or two hours after breakfast and dinner to optimize its absorption and effectiveness.

The other medications listed, Midazolam and Lorazepam, are not antiplatelet drugs. Midazolam is a benzodiazepine used primarily as a sedative and for inducing sleep before surgeries or procedures, while Lorazepam is also a benzodiazepine used mainly to treat anxiety and as a sedative before surgeries or diagnostic procedures. Neither of these medications have antiplatelet properties.

Therefore, when considering which of the listed medications is an antiplatelet drug, lostazol alone, not "All of the above." This distinction is crucial for appropriate clinical decision-making and patient care.

Question 5. (Single Select)

The class of blood cells that is the oxygen and carbon dioxide transport is which of the following?

A: erythrocyte
B: monocyte
C: neutrophil
D: T lymphocyte

Correct Answer: A

Explanation:

The correct answer to the question regarding the class of blood cells responsible for the transport of oxygen and carbon dioxide is erythrocytes. Erythrocytes, also known as red blood cells, are primarily tasked with carrying oxygen from the lungs to various tissues throughout the body and transporting carbon dioxide, a waste product, from those tissues back to the lungs where it can be exhaled.

Erythrocytes are uniquely structured for this task. They are biconcave disks which provide a large surface area relative to their volume, enhancing their ability to absorb and release oxygen and carbon dioxide. They contain hemoglobin, a protein that binds oxygen and carbon dioxide, facilitating efficient gas exchange. The lack of a nucleus and other organelles in erythrocytes allows for maximal space for hemoglobin, increasing their oxygen-carrying capacity.

The other options listed—monocytes, neutrophils, and T lymphocytes—are also types of blood cells, but they serve different functions in the immune system. Neutrophils and monocytes are types of white blood cells involved in protecting the body against infections. Neutrophils are the first immune cells to arrive at a site of infection and are key players in the initial phase of the immune response, while monocytes, which develop into macrophages and dendritic cells, are crucial for longer-term defense and also help in antigen presentation, a critical part of stimulating an adaptive immune response. T lymphocytes, or T cells, are central to the cellular immune response, involved in directly killing infected host cells, activating other immune cells, and regulating the immune response.

Therefore, among the options provided, erythrocytes are the correct answer as they are the primary transporters of oxygen and carbon dioxide in the bloodstream, whereas the roles of neutrophils, monocytes, and T lymphocytes are primarily centered around the immune defense mechanisms of the body.

ExamsIndex

Demo PDF Complete

Your ARRT-Vascular-Interventional-Radiography Demo (5 Questions)