Certified Wound Care Nurse (CWCN) Practice Exam (Sample)

Study Guide



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Questions



- 1. What type of cells release growth factors during the inflammation stage of wound healing?
 - A. Fibroblasts
 - **B.** Keratinocytes
 - C. Macrophages
 - D. Endothelial cells
- 2. What type of debridement is contraindicated for pyoderma gangrenosum?
 - A. Sharp debridement
 - **B.** Mechanical debridement
 - C. Enzymatic debridement
 - D. Biological debridement
- 3. Which dressing is chemically designed to bind to matrix metalloproteinases (MMPs) in chronic wounds?
 - A. Apligraf
 - B. Hydrocolloid
 - C. Collagen
 - D. Negative pressure therapy
- 4. What is a hallmark characteristic of toxic shock syndrome?
 - A. Localized redness without systemic symptoms
 - B. Desquamation of the skin after a period
 - C. Rapid onset of localized swelling
 - D. Chronic hyperkeratosis
- 5. How should an 83-year-old man with type 2 diabetes and a vibrant red trochanteric wound be classified?
 - A. Arterial injury.
 - B. Stage 4 pressure injury.
 - C. Neuropathic injury.
 - D. Stage 2 pressure injury.

- 6. What laboratory finding indicates malnutrition in acutely ill patients due to hypermetabolism and inflammation?
 - A. High white blood cell count
 - B. Low albumin levels
 - C. High blood glucose levels
 - D. Low platelet count
- 7. What is a potential consequence of applying a chemical debriding agent that causes unrelenting burning pain?
 - A. Reduced circulation.
 - **B.** Wound infection.
 - C. Wound deterioration.
 - D. Delayed healing.
- 8. Which type of products interfere with the ionization of silver in wound care?
 - A. Cream-based products
 - **B.** Oil-based products
 - C. Aloe vera products
 - D. Antiseptic products
- 9. When recommending compression therapy for a patient with venous stasis ulcers and ABI of 0.7, what principle should be considered?
 - A. A therapeutic compression level (at least 30 mmHg sustained compression) is needed at the ankle.
 - B. Compression is contraindicated in patients with CHF.
 - C. Modified compression (20-27 mmHg) should be used for patients with ABI of 0.6-0.8.
 - D. Compression is contraindicated in patients with ABI less than 0.8.
- 10. Patients with radiation-based skin reactions should avoid products containing what ingredients?
 - A. Pure lanolin
 - B. Petrolatum
 - C. Vaseline
 - D. Natural oils

Answers



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



Explanations



1. What type of cells release growth factors during the inflammation stage of wound healing?

- A. Fibroblasts
- **B.** Keratinocytes
- C. Macrophages
- D. Endothelial cells

During the inflammation stage of wound healing, macrophages play a crucial role in releasing growth factors. These specialized immune cells are among the first responders to injury and are essential for orchestrating the healing process. Their primary function is to ingest and break down debris and pathogens, but they are also pivotal in secreting a variety of cytokines and growth factors that facilitate tissue repair. Macrophages produce and release several key growth factors such as vascular endothelial growth factor (VEGF), transforming growth factor-beta (TGF- β), and platelet-derived growth factor (PDGF). These factors stimulate the proliferation of fibroblasts, keratinocytes, and endothelial cells, contributing to the formation of granulation tissue, angiogenesis, and re-epithelialization. While fibroblasts do play a significant role in the proliferation phase by producing collagen and extracellular matrix components, it is primarily macrophages that are responsible for initiating this cascade of healing through the release of growth factors during the inflammatory response. This engagement is critical for transitioning the wound from the inflammatory stage to the proliferative stage of healing.

2. What type of debridement is contraindicated for pyoderma gangrenosum?

- A. Sharp debridement
- B. Mechanical debridement
- C. Enzymatic debridement
- D. Biological debridement

Mechanical debridement is contraindicated for pyoderma gangrenosum due to the nature of the condition. Pyoderma gangrenosum is an inflammatory skin disorder characterized by painful ulcers that can rapidly worsen with trauma or injury to the skin. It is essential to avoid any form of debridement that may cause additional trauma, as this can exacerbate the condition and lead to further ulceration. In contrast, sharp debridement involves the precise removal of necrotic tissue, which is not suitable as it may trigger an inflammatory response in pyoderma gangrenosum. Enzymatic debridement utilizes specific enzymes to break down dead tissue gently, and biological debridement applies living organisms (like maggots) to debridement, both of which are more controlled methods that minimize trauma to the surrounding skin and are generally better tolerated in such conditions. In this context, recognizing that pyoderma gangrenosum requires careful handling and interventions that prioritize preserving healthy tissue helps in understanding why mechanical debridement, which can be abrasive and aggressive, is inadvisable in managing this particular skin condition.

- 3. Which dressing is chemically designed to bind to matrix metalloproteinases (MMPs) in chronic wounds?
 - A. Apligraf
 - **B.** Hydrocolloid
 - C. Collagen
 - D. Negative pressure therapy

The dressing that is chemically designed to bind to matrix metalloproteinases (MMPs) in chronic wounds is Apligraf. Apligraf is a bioengineered skin substitute that contains living human keratinocytes and fibroblasts, which helps to create a conducive environment for healing. One of its mechanisms of action involves the ability to modulate the wound environment by interacting with MMPs, which are enzymes that play a significant role in the degradation of extracellular matrix components and are often found in elevated levels in chronic wounds. By binding to MMPs, Apligraf helps to reduce their potentially harmful effects on the wound healing process, promoting a more favorable healing environment. In contrast, other dressings mentioned do not specifically have this action. Hydrocolloid dressings create a moist environment but do not chemically interact with MMPs. Collagen dressings provide a scaffold for new tissue growth but do not have the specific mechanism of binding to MMPs. Negative pressure therapy focuses on wound drainage and blood flow improvement, rather than directly modulating MMP activity. Hence, Apligraf stands out due to its unique ability to address MMPs in the context of chronic wound management.

- 4. What is a hallmark characteristic of toxic shock syndrome?
 - A. Localized redness without systemic symptoms
 - B. Desquamation of the skin after a period
 - C. Rapid onset of localized swelling
 - D. Chronic hyperkeratosis

Toxic shock syndrome (TSS) is an acute and potentially life-threatening condition often associated with certain bacterial infections, particularly those caused by Staphylococcus aureus or Streptococcus pyogenes. A hallmark characteristic of TSS is indeed the desquamation of the skin, which typically occurs 1 to 2 weeks after the onset of symptoms. This peeling of the skin is often most noticeable on the palms of the hands and soles of the feet and is considered a classic sign of the syndrome, reflecting the systemic effects of the toxins produced by the bacteria. The rapid progression of TSS from initial symptoms to severe illness highlights the syndrome's acute nature, including high fever, rash, and multi-organ dysfunction. Delayed recognition of desquamation can be crucial in identifying TSS and initiating timely intervention. The inflammatory response and widespread dissemination of toxins result in significant disruption of normal skin integrity, leading to this characteristic peeling. Understanding these key features allows healthcare professionals to better recognize and manage potentially life-threatening cases of TSS effectively.

- 5. How should an 83-year-old man with type 2 diabetes and a vibrant red trochanteric wound be classified?
 - A. Arterial injury.
 - B. Stage 4 pressure injury.
 - C. Neuropathic injury.
 - D. Stage 2 pressure injury.

In the context of wound classification, a vibrant red trochanteric wound in an 83-year-old man with type 2 diabetes indicates specific characteristics that guide classification. A vibrant red color often points to granulation tissue, which is typical of a healing wound rather than an acute injury. For a neuropathic injury, it is essential to recognize that individuals with diabetes often experience diabetic neuropathy, which can lead to wounds commonly seen on the feet and other pressure points due to loss of sensation. However, the trochanteric area is typically not associated with diabetic ulcers but is instead a common site for pressure injuries. A stage 2 pressure injury is defined as partial-thickness skin loss with exposed dermis, presenting as a pink or red wound bed and may have serum-filled blistering. If the wound is described specifically as vibrant red, it suggests ongoing healing processes rather than the characteristics of a stage 2 pressure injury, which typically would not be vibrant red but rather show pinkness or erythema. Considering all these factors, the classification of the wound aligns with the nature of diabetic wounds, particularly those in patients experiencing neuropathy. Therefore, classifying the trochanteric wound as a neuropathic injury corresponds with the

- 6. What laboratory finding indicates malnutrition in acutely ill patients due to hypermetabolism and inflammation?
 - A. High white blood cell count
 - B. Low albumin levels
 - C. High blood glucose levels
 - D. Low platelet count

Low albumin levels are a key laboratory finding indicating malnutrition in acutely ill patients, particularly in the context of hypermetabolism and inflammation. Albumin is a protein synthesized by the liver, and its levels can be influenced by nutritional status, liver function, and the inflammatory state of an individual. In acutely ill patients, particularly during periods of inflammation or stress, the body experiences a catabolic state where proteins are mobilized for energy, leading to a depletion of albumin in the serum. This can result in low albumin levels, which reflect not only malnutrition but also the body's inability to produce adequate protein due to liver dysfunction or acute inflammatory responses. While other laboratory findings such as high white blood cell count, high blood glucose levels, and low platelet count can suggest other issues, they do not specifically indicate malnutrition related to hypermetabolism and inflammation in the same way that low albumin levels do. High white blood cell count often indicates infection or inflammation, high blood glucose levels may be related to stress or diabetes, and low platelet counts can indicate various conditions, but none of these directly reflect nutritional status as clearly as low albumin levels do.

- 7. What is a potential consequence of applying a chemical debriding agent that causes unrelenting burning pain?
 - A. Reduced circulation.
 - **B.** Wound infection.
 - C. Wound deterioration.
 - D. Delayed healing.

Applying a chemical debriding agent that causes unrelenting burning pain can lead to wound deterioration. When a debriding agent causes significant discomfort, it may indicate that the agent is being too aggressive or that it is damaging the surrounding healthy tissues. This can result in further injury to the wound area, hindering the natural healing process. In cases where the wound is subjected to prolonged pain and irritation, the body's response can include increased inflammation and delayed healing, as well as the formation of necrotic tissue if the healthy surrounding tissues are compromised. Sustained pain can also lead to noncompliance with treatment, as the patient may be less inclined to continue with the management plan if they experience distress. Proper wound care should focus on methods that facilitate healing without causing excessive pain or discomfort, ensuring that the debridement process is effective yet gentle enough to preserve healthy tissue.

- 8. Which type of products interfere with the ionization of silver in wound care?
 - A. Cream-based products
 - **B.** Oil-based products
 - C. Aloe vera products
 - D. Antiseptic products

Oil-based products interfere with the ionization of silver in wound care because they can create a barrier that prevents the silver ions from effectively penetrating the wound bed. Silver is often used for its antimicrobial properties, and it operates by releasing silver ions, which can kill bacteria and reduce infection risks. When an oil-based product is applied, it can coat the wound and impede the movement of these ions, limiting their bioavailability and efficacy in wound management. In contrast, cream-based products, aloe vera products, and antiseptic products do not have the same effect on silver ion release. Creams may allow for better absorption and interaction with the wound environment, aloe vera can provide moisture and promote healing, and antiseptic products are designed to help reduce microbial load but would not necessarily inhibit the action of silver. Therefore, the interference specifically associated with oil-based products makes them distinct in the context of silver ionization in wound care.

- 9. When recommending compression therapy for a patient with venous stasis ulcers and ABI of 0.7, what principle should be considered?
 - A. A therapeutic compression level (at least 30 mmHg sustained compression) is needed at the ankle.
 - B. Compression is contraindicated in patients with CHF.
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 - D. Compression is contraindicated in patients with ABI less than 0.8.

The principle of contraindications in compression therapy is crucial in wound care management, particularly for patients with venous stasis ulcers. In this context, an Ankle-Brachial Index (ABI) of 0.7 indicates that the patient has some compromised arterial blood flow, leading to a potential risk for ischemia when subjected to high levels of compression. Compression therapy is generally advocated because it promotes venous return and reduces edema in venous stasis ulcers; however, applying compression to a limb with insufficient arterial circulation can exacerbate the situation. For patients with an ABI less than 0.8, especially those with an ABI of 0.7, the risk of further compromise to limb perfusion increases, making it essential to avoid therapeutic levels of compression (which are typically around 30 mmHg or higher). Therefore, this response outlines the fundamental safety concerns that healthcare providers must consider when recommending compression therapy in individuals with varying degrees of peripheral arterial disease.

- 10. Patients with radiation-based skin reactions should avoid products containing what ingredients?
 - A. Pure lanolin
 - B. Petrolatum
 - C. Vaseline
 - D. Natural oils

Patients experiencing radiation-based skin reactions are advised to avoid products containing petrolatum. This is due to the occlusive nature of petrolatum, which can trap heat and moisture in the skin, potentially exacerbating the inflammatory process and irritation that occurs as a result of radiation therapy. When skin is affected by radiation, it becomes more sensitive and vulnerable, hence it is crucial to use products that maintain a balance of moisture without causing additional irritation or a warm, trapped environment. While some other substances, such as pure lanolin and certain natural oils, might have soothing properties and may not have the same occlusive effects as petrolatum, caution still needs to be exercised with skin care products to ensure that they do not further irritate the sensitive skin. Understanding the specific needs of the skin following radiation treatment is essential for promoting healing and comfort. Thus, avoiding petrolatum is particularly prudent to prevent further complications in the healing process.