Wound Care Certification Review #2
Interpret Lab Results for Wound Care

1. A patient with a chronic pressure injury has a prealbumin level of 10 mg/dL. This most likely indicates:
A. Mild dehydration
B. Normal short-term protein status
C. Severe protein-calorie malnutrition
D. Adequate long-term nutrition

2. Albumin is most valuable in assessing which aspect of a patient's condition?
A. Recent dietary protein intake
B. Short-term inflammatory status
C. Chronic nutritional status
D. Electrolyte abnormalities

3. A Complete Blood Count (CBC) reveals a WBC count of 14,500/mm³ with a predominance of neutrophils. This finding most likely represents:
A. Viral infection
B. Bacterial infection or acute inflammation
C. Iron deficiency anemia
D. Bone marrow suppression

4. A total protein level of 5.1 g/dL is most consistent with:
A. Overhydration or liver dysfunction
B. Acute infection
C. Normal nutritional intake
D. Hyperglycemia

5. Prealbumin is a more sensitive indicator of acute malnutrition than albumin because it:
A. Is less affected by liver function
B. Has a shorter half-life and responds quickly to changes in protein intake
C. Measures long-term protein stores
D. Is unaffected by inflammation

6. A hemoglobin level of 8.3 g/dL and hematocrit of 25% in a patient with a non-healing ulcer most likely indicate:
A. Normal oxygen-carrying capacity
B. Mild dehydration
C. Impaired tissue oxygenation
D. Normal wound-healing potential

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7. A glycosylated hemoglobin (HbA1C) of 9.1% indicates:
A. Tight glycemic control
B. Average blood glucose over the last 2–3 months is elevated
C. Low short-term glucose levels
D. Normal fasting glucose

8. In wound healing, maintaining an A1C below which value is generally considered optimal?
A. 9%
B. 8%
C. 7%
D. 5%

9. A C-reactive protein (CRP) level of 10 mg/dL and ESR of 85 mm/hr together suggest:
A. No inflammation present
B. Active systemic inflammation or infection
C. Dehydration
D. Chronic anemia

10. A Comprehensive Metabolic Panel (CMP) shows BUN 38 mg/dL and creatinine 2.1 mg/dL. These results most likely indicate:
A. Normal renal function
B. Dehydration or renal impairment
C. Liver dysfunction
D. Infection

11. A patient with albumin 2.5 g/dL and bilateral leg edema likely has:
A. Protein malnutrition leading to reduced oncotic pressure
B. Hypervolemia with increased oncotic pressure
C. Iron deficiency
D. Normal plasma protein distribution

12. A CMP reveals low total protein and low calcium. Which organ system should be evaluated first?
A. Endocrine
B. Liver
C. Cardiovascular
D. Pulmonary

13. A platelet count of 95,000/mm^3 in a patient on anticoagulant therapy implies:
A. Low bleeding risk
B. Moderate bleeding risk—caution required during debridement
C. Increased clotting potential
D. No clinical concern

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14. A patient’s ESR is normal, but CRP is elevated. This pattern is most consistent with:
A. Recent onset acute inflammation
B. Chronic autoimmune disorder
C. Iron deficiency
D. Protein-calorie malnutrition

15. A prealbumin level of 8 mg/dL with a normal CRP is most consistent with:
A. Malnutrition
B. Acute infection
C. Dehydration
D. Normal nutritional status

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Answer Key and Detailed Explanations

1. C – Severe protein-calorie malnutrition
Prealbumin <15 mg/dL (especially <10 mg/dL) indicates acute protein malnutrition. Because prealbumin has a short half-life (~2 days), it reflects current protein intake and utilization. Malnutrition impairs collagen synthesis, angiogenesis, and wound contraction.

2. C – Chronic nutritional status
Albumin (half-life ≈ 20 days) reflects long-term nutritional and hepatic function. Chronic hypoalbuminemia (<3.5 g/dL) contributes to edema, delayed granulation, and poor immune response.

3. B – Bacterial infection or acute inflammation
Neutrophilia with elevated WBC suggests bacterial infection or inflammatory response. In wound care, this finding warrants assessment for cellulitis, osteomyelitis, or sepsis.

4. A – Overhydration or liver dysfunction
Total protein <6.0 g/dL may reflect hepatic synthetic failure, renal loss, or fluid overload. Low protein delays healing by impairing fibroblast proliferation and capillary growth.

5. B – Shorter half-life, more responsive
Prealbumin's 2-day half-life makes it ideal for monitoring acute changes in protein intake or refeeding response. Albumin changes too slowly to detect early nutritional improvement.

6. C – Impaired tissue oxygenation
Anemia (low Hgb/Hct) limits oxygen delivery to tissue, reducing fibroblast activity and collagen synthesis. Transfusion or iron therapy may be required for healing in severe cases.

7. B – Elevated glucose over past 2–3 months
A1C reflects mean glucose over ~90 days. A value >8% increases risk of neuropathy, infection, and impaired leukocyte function, all of which slow wound closure.

8. C – <7%
A1C below 7% is associated with reduced infection risk and improved wound granulation and epithelialization. Each 1% A1C reduction lowers complication risk significantly.

9. B – Active inflammation or infection
High ESR (>70 mm/hr) and CRP (>10 mg/dL) indicate systemic inflammation. This may accompany infected ulcers, osteomyelitis, or autoimmune flare-ups impacting wound healing.

10. B – Dehydration or renal impairment
Elevated BUN and creatinine indicate kidney dysfunction or volume depletion. Poor renal clearance leads to uremic toxins, metabolic acidosis, and delayed cell regeneration.

11. A – Protein malnutrition leading to reduced oncotic pressure
Albumin maintains plasma oncotic pressure. When levels drop below 3.0 g/dL, fluid leaks into interstitial spaces, causing edema that increases pressure on wounds and slows healing.

12. B – Liver
The liver synthesizes most serum proteins, including albumin and clotting factors. Concurrent low calcium can occur with decreased albumin-bound calcium fractions, suggesting hepatic impairment.

13. B – Moderate bleeding risk
Platelet count <100,000/mm³ raises bleeding risk, particularly with sharp debridement or negative pressure therapy. Close monitoring and possible hematology consult are warranted.

14. A – Recent onset acute inflammation
CRP rises rapidly within hours of inflammation, while ESR lags. Elevated CRP with normal ESR indicates an acute inflammatory event, often seen in early wound infection.

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15. A – Malnutrition
Prealbumin <15 mg/dL with normal CRP implies nutritional depletion rather than inflammation. Without adequate protein intake, wound healing is delayed even in the absence of infection.

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