

Chapter 100, Self-Assessment Questions

1. Which one of the following is an appropriate indication for PN?
 - A. Severe malnutrition with a functional GI tract
 - B. Intentional weight loss
 - C. Fluid and electrolyte deficits
 - D. Short-bowel syndrome
 - E. Well-nourished patient, NPO × 3 days

2. Which of the following commercially available concentrations of IV lipid emulsions is FDA approved *ONLY* for infusion in a TNA (ie, should not be directly infused into the patient or via Y-site)?
 - A. 2%
 - B. 10%
 - C. 15%
 - D. 20%
 - E. 30%

3. What is the *maximum* recommended osmolarity for a PN admixture that is administered via a peripheral vein (ie, peripheral PN, or PPN)?
 - A. 300 mOsm/L
 - B. 500 mOsm/L
 - C. 900 mOsm/L
 - D. 1500 mOsm/L
 - E. 2000 mOsm/L

4. Which of the following is an advantage of TNAs (total nutrient admixtures) over 2-in-1 PN formulations?
- A. Stability is improved with TNAs.
 - B. Visual inspection is easier with TNAs.
 - C. A 0.22- micronbacterial retention filter may be used with TNAs.
 - D. A greater number of medications are compatible with TNAs.
 - E. Vein irritation is decreased with TNAs.
5. Which of the following actions will *INCREASE* the likelihood of calcium-phosphate precipitation in PN admixtures?
- A. Refrigerating the PN bag
 - B. Use of calcium chloride as the calcium salt
 - C. Separating the addition of calcium and phosphate salts when compounding
 - D. Decreasing the pH of the PN solution
 - E. All of the above
6. Which of the following is a potential advantage of standardized, commercially available (premixed) PN formulations available in the United States?
- A. They contain high concentrations of amino acids.
 - B. There are multiple volumes available.
 - C. They are suitable for complex patient populations (e.g, patients with organ dysfunction).
 - D. There may be a lower risk of microbial contamination due to fewer manipulations.
 - E. There are multiple formulations available that contain IVFE.

7. Addition or coinfusion of bicarbonate with PN admixtures is contraindicated because it can lead to:

- A. Formation of insoluble calcium carbonate
- B. Sodium-phosphate precipitation
- C. Increased PN admixture acidity
- D. Potassium-phosphate precipitation
- E. Increased risk of infection

8. Which of the following trace minerals are known contaminants of parenteral products used in the making of PN and may accumulate in patients on long-term PN?

- A. Chromium and manganese
- B. Aluminum and selenium
- C. Iron and chromium
- D. Zinc and selenium
- E. Manganese and iron

9. Which of the following medications (when indicated) can be safely added to PN admixtures?

- A. Insulin glargine
- B. Famotidine
- C. Pantoprazole
- D. Enoxaparin
- E. Iron sucrose

10. Which of the following would NOT be in agreement with recommendations from A.S.P.E.N. regarding PN safety?
- A. Implementing electronic PN order forms (eg, in a CPOE system) and removing paper/handwritten PN order forms
 - B. Implementing electronic transmission of PN orders from a CPOE system to an automated compounder and removing manual transcription of PN orders
 - C. Developing PN education and annual competency assessment for all health care professionals involved in any aspect of PN therapy
 - D. Removing clinical decision support and dose limit alerts from PN orders in a CPOE system and in an automated compounding device to avoid alert fatigue
 - E. Developing institution-specific PN policies and procedures to address all aspects of the PN use process
11. Which of the following is a potential adverse effect associated with overfeeding?
- A. Hyperglycemia
 - B. Hypertriglyceridemia
 - C. Hypercapnia
 - D. Hepatic steatosis
 - E. All of the above
12. Which of the following factors is a potential cause of metabolic bone disease in PN-dependent patients?
- A. Sodium deficiency
 - B. Manganese accumulation and toxicity

- C. Aluminum accumulation and toxicity
 - D. Essential fatty acid deficiency
 - E. Hypertriglyceridemia
13. A deficiency of which of the following can lead to lactic acidosis and neurological abnormalities?
- A. Dextrose
 - B. Thiamine
 - C. Folic acid
 - D. Essential fatty acids
 - E. Zinc
14. The classic metabolic derangements associated with refeeding syndrome are:
- A. Hyperphosphatemia and hyperkalemia
 - B. Hyperphosphatemia and hypokalemia
 - C. Hyperphosphatemia and hypermagnesemia
 - D. Hypokalemia and hypermagnesemia
 - E. Hypophosphatemia and hypokalemia
15. Which of the following parameters should be monitored at baseline prior to initiation of PN?
- A. Serum electrolyte and glucose concentrations
 - B. Nitrogen balance
 - C. Blood cultures
 - D. Serum trace element concentrations

E. Serum vitamin concentrations

Answers

1. D.
2. E.
3. C.
4. E.
5. B.
6. D.
7. A.
8. A.
9. B.
10. D.
11. E.
12. C.
13. B.
14. E.
15. A.

