**MODULE 1: THE CONCEPT OF ACID–BASE BALANCE**

**Exemplar 1.A: Metabolic Acidosis**

**Reflect**

Reread Clinical Example A on page 7. Mr. James’s arterial blood gas values were pH 7.28; PaCO2 31 mmHg; PaO2 95 mmHg; and HCO3 15 mEq/L. CVP (central venous pressure) or right atrial pressure (RAP) ranged from 1 to 3 cm H2O pressure. ECG revealed sinus tachycardia with ST depression in most leads. Two units of packed red blood cells were ordered and rapidly transfused into the patient. His hemoglobin was 10 g/dl and his hematocrit was 40% before the transfusion.

**Question 1**

What is the priority nursing diagnosis for Mr. James at this time? Why?

**Answer 1**

*Fluid Volume, Deficient* is the primary diagnosis because of the low reading of the right atrial pressure, which reflects fluid volume. Normal RAP is 2–8 mmHg, and higher RAP is needed to ensure adequate volume.

**Question 2**

What is the interpretation of the ABG (arterial blood gas) results?

**Answer 2**

ABG results indicate metabolic acidosis.

**Question 3**

How is the patient compensating for the acidosis?

**Answer 3**

The body attempts to compensate in various ways. Hyperventilation is one means of compensation for metabolic acidosis.

**Question 4**

*Refer to the module on Perfusion:* Why was the CVP catheter placed in this patient? What are normal CVP values?

**Answer 4**

Normal CVP can be measured in two ways: sternum: 0–14 cm H2O; midaxillary line: 8–15 cm H2O.

**Question 5**

Why is the hematocrit falsely elevated?

**Answer 5**

In severe dehydration, the volume of fluid drops and the number of RBCs per volume of fluid rises. This is the most common cause of a high hematocrit. With adequate fluid intake, the hematocrit returns to normal.

**Question 6**

What safety precautions should be implemented for Mr. James at this time?

**Answer 6**

Safety is the number one priority at all times. Safely monitor all activity levels for the patient. When the patient is critically ill, he will be on bedrest. It is important to turn the patient and to provide oral care and good hygiene.