Deep and rapid respirations (Kussmaul's respirations) may eventually develop. The CNS and the heart become depressed. Decreased cardiac function and hypotension may develop. The client develops weakness and headache as the blood vessels in the brain dilate. The client will show a change in the level of consciousness. Diminished muscle tone and deep tendon reflexes may be present. Nausea and vomiting are likely to occur. The kidneys try to correct the imbalance by secreting hydrogen, which combines with ammonia or phosphate and is excreted in the urine. Sodium and bicarbonate are held back by the kidneys to correct the acidosis. Hydrogen goes into the blood, forcing potassium out.

Signs of hyperkalemia may be seen, such as diarrhea, numbness and tingling of fingers or toes, weak or flaccid extremities, slowed heart rate, and ECG changes. The excess hydrogen ions cause further imbalance in the electrolytes, thereby reducing nervous system responses, resulting in CNS depression, lethargy, headache, confusion or stupor, and coma. To treat the acidosis, the underlying cause must be found. Insulin needs to be given for the diabetic client. Insulin forces the potassium back into the cells, treating the hyperkalemia. A patent IV is necessary for effective reversal of this condition. Position the client to promote ventilation and record intake and output. Assess the level of consciousness frequently and make adaptations in the environment to promote the client's safety should confusion occur. In cases that fail to respond, the nurse should anticipate ventilatory support and possibly dialysis.

**METABOLIC ALKALOSIS**

Metabolic alkalosis (see Figure 16-8B) occurs when the plasma loses hydrogen ions (acid) and gains bicarbonate. Arterial blood gases confirm this condition with a PaCO₂ greater than 45 mm Hg. The metabolic alkalosis often results from the use of diuretics that fail to conserve potassium. Loss of gastric fluids, as in vomiting or NG tube...