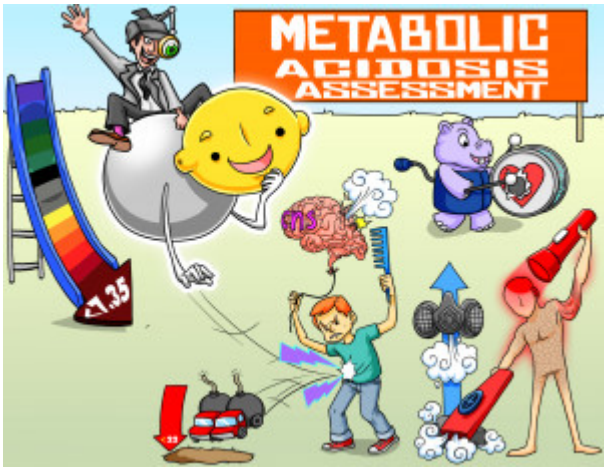
Metabolic Acidosis Assessment

Metabolic acidosis is a severe condition, which can occur due to a variety of causes, such as end-stage renal disease (ESRD) and lactic acidosis. Ketoacidosis can lead to this acid-base problem and can stem from diabetes mellitus, starvation states, or chronic alcoholism. Metabolic acidosis can also occur from hypermetabolic states (hyperthyroidism, burns, severe infections).



PLAY PICMONIC

Characteristics

Decreased pH 7.35

Down-arrow pH Less-than 7.35

Patients with metabolic acidosis have a decreased blood pH level, below 7.35, creating an acidotic environment in the blood stream.

Decreased HCO3 22

Down-arrow Bi-car-bomb Less-than 22

The key disturbance in metabolic acidosis is loss of bicarbonate in the body. Patients have bicarbonate levels below 22, causing the blood to become acidotic.

Signs & Symptoms

Abdominal Pain

Abdominal Pain-bolt

A symptom often associated with metabolic acidosis is the complaint of abdominal pain.

CNS Depression

Deflated CNS-brain

Metabolic acidosis can lead to CNS depression due to the buildup of carbonic acid and CO2 in patients, who often present with lethargy and confusion. If this condition is not corrected, coma can develop.

Coma

Comb

If metabolic acidosis is untreated and becomes more severe, it can lead to coma in patients.

Hypotension

Hippo-BP

A notable cardiac symptom seen with metabolic acidosis is hypotension, which can occur as a result of systemic vasodilation. Patients should be closely monitored for hemodynamic instability.

Arrhythmias

Broken Arrhythmia-drum

Extreme acidemia can lead to cardiac arrhythmias, such as ventricular tachycardia. Thus, patients with severe metabolic acidosis should have their electrolytes (notably, potassium) regularly monitored, and should be on telemetry monitoring.

Increased Respirations

Up-arrow Respirator

In an attempt to compensate for blood acidemia, patients show increased respiratory rate initially. This helps to blow off CO2 in an effort to alkalize the blood.

Kussmaul Respirations

Kazoo Respirations

In later stages of metabolic acidemia, Kussmaul's breathing can be seen. This pathologic breathing pattern is described by rapid, deep breaths, which are labored.

Flushed, Warm, Dry Skin

Flashlight to Warm, Dry Skin

Patients with this disorder display integumentary signs such as warm, flushing skin. Initially, without respiratory compensation, CO2 levels remain high, causing vasodilatory effects, leading to flushed, warm, dry skin. In cases where there is a physiologic respiratory compensation, CO2 levels should drop, and patients develop cold, clammy skin.

Muscle Weakness

Weak-drooping-muscle

Patients with metabolic acidosis display generalized muscle weakness as a result of alterations in muscle metabolism. Patients can begin to show hyporeflexia, and in severely acidotic states, paralysis can develop.