

Pathophysiology Concept Map

Assigned Alteration: Acid Base Imbalances

Why Does it Happen? Risk Factors

Acid Base imbalance happens because of failing parts in the body.
Acidosis results from either an increase in CO_2 (respiratory acidosis) or a decrease in HCO_3^- (metabolic acidosis) within the blood.
Alkalosis results from hyperventilation leading to a loss of CO_2 , or an increase in serum HCO_3^- , loss of serum potassium, or overuse of antacids (metabolic alkalosis).

How is it Diagnosed? Laboratory and Diagnostic Tests

Acidosis can be diagnosed by a blood test and measures the amount of bicarbonate in the blood. Known as the basic metabolic panel BMP or comprehensive metabolic panel CMP.
Alkalosis can be diagnosed by blood pH, serum bicarbonate (elevated) and pCO_2 (compensatory) elevation.

What is Wrong? Pathophysiologic Alteration

Acidosis causes a depression of the central nervous system. It could be caused by COPD, liver failure, CO_1 poisoning, or asthma. Causes low serum pH.
Alkalosis causes confusion or coma, body tremors (due to elevated HCO_3^- in the blood). This causes high serum pH.

What Other Factors are Involved? Social Determinants of Health

Built environment and diet. If the environment is known to have stressors, respiratory alkalosis may occur. Education may help, but it does not play a direct role in prevention, more so treatment.

How can This be Prevented? Disease Prevention

Acidosis can be prevented by drinking water, and no alcoholic fluids, managing diabetes, and following medication directions.
Alkalosis can be prevented by slowing breaths, learning breathing techniques, reducing antacid intake, or addressing the underlying medical issue.

What Cues Should the Person Have? Expected Findings

Acidosis causes central nervous system depression, chest wall abnormalities, respiratory muscle weakness, atelectasis (lung collapse), and pulmonary edema.