ACIDOSIS vs ALKALOSIS

pH <7.35 \hspace{1cm} \text{pH >7.45}

NORMAL VALUES:
- pH: 7.35-7.45
- PaCO2: 35-45
- HCO3: 22-26

RESPIRATORY ACIDOSIS
Cause: sedative overdose, hypoventilation, atelectasis
Pathophysiology: CO2 retention from hypoventilation
Findings: low pH, high PaCO2
Compensation: Bicarb (HCO3) retention by kidneys

METABOLIC ACIDOSIS
Cause: DKA, renal failure, severe diarrhea
Pathophysiology: inability to excrete acid or loss of base
Findings: low pH, low HCO3
Compensation: CO2 excretion by lungs

RESPIRATORY ALKALOSIS
Cause: hyperventilation
Pathophysiology: increased CO2 excretion from hyperventilation
Findings: high pH, low PaCO2
Compensation: bicarb (HCO3) excretion by kidneys

METABOLIC ALKALOSIS
Cause: severe vomiting, gastric suctioning, high NaHCO3 intake
Pathophysiology: loss of strong acid or gain of base
Findings: high pH, high HCO3
Compensation: CO2 retention by lungs

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