ACID BASE BALANCE

The anion gap is the difference in the measured cations (positively charged ions) and the measured anions (negatively charged ions) in serum, plasma, or urine. The magnitude of this difference (i.e., "gap") in the serum is often calculated in medicine when attempting to identify the cause of metabolic acidosis, a lower than normal pH in the blood. If the gap is greater than normal, then high anion gap metabolic acidosis is diagnosed.

The anion gap is calculated by subtracting the serum concentrations of chloride and bicarbonate (anions) from the concentrations of sodium and potassium (cations):

\[
= ([\text{Na}^+] + [\text{K}^+]) - ([\text{Cl}^-] + [\text{HCO}_3^-]) = 16 \text{ mEq/L}
\]

REPRODUCTIVE SYSTEM

Case study:
1- 28 year old lady with post labour amenorrhea for one year, with baby one year old

- FSH = 7 mIU/ml (normal 3.5-12.5 mIU/ml in follicular phase)
- LH = 8.5 mIU/ml (normal 2.4-12.6 mIU/ml in follicular phase)
- Prolactine = 40 ng/ml (normal 5-35 ng/ml)

2- 35 year old women, with menorrhagia, obese, bradycardia, depression with

- TSH = 11 mIU/ml (normal 0.25-5)
- T3 = 2.2 nmol/ml (0.9-2.3 nmol/L)
- T4 = 66 nmol/ml (60-120 nmol/L)

WHAT ARE THE POSSIBLE DIAGNOSIS FOR THESE TWO PATIENTS?

CLINICAL ENZYMEOLOGY

Creatinine kinase catalyzes the conversion of creatine to produce phosphocreatinine utilize ATP to produce ADP. Present in tissue that consume ATP rapidly such as skeletal muscle, brain

Serum concentration increase more than normal in MI, rahbdomylosis, muscular dystrophy.