Osmolal & Anion Gap

Osmolal Gap

The osmolal gap is a method of assessing osmotically active constituents in serum (usually calcium, proteins and lipids). It is based on the difference between the measured and calculated osmolality and is calculated using the following formula:

OSMOLAL GAP = [MEASURED OSMOLALITY- CALCULATED OSMOLALITY]

CALCULATED OSMOLALITY = (2 x [sodium]) + [urea] + [glucose]

(all measured in mmol/L)

The normal osmolal gap is about 10 mOsm/kg H20

A significant osmolal gap is > 10-15 mOsm/kg H20

Anion Gap

The anion gap is the difference between the sum of the measured cations and anions. This normally represents negatively charged proteins (albumin), fatty acids and inorganic anions (phosphates and sulphates).

ANION GAP = ([sodium] + [potassium]) - [bicarbonate] + [chloride]

(all measured in mmol/L)

The usual anion gap is 12-16 mmol/L