Electrolyte disturbances – an overview

Content is based on a short lecture by **Professor Stephen DiBartola,** DVM Diplomate ACVIM (Internal Medicine), Ohio State University. Watch the full video with Prof. DiBartola on YouTube.

IDEXX Laboratories Europe

Na Sodium

High ▲	Low ▼
Pure water loss - rare	Associated with hypervolaemia • Severe liver disease • Congestive heart failure • Nephrotic syndrome
Hypotonic water loss • From the GI tract • Third space redistribution • Renal loss	Associated with hypovolaemia • Gastrointestinal loss • Third space loss • Hypoadrenocorticism
Gain of inappropriate solute	Associated with normovolaemia • Psychogenic polydipsia • Antidiuretic drugs • Treatment with hypotonic drugs

K Potassium

High ▲	Low ▼
Increased intake: very rare	Decreased intake: very rare
Decreased renal excretion • Urethral obstruction • Hypoadrenocorticism • Certain drugs	Increased loss • GI loss from vomit and/or diarrhoea • Urinary loss • Hyperaldosteronism
Translocation from intracellular to exctracellular space • Insulin deficiency • Acute tumour lysis	Translocation from extracellular to intracellular space • Alkalaemia • Insulin and glucose disturbances

Cl Chloride

! Notice normal Na:Cl ratio is 1,3:1

High ▲	Low ▼
Primary loss : Diarrhoea	Primary loss: Vomit of gastric content
Administration of large amounts of 0,9% saline	Certain diuretics such as furosemide
Chronic respiratory alkalosis • Renal compensation	Chronic respiratory acidosis • Renal compensation

Ca Calcium

High ▲	Low ▼
Dehydration	Hyperalbuminaemia
Secondary to malignancies	Renal failure
Hypoadrenocorticism	Ethylene glycol poisoning
Renal failure	Eclampsia
Hypervitaminosis D	Acute pancreatitis
Primary hyperparathyroidism	Primary hypoparathyroidism

P Phosphorus

High ▲	Low ▼
Translocation from intracellular to extracellular space • Acute tumour lysis	Translocation from extracellular to intracellular space • Treatment of diabetic ketoacidosis
Decreased renal secretion • Acute and chronic renal failure • Uroabdomen • Urethral obstruction, hypoparathyroidism	Decreased intestinal absorption • Malabsorptive disorders • Vitamin D deficiency • Treatment with phosphate binders
Increased intake: Vitamin D intoxication	Decreased renal reabsorption • Primary hyperparathyroidism • Tubular disorders such as Fanconi's syndrome
Young, growing animal	