

ELECTROLYTE	CAUSE	S/S	INTERVENTION	CONNECTION
<p><b>HYPER CHLOREMIA</b></p> <p>Chloride(Cl-) Normal-96-108 mEq/L Most abundant anion is the ECF.</p> <p><b>Fxn</b> Helps maintain acid-base bal Helps maintain osmotic pressure Maintains acidity of HCL</p>	<p>Hypnatremia Decreased HCO3- Increased intake Na Cl etc Decreased <del>retention</del> loss</p>	<p><b>Signs/ Symptoms- not usually seen and related to metabolic acidosis</b></p> <p>As Cl- goes up, bicarb goes down and results in metabolic acidosis</p> <ul style="list-style-type: none"> <li>•Arrhythmias,</li> <li>•decreased cardiac output</li> <li>•Decreased LOC</li> <li>•Kussmaul respirations</li> <li>•Usually high Na+ w/ S/S fluid retention</li> </ul>	<ul style="list-style-type: none"> <li>•Treat cause,</li> <li>•treat high Na+</li> <li>•Tx metabolic acidosis.</li> </ul>	<p>Cl- and Na+ together Cl- and HCO3- inverse</p> <ul style="list-style-type: none"> <li>•Combines w/ Na+, H+, K+, Ca++</li> <li>•when Na+ is low, Cl- usually low.</li> <li>•When Cl- is low, kidney retains HCO3- which causes alkalosis.</li> </ul>
<p><b>HYPOCHLOREMIA</b></p>	<p>Poor intake or absorption-</p> <ul style="list-style-type: none"> <li>•Salt restricted diet,</li> <li>•IV fluids without electrolytes</li> <li>•Prolonged vomiting or diarrhea</li> <li>•NG suctioning</li> <li>•Excessive sweating</li> <li>•Diuretics</li> </ul>	<p>Mostly r/t acid base disturbance</p> <p><b>Metabolic alkalosis</b></p> <ul style="list-style-type: none"> <li>•<b>Hypoventilation (compensatory)</b></li> <li>•Hyperactive deep tendon reflexes</li> <li>•Muscle hypertonicity</li> </ul>	<p>Treat cause, salty broth, normal saline or KCL replacement if K+ is low</p>	

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<p><b>HYPERMAGNESEMIA</b></p> <p><b>Magnesium (Mg<sup>++</sup>)- general</b> 1.8-2.7 mEq/L 60% contained in bones, 1 % in ECF. Excreted by the kidney.</p> <p><b>Functions-</b> Activates NZ related to metabolism and protein and CHO metabolism</p> <p>Must be present for the Na<sup>+</sup> - K<sup>+</sup> pump to operate.</p> <p>Important for neuromuscular and cardiac muscle transmission</p> <p>Influences vasodilation</p> <p>Needed for production of PTH</p>	<p>usually impaired renal function - decreased excretion Increased intake- antacids, laxatives</p>	<p>Opposite of low Mg: depressed neuromuscular fxn Generalized weakness Hypotonic deep tendon reflexes Drowsiness, lethargy Respiratory depression Vasodilation-flushing, hypotension</p> <p>Can lead to cardiac arrest, respiratory arrest</p> <p>Hypocalcemia likely</p> <p>RENAL Reflex decrease EKG changes (bradycardia/hypotension) N&amp;V Appearance flushed Lethargy (drowsiness &amp; coma)</p>	<p><b>Collaborative Management</b> Prevention, treat cause <b>IV CaCl or Ca gluconate- a magnesium antagonist</b> <b>Loop diuretic- excrete Mg</b> (The treatment for hypermagnesemia is to promote urinary excretion of Mg<sup>++</sup>, in order to to decrease serum levels, so a diuretic may be indicated)</p> <p>At toxic level- may need respirator hemodialysis</p>	<p>Must be present for the Na<sup>+</sup> - K<sup>+</sup> pump to operate.</p> <p>Affects Na<sup>+</sup> and K<sup>+</sup> lvls</p> <p>Vitamin D in intestines facilitates absorption.</p> <p>ATP is made up of several components including P and Mg</p> <p>magnesium diminishes acetylcholine activity at the neuromuscular junction, thus impairing impulse transmission</p>
<p><b>HYPOMAGNESEMIA</b></p>	<p>Decreased absorption or increased loss Starvation (malnutrition) Chronic alcoholism - poor diet and increased excretion of Mg in urine. Diuretics TPN without supplement DKA due to osmotic diuresis</p>	<p><b>Tremors/seizures</b> <b>Hyperactive deep tendon reflexes</b> <b>Cardiac arrhythmias</b> Confusion, personality changes Hypertension</p> <p><b>STARVED</b> Seizures Tetany Anorexia and Arrhythmias Rapid heart rate Vomiting Emotional lability Deep tendon reflexes increased</p>	<p><b>Collaborative Management</b> Assess vitals q15min Oral supplement - Mg oxide Increased daily intake Parenteral Mg if severe-</p> <p>careful Mg often not compatible with other IV additives</p>	<p>Hypomagnesemia may result in hypocalcemia</p>

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<p><b>HYPERPHOSPHATEMIA</b></p> <p><b>GENERAL</b>  <b>Phosphorus/Phosphate HPO<sub>4</sub><sup>-</sup></b>            Primary an intracellular anion.            85% found in bones. Normal value- 2.5-4.5 mg/dl            Essential for intracellular processes like ATP production.            Important for RBC production, metabolism, and muscle and nerve function.            Cell membrane integrity (phospholipid bilayer)            Excreted by the kidneys.            PTH increases excretion            Major role in acid-base bal (as urinary buffer)</p>	<p>renal failure, chemotherapy, muscle tissue trauma, sepsis, heat stroke, hypothermia.</p>	<p>muscle spasms, tetany, soft tissue calcification</p>		<p>ATP is made up of several components including P and Mg</p> <p>Ca<sup>++</sup> and P inverse</p> <p>PTH increases excretion</p>
<p><b>HYPOPHOSPHOTEMIA</b></p>	<p>Causes- diuretics, IV glucose administration, poor intake, alcoholism.</p>	<p>paresthesias, muscle weakness, muscle pain and tenderness, confusion, seizures, decreased bowel sounds, respiratory depression.</p>		