

## Hyponatremia & Hypernatremia

Sodium normal lab value= 135-145 mEq/L

Sodium level determines where water is located (where salt goes, water follows) This can cause water to be retained, excreted, or moved from one space to another

Sodium is important for the depolarization of excitable membranes that cause skeletal muscle contraction, cardiac contraction, and nerve impulse transmission

When sodium levels are low

- ADH and NP secretion is inhibited
- Aldosterone secretion is triggered

When sodium levels are high

- Aldosterone secretion is inhibited
- ADH and NP secretion is stimulated

Hyponatremia	Hypernatremia
Lab value= <135 mEq/L	>145 mEq/L
<b>Causes:</b> <ul style="list-style-type: none"> <li>- Excessive diaphoresis</li> <li>- Diuretics</li> <li>- GI wound drainage</li> <li>- Psychogenic polydipsia</li> <li>- Nephrotic syndrome</li> <li>- SIADH</li> <li>- Heart failure</li> </ul>	<b>Causes:</b> <ul style="list-style-type: none"> <li>- Vomiting, diarrhea</li> <li>- Cushing's disease</li> <li>- Hyperaldosteronism</li> <li>- Kidney failure</li> <li>- Diabetes insipidus</li> <li>- Hyperventilation</li> </ul>
<b>Signs/symptoms:</b> <ul style="list-style-type: none"> <li>- Behavioral changes, altered LOC</li> <li>- Generalized weakness, diminished DTRs</li> <li>- Increase intestinal motility- vomiting, diarrhea, abdominal cramping</li> <li>- Hypovolemic= rapid weak pulse, decreased blood pressure</li> <li>- Hypervolemic= full, bounding pulse, increased blood pressure</li> </ul>	<b>Signs/symptoms:</b> <ul style="list-style-type: none"> <li>- Agitation, confusion, lethargy</li> <li>- Muscle twitching, muscle contractions (severe=absent DTRs, muscle weakness)</li> <li>- Hypovolemic= faint pulses, hypotension</li> <li>- Hypervolemic= bounding pulses, distended neck veins, increased blood pressure</li> </ul>
<b>Treatment:</b> <ul style="list-style-type: none"> <li>- DC diuretic therapy</li> <li>- IV saline solution (for fluid deficit)</li> <li>- Conivaptan, tolvaptan</li> <li>- Demeclocycline</li> <li>- Increased sodium intake</li> </ul>	<b>Treatment:</b> <ul style="list-style-type: none"> <li>- Diuretics- Lasix, bumetanide</li> <li>- Hypotonic IV solution (0.225% NaCl)</li> <li>- Restrict sodium intake</li> </ul>

## **Nursing Considerations**

Monitor the respiratory system of individuals with **hyponatremia** and **severe hypernatremia** as they could experience respiratory failure due to severe muscle weakness.

Patients who receive hypotonic IV solutions should be monitored closely for **neurological changes**. Cerebral edema could occur due to the shift of volume into the cells.

Educate patients on foods that are high in sodium. Teach patients with hyponatremia to increase consumption of healthy foods that are high in sodium; teach patients with hypernatremia to restrict consumption of foods that are high in sodium.