

Causes and Treatment of Hypernatremia

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DESCRIPTION

Low volume, normal volume, and high volume hypernatremia are the three most common classifications for hypernatremia. Sweating, vomiting, diarrhea, diuretic medication, and kidney illness can all cause low volume hypernatremia. Normal volume hypernatremia can be caused by a variety of factors, including fever, excessive thirst, sustained increased breathing rate, diabetes insipidus, and lithium. Hyperaldosteronism, excessive intravenous 3% normal saline or sodium bicarbonate injection, or ingesting too much salt can all cause high volume hypernatremia. An erroneously high sodium reading might be caused by low blood protein levels. The history of events may usually be used to discover the reason. Urine testing can be useful if the cause is unknown. In most cases, the underlying mechanism is a lack of free water in the body.

If hypernatremia developed over a short period of time, it can be treated immediately with intravenous normal saline and 5% dextrose in water. Otherwise, correction should be gradual using half-normal saline for individuals who are unable to drink water. Desmopressin can be used to treat hypernatremia caused by diabetes insipidus as a result of a brain condition.

If diabetes insipidus is caused by renal difficulties, the triggering drug or the underlying electrolyte disturbance may need to be rectified. Hypernatremia affects 0.3-1% of hospitalized patients. It is particularly common in babies, people with mental illnesses, and the elderly. Hypernatremia is linked to a higher chance of mortality, although it's unclear if it's the cause.

Causes

Inadequate consumption of free water is linked to sodium depletion in the entire body. Usually in elderly or debilitated

people who are unable to drink as much water as their thirst demands and are sodium depleted. Hypernatremia is most commonly caused by this.

Excessive water excretion from the kidneys due to diabetes insipidus, which is caused by either insufficient pituitary gland secretion of the hormone vasopressin or decreased renal reactivity to vasopressin. Intake of a hypertonic fluid with limited intake of free water. This is a rare complication that can occur if a patient receives a large volume of concentrated sodium bicarbonate solution during a forceful resuscitation. Because seawater is hypertonic and free water is not available, ingesting it produces hypernatremia. There have been multiple documented examples of exorcism rites involving the forced intake of strong salt solution, which resulted in death.

Treatment

The distribution of free water to repair the relative water shortage is the cornerstone of treatment. Orally or intravenously, water can be substituted. Water cannot be given intravenously by itself, but it can be given in a solution with dextrose (sugar) or saline (salt). Overcorrection of hypernatremia, on the other hand, can be highly harmful. The body adjusts to the increasing sodium levels. Once this adaptation has happened, rapidly reducing the sodium concentration with free water causes water to flow into brain cells, causing them to expand. Cerebral edema can ensue, which can lead to convulsions, severe brain damage, or death. As a result, severe hypernatremia should be treated with caution by a physician or other medical practitioner who is familiar with electrolyte imbalance treatment. Specific treatments can be utilised, such as thiazide diuretics (e.g., chlorthalidone) for congestive heart failure or corticosteroids for nephropathy.

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Received: December 01, 2021; **Accepted:** December 15, 2021; **Published:** December 22, 2021

Citation: Kant R (2021) Causes and Treatment of Hypernatremia. *Endocrinol Metab Syndr*. 10:e017.

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