

Emt- Emergency Medical Technician (Quick Study Academic)

Hypernatremia.

Hypernatremia is associated with increased plasma osmolarity and is usually associated with a relative water deficit. Hypernatremia can produce symptoms of weakness, drowsiness, obtundation, and seizures. The plasma sodium concentration at which symptoms occur depends on the rapidity with which hypernatremia has developed, but symptoms are unlikely with a plasma sodium concentration of less than 155 mmol/l.

Hypernatremia may occur as the result of vigorous administration of sodium-rich solutions (0.9% sodium chloride and 8.4% sodium bicarbonate) or due to the loss of sodium-poor, hypotonic fluids. Patients are typically hypervolemic with the former and hypovolemic with the latter. Diarrhea, gastric secretions, and sweat all have sodium concentrations of less than 100 mmol/l. (In contrast, small bowel and pancreatic secretions have a sodium concentration similar to that of extracellular fluid.) During the polyuric recovery phase of acute renal failure, the ability of the renal tubules to concentrate urine is impaired, and the sodium concentration of urine is typically less than 100 mmol/l. The urinary sodium concentration in patients receiving furosemide is also less than 100 mmol/l. Untreated, the loss of water in excess of sodium leads to hypernatremia and hypovolemia.

An important cause of hypernatremia is diabetes insipidus. Diabetes insipidus involves either a failure of production of antidiuretic hormone (central diabetes insipidus) or lack of renal responsiveness to antidiuretic hormone (nephrogenic diabetes insipidus). Central diabetes insipidus may occur in patients with neurologic injury or brain death (see Chapter 38). Nephrogenic diabetes insipidus may occur due to loss of the hypertonic medullary interstitium (see Chapter 1). This is the cause of the polyuria that accompanies renal failure and diuretic administration. Nephrogenic diabetes insipidus may also occur because of reduced responsiveness of the distal nephron to antidiuretic hormone; causes of this state include drugs (e.g., amphotericin B, aminoglycosides, and lithium), hypokalemia, and hypercalcemia. Patients with diabetes insipidus produce large volumes of very dilute urine (urinary osmolality

Reference

[Evaluation of Health Care Quality for DNPs, Second Edition](#)—Doctor of Nursing Practice Graduates™ Award-Winning Text

[Grant Writing Handbook for Nurses and Health Professionals](#)