

Hyponatremia management in critically ill: Food (protein) for thought

Sir,

Hyponatremia is one of the most common disorder of body fluid and electrolyte balance encountered in critically ill patients and associated with increased morbidity and mortality. A wide range of conditions can cause hyponatremia and, as a result, it is being managed by clinicians from a variety of backgrounds with a variety of approaches to its diagnosis and management. Adding to the complexity is the available treatment options, which

includes normal saline, hypertonic saline, fluid restriction, drugs (demeclocycline and vaptans) and increasing intake of solutes like urea/protein. Treatment decision is based on multiple factors like severity and symptoms of hyponatremia, onset of hyponatremia, underlying disease, and associated illness. Rate of correction and overcorrection are important factors to consider.

The decision to administer normal saline or hypertonic saline to patient with hyponatremia is quite clear and easy to practice. Except the use of saline and vaptans, rest of the treatment options are infrequently practiced, sometimes difficult to apply in critically ill patients especially with regard to fluid restriction.

Management of the hyponatremia should ensure patient management rather than simply looking at the sodium level. If hyponatremia is serious and symptomatic, it is life-threatening. In this situation, the first line of treatment will be prompt intravenous infusion of hypertonic saline.

For patients with reduced circulating volume, extracellular volume should be replaced with intravenous infusion of 0.9% saline. If the cause is apparent, reversing it may lead to correction as restricting water intake in psychogenic polydipsia, giving glucocorticoid/thyroid replacement in deficient, stopping hypotonic fluids or medications like selective serotonin reuptake inhibitors, nonsteroidal anti-inflammatory drugs, thiazides or desmopressin and optimization of Congestive heart failure (CHF), hepatic or renal failure.

For patients with the syndrome of inappropriate antidiuretic hormone hypersecretion (SIADH), which constitutes about 40% of hyponatremia cases and with moderate or profound hyponatremia, first-line treatment is fluid restriction. Equal second-line treatments are increasing solute intake.

For moderate or profound hyponatremia, there is no recommendation for the use of lithium, demeclocycline, and even vasopressin receptor antagonist. Overcorrection is major reasons against vaptans.^[1] There are not good outcome data either, with vaptans in form of improved survival or improved quality of life.^[2] The lack of outcome data also applies to other treatments of hyponatremia.

There are a vast majority of hyponatremic patients in the Intensive Care Unit (ICU) who are neither volume deficient nor they have profound and symptomatic hyponatremia. There are also patients in critical care unit where it is difficult to implement fluid restriction.

Many patients develop hyponatremia during the course of their ICU management. Such groups of patients can be easily managed by increasing their dietary protein intake. Because of fixed urinary osmolarity in SIADH, increasing the dietary osmoles by increasing their dietary protein intake will lead to increase in urinary output and improvement in hyponatremia.^[3] Moreover, increasing protein intake in critically ill will leads to better patient outcome. Studies have suggested that the use of higher protein concentration in nutritional therapy for critically ill patients may help to reduce mortality.^[4,5]

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