

Hyponatremia in the critically ill: Time for a change

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In the current issue of the Indian Journal of Critical Care Medicine Padhi *et al.* present a prospective, observational study on the frequency, etiology and impact on outcome of hyponatremia in critically ill patients.^[1] The current study is to be welcomed by the intensive care community since despite the fact that some studies have been published on this issue during the last years, there is still a lack of knowledge on this important issue.

In their study on 730 critically ill patients, the authors found a prevalence of hyponatremia, defined as a serum sodium below 135 mmol/L, of 34%, which is considerably higher compared with (recent) previous studies.^[2,3] However, these studies were by far larger and were both performed in Europe and hence environmental factors may also play a crucial factor in the higher prevalence of hyponatremia in the current study.

The authors should be congratulated on their effort to try to investigate the causes of hyponatremia in their patients, although the validity of their findings is clearly limited since important tests such as a water loading test to confirm the diagnosis of syndrome of inappropriate antidiuretic hormone secretion are hardly performable in the intensive care unit. In addition, the approach the authors followed to classify the etiology of hyponatremia is not pathophysiology based: A tonicity balance based approach is to be preferred, especially in critically ill patients since it allows for a clear balance of free water and electrolyte balance. This is important due to the previously shown fact that dysnatremias are often iatrogenic consequences of inadequate infusion therapy in critically ill patients.^[4]

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The finding of the authors that hyponatremia was associated with longer intensive care unit stay, longer days on mechanical ventilation and finally increased mortality is not new after all but stands in line with previous studies on the issue, both in critically as in non-critically ill patients.^[3,5]

Recently, the second version of the expert panel recommendations on the diagnosis, evaluation and treatment of hyponatremia were published.^[6] 6 years have passed by since the first expert panel recommendations on hyponatremia during which studies have been published clearly showing the dramatically high prevalence (and incidence) of hyponatremia in outpatients as well as in hospitalized and critically ill, hospitalized patients.^[1,5,7] Moreover still, we have “only” got an expert panel recommendation and no guidelines based on high-quality research. On the basis of current data, it appears that hyponatremia (as with hypernatremia) not only is an electrolyte disorder that is associated with a severe underlying disease, but has an independent effect on morbidity and mortality *per se*. However, we do still lack studies prospectively evaluating the effects of a low serum sodium on physiologic functions such as cognition, gait and stability or metabolism – despite the fact that it was shown in retrospective studies that hyponatremia is an independent predictor of falls and fractures and might even cause osteoporosis.^[8-10] Still, we do not know whether correcting hyponatremia does result in

improved outcome of patients, decreased morbidity, decreased hospitalization rates or shorter length of hospital stay. Facing the fact that billions of dollars are invested each year to develop new treatments for (mostly oncologic) diseases and to perform large scale clinical trials, which will modify survival time by weeks or a few months at best one wonders why there is no upcoming high-quality, prospective, interventional study on the treatment of dysnatremias. Maybe it is because disorders of serum sodium are still neglected by a large part of the medical community or seen as an “epiphenomenon” of an underlying more important disease. Looking at the prevalence and incidence numbers of hypo- and hypernatremia I can only say: It is time for a change!

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