SYMPTOMS OF HYPONATREMIA IN HOSPITALIZED PATIENTS IN A MEDICAL COLLEGE HOSPITAL IN KATHMANDU

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ABSTRACT

Total body water and tonicity is tightly regulated by renal action of antidiuretic hormone (ADH), renin-angiotensin aldosterone system, norepinephrine and by the thirst mechanism. Abnormalities in water balance are manifested as sodium disturbances – hyponatremia and hypernatremia. Hyponatremia (Na+<135meq/l) is a common abnormality in hospitalized patients and is associated with increased morbidity and mortality. Symptoms of hyponatremia non-specific and can be neurological or non-neurological. Neurological symptoms were common followed by gastrointestinal symptoms. Symptoms may be mild but at times it may be life threatening like seizure and death. In this study of 123 patients, out of total 620 patient admitted in Medical ward and ICU, neurological symptoms were commonest presentation with lethargy being the most common symptoms about a third patient had Gastrointestinal symptoms namely anorexia and nausea and vomiting. One tenth of the patients were asymptomatic and detected during routine investigations. Hyponatremia is common medical disorder which has variety of clinical manifestations.

KEYWORDS

Hospitalized patient,
hypernatremia, symptoms

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INTRODUCTION

Disorders of serum sodium are a common electrolyte abnormality encountered in hospitalized patients. Hyponatremia, a decreased level of serum sodium, has a reported incidence of 15–30% of the hospitalized patients It poses considerable diagnostic and management problems for clinicians. The condition has a multifactorial etiology, and multiple causes of hyponatraemia may be identified in individual patients. In the acute setting, treatment often has to be initiated before a confirmatory diagnosis can be made and results of supportive biochemical investigations are available. Both over-correction and under-treatment can produce devastating effects on cerebral function. Symptoms of hyponatremia are mainly neurological and sometimes non neurological symptoms are also seen. Neurological symptoms from hyponatremia occur due to trans-cellular movement of water from the hypotonic ECF into the central nervous system. Swelling of the neurons is manifested as headache, lethargy, confusion, gait disorder, nausea, vomiting and in severe hyponatremia as seizures, coma, permanent brain damage or death. Non neurological symptoms are mainly gastrointestinal including anorexia and nausea.

MATERIALS AND METHODS

This is a cross-sectional observational study conducted in Nepal Medical College teaching Hospital, Jorpati, Kathmandu. All the cases admitted in Medical ward or Intensive care unit with hyponatremia (Na - <135 mmol/l) were enrolled and their presenting symptoms were noted. Hyponatremia was categorized to Mild (Na, 130-134mmol/l), moderate (Na- 125-129 mmol/l) and profound (Na-<125 mmol/l). The study was aimed to find out the severity of hyponatremia in hospitalized patient and their age of presentation and symptoms. The study was conducted for a period of six months (May-October, 2014); a total of 123 were enrolled in the study after getting their consent. Those cases who were on peritoneal or hemodialysis were excluded from the study. Data obtained were recorded and analyzed in Microsoft Excel sheet.

RESULTS

For the period of six months 123 patients were evaluated out of total 620 patients admitted in the Medical Ward. This comprise of about 20% of total admission. Among them 74 were male and 49 were female. Mean age of presentation in this study was 54.74 years. Minimum age was 16 years and maximum age was 89 years. (Fig. 1)

Regarding severity of hyponatremia, 65(53%) had mild hyponatremia 38(30%) had moderate hyponatremia and 20(16%) had profound hyponatremia. However in this study we did not distinguish hyponatremia by volume status. Most common presenting symptom were neurological, among them lethargy tops the list with presenting complaints of 110 (89%) patients this is followed by dizziness, headache and confusion with 100 (81%), 92 (75%) and 60 (48%) respectively. Gait disorder were observed only in 5 (4%) patients. (Fig. 2). No patient had seizure.

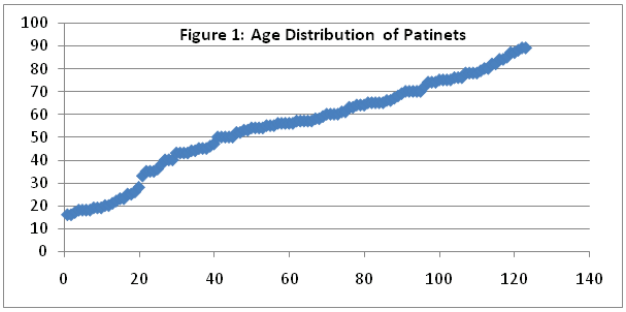

Fig. 1:
Age Distribution of Patients

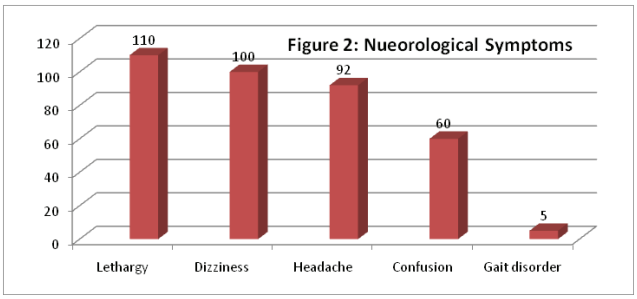

Fig. 2:
Neurological Symptoms

There were Gastrointestinal symptoms also; 40 (32%) of the patient presented with anorexia while 38 (30%) presented with nausea and vomiting. However 13(10%) did not have any symptoms, they were picked up during routine investigations and all of these patient were in the category of mild hyponatremia.

DISCUSSION

Hyponatremia is one of the commonest electrolyte abnormalities we encounter in medical practice. Hyponatremia itself is a disorder which needs careful evaluation and management. If it is associated with some disease, it may point towards prognosis. Like hyponatremia with congestive heart failure is a poor prognostic factor. Symptoms of hyponatremia are divided into neurological and non-neurological. Neurological symptoms are lethargy, dizziness and headache. More severe symptoms like gait disorder and seizure may occur sometimes leading to death. Gastrointestinal symptoms are main non- neurological symptoms like anorexia and nausea and vomiting. In our study also there were mainly neurological symptoms most common being lethargy followed by dizziness and headache. The neurological symptoms relate to the rapidity of fall of serum sodium. There are usually no

symptoms if serum sodium is 130–135 mmol/l. In this study 10% of the patient did not have any symptoms and all of them had mild hyponatremia. Nausea and malaise are seen if serum sodium falls to 125–130 mmol/l. Headache, nausea, vomiting, muscle cramps, restlessness, disorientation and depressed reflexes can be seen if serum sodium falls below 125 mmol/l. In our study around 30% had gastrointestinal symptoms which is seen in moderate to profound hyponatremia. When severe hyponatraemia evolves over a period of hours, seizures, coma, permanent brain damage, respiratory arrest, brain-stem herniation and death may occur. In sharp contrast, patients with chronic hyponatraemia are often asymptomatic irrespective of the degree of hyponatraemia. Symptoms may only occur if there is acute exacerbation of hyponatraemia, or if serum sodium falls below 110 mmol/l. In chronic hyponatraemia present for 48 hours, the brain adapts to protect itself against cerebral oedema: a rapid increase in plasma sodium can lead to a decrease in brain cell volume with resultant demyelination. It may not be apparent until 2–6 days after correction of sodium, and most patients are left with permanent neurological dysfunction including quadriplegia, pseudobulbar palsy and seizures. Coma and death may occur. Individuals at particular risk include elderly patients on thiazides, alcoholics and patients with primary polydipsia.

In conclusion, hyponatremia is one of the commonly encountered in admitted patient, symptoms are varied and nonspecific depending on onset and rapidity by which it appears.

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