



STUDY OF CLINICAL PROFILE OF HYPONATREMIA IN ELDERLY HOSPITALIZED PATIENTS

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ABSTRACT A plasma sodium content of less than 135 mEq/L is considered hyponatremia. This condition affects roughly 22% of hospitalized patients, making it quite frequent. Data on the prevalence of hyponatremia among the elderly in our nation are scarce. The study included fifty patients. At the time of presentation, 60% were asymptomatic. 100% of symptomatic cases showed lethargy, 85% displayed abnormal behaviour, and 8% presented with seizures. 44% of patients received hypertonic saline, 56% were told to limit their fluid intake, 54% received diuretics, and 6% received normal saline. The therapy and result of hyponatremia can be greatly enhanced by a systematic approach to the diagnosis of hyponatremia with the application of straightforward diagnostic criteria, employing the history, clinical examination, and laboratory data to determine the mechanism of hyponatremia.

KEYWORDS : Elderly, Hyponatremia, hospital based.

INTRODUCTION

A plasma sodium content of less than 135 mEq/L is considered hyponatremia. This condition affects roughly 22% of hospitalized patients, making it quite frequent. Based on serum osmolality; it can be divided into hypertonic, isotonic, and hypotonic types. The three types of hypotonic hyponatremia are hypervolemic, euvoletic, and hypovolemic.

Mild hyponatraemia is typically asymptomatic, but major neurological problems can arise from cerebral oedema when the reduction in serum sodium is large (125 mmol/l) or acute (occurring over 48 h). If undiagnosed, the early symptoms of headache, muscle weakness, nausea, lethargy, ataxia, and confusion can develop into seizures, irreparable brain damage, coma, and death. The cerebral wasting of intracellular potassium followed by the influx of organic osmolytes in chronic hyponatraemia lowers cerebral oedema and delays the onset of symptoms.

Therefore, hyponatremia is particularly important in elderly, fragile individuals. Elderly patients with hyponatremia have an especially difficult time managing the condition. The underlying cause is frequently complex, obtaining a precise history may be challenging, and a clinical examination is unreliable. Established treatment approaches frequently lack efficacy and include significant hazards, particularly when the underlying causes are not correctly diagnosed. Data on the prevalence of hyponatremia among the elderly in our nation are scarce. In this study, the clinical characteristics and etiology of hyponatremia in elderly hospital patients are explored, as well as the morbidity and mortality rates of these individuals.

MATERIALS AND METHODS

A prospective cross-sectional study was done during March 2021 to August 2022 in Government General Hospital, Kakinada with a sample of 50. Inclusion criteria of male or female with ≥ 60 years with serum sodium < 135 mEq/L were taken up for study. Patients who met the inclusion criteria were chosen for the research. In all the cases, clinical data, demographic details, final diagnosis, investigations done and treatment modality were recorded onto a standard data collection sheet according to the proforma. This information was transferred to a Microsoft excel spreadsheet in view of analysis. It was done with SPSS for windows (version 20.0). Descriptive statistics was chosen as the

statistical method. Data is presented in the form of percentages and frequency distribution.

RESULTS

Maximum patients belonged to the age group 60-70yrs, i.e., 78% (39 patients), 14% belonged to 70-80yrs group and 8% belonged to >80 yrs group. out of 50 people, 62% were males and 38% were females. Out of 31 males, 24 are in the age group of 60-70yrs. Out of 19 females, 13 are in the age group of 60-70years.

Majority of patients i.e., 60% were asymptomatic during presentation. 20% had lethargy, 34% behaved abnormally, and 8% had seizures. No patient presented with postural dizziness or coma. Out of 50 patients, the majority 56% had severe hyponatremia, 18% had moderate and 26% had mild hyponatremia.

Out of 30 asymptomatic patients, 8 had mild hyponatremia, 7 had moderate hyponatremia, and 15 had severe hyponatremia. Out of symptomatic patients, 26 had severe hyponatremia (37%). Among mild hyponatremic patients, 9 had GCS above 13, and 5 patients had GCS between 8-12. Out of moderate hyponatremic patients, 7 patients had GCS above 13, and 2 of them had GCS between 8-12. Among severely hyponatremic patients, 17 had GCS above 13 and 10 were in the range of 8-12. No patient was in a coma.

In this study, 36% had hypertension, 44% had diabetes mellitus, 26% had congestive cardiac failure, 12% had chronic liver disease, 2% had hypothyroidism and 6% had chronic kidney disease. Out of 50 patients, 17 patients were hypovolemic, 18 patients were euvoletic and 15 patients were hypervolemic. Out of 18 euvoletic patients, 2 had mild, 8 had moderate and 8 had severe hyponatremia. 6 of hypervolemic patients had mild hyponatremia whereas 9 had severe hyponatremia. Among hypovolemic patients, 6 had mild, 1 had moderate and 10 had severe hyponatremia. the most common predisposing factor was poor intake, 44%. 34% had vomiting, 16% had diuretic use, 14% had CNS infection, 10% had diarrhea, and 2% had pulmonary disease. None of them had sweating or hypotonic fluid use.

most common etiology was poor intake(44%). 34% of patients had vomiting, 26% had Congestive Cardiac failure, 14% had SIADH, 12% had CLD, 10% had diarrhea, dehydration and hyperglycemia were found in 4% each and hypothyroidism was noted in one patient(2%).

Etiology of hyponatremia could not be assessed in one patient who was termed Idiopathic.

3 patients received normal saline, 22 received 3% saline, 56% were advised fluid restriction, 54% received diuretics, and 10% received potassium replacement. 11 patients required 1-3 days for normalizing sodium, and 33 patients required 4-7 days. 2 of them had not recovered. Of them, one had severe left ventricular dysfunction with poor intake and vomiting, one patient had cirrhosis of liver with portal hypertension and variceal bleeding. 4 cases were not assessed as they got discharged against medical advice. No complications occurred while on treatment.

DISCUSSION

This study was taken up considering the significant prevalence of Hyponatremia in elderly hospitalized patients. These patients are at a higher risk of electrolyte disturbances because of age-related changes in kidney function and other conditions. Thomas Varghese et al., 56.1% were males and 43.9% were females. The most prevalent age range impacted was 45 to 64 years. Miyashita et al. study considered 100 patients among which 59% were male and 41% were female. Subhash Chandra Dash et al. study, mean age was 69.87 years. Mean age of the patients was 73.87 ± 6.54 years in the study done by Jain et al. Chandregowda et al. included patients aged ≥ 60 years with a mean age of 68.86 years. In the study by Prakash Babaliche et al, the male-to-female ratio was 1.43:1, of which most of the patients were aged between 61 and 70 years (29%) with a mean age of 58.94 ± 16.10 years.

Jain et al observed that about 81% of patients were symptomatic among which lethargy (50%), drowsiness (40%), and abnormal behaviour (39%) were common symptoms. Mahavir et al. noted a mean serum sodium of 117.8 ± 6.4 mmol/l. Mean plasmatic sodium values were 137.3 mmol/l (range 112-168) in Rubio et al. study. Chandregowda et al. noted a mean sodium level of 123.09mEq/L. In the present study, the mean serum sodium level is 120.42 mEq/L.

Subhash Chandra Dash et al, Hypertension is the most frequent comorbid condition associated with elderly and widespread prescription of thiazide makes the thiazide-induced hyponatremia described as a 'silent epidemic'. Rao et al. study, 61% of participants had euvoemia, 23% had overload, and 16% had dehydration.

Chandregowda et al. concluded that severity of hyponatremia is independent of gender, age of the patient and type of hyponatremia, and it is the rate at which hyponatremia develops that is important in deciding the clinical presentation and not just the serum sodium levels. Mahavir et al. concluded that decreased intake was the commonest cause of hyponatremia, hence, ensuring that adequate oral intake is given, especially in patients on a liquid diet and correction of hyponatremia as soon as detected is important.

CONCLUSIONS

A common electrolyte imbalance seen in hospitalised patients is hyponatremia. The majority of patients had diabetes and hypertension as pre-existing co-morbidities, which made them more susceptible to hyponatremia. Hypervolemic hypo-osmolar hyponatremia was the most prevalent form of Hyponatremia. Only symptomatic individuals should receive hypertonic saline treatment for hyponatremia. Treatment with hypertonic saline is safe as long as hyponatremia is corrected gradually. The therapy and result of hyponatremia can be greatly enhanced by a systematic approach to the diagnosis of hyponatremia with the application of straightforward diagnostic criteria, employing the history, clinical examination, and laboratory data to determine the mechanism of hyponatremia..

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