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STUDY ON CLINICAL PROFILE OF HYPONATREMIA IN PATIENTS ADMITTED IN IMCU

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ABSTRACT

Hyponatremia is one of the frequently encountered electrolyte disturbance in ICU setting presenting with wide range of clinical manifestations. The current incidence of hyponatremia is around 25 to 30% in overall patients admitted in ICU.[1] A prospective cross-sectional study was conducted on Clinical Profile of Hyponatremia in 100 patients admitted in IMCU to find out the sex distribution, commonest symptom, commonest etiology and outcome. The study showed a male predominance, mean age being 52 years. Commonest symptom was confusion followed by nausea. Common etiologies were diuretic therapy followed by congestive cardiac failure. Severity of hyponatremia had positive correlation with mortality.

KEYWORDS: Hyponatremia is one of the frequently correlation with mortality.

INTRODUCTION

Hyponatremia is one of the frequently encountered electrolyte disturbance in ICU setting. It manifests with wide range of clinical manifestations. The current incidence of hyponatremia is around 25 to 30% in overall patients admitted in ICU.[1] Whereas the actual prevalence depends on the causative factors and the criteria which we use to define hyponatremia.

AIMS AND OBJECTIVES

To find sex distribution, age distribution of hyponatremia, to find out various symptoms caused by hyponatremia based on severity, to find common etiologies for hyponatremia and to find outcome of hyponatremia cases depending on severity.

METHODS AND MATERIALS

This is a prospective cross-sectional study conducted on Clinical Profile of Hyponatremia in 100 patients. The study was undertaken after institutional ethical committee clearance and with informed consent at a tertiary care centre in Tamil nadu, Department of Medicine, IMCU, during the period of June 2015 to May 2016. Subjects >12 years of age in IMCU with serum sodium <135 meq/l were included in the study. Subjects with severe renal dysfunction, subjects in deep coma were excluded from the study. Informed consent was obtained.

RESULTS

A total of 100 patients were included in the study. These patients were admitted in IMCU between June 2015 to May 2016.

62% of patients were male and rest were female. Study population predominantly belonged to age group of 41 to 70 with mean age 52 years. Predominant symptom was confusion followed by nausea and headache. (Table 1).

Table 1: Symptoms in Hyponatremia based on severity.

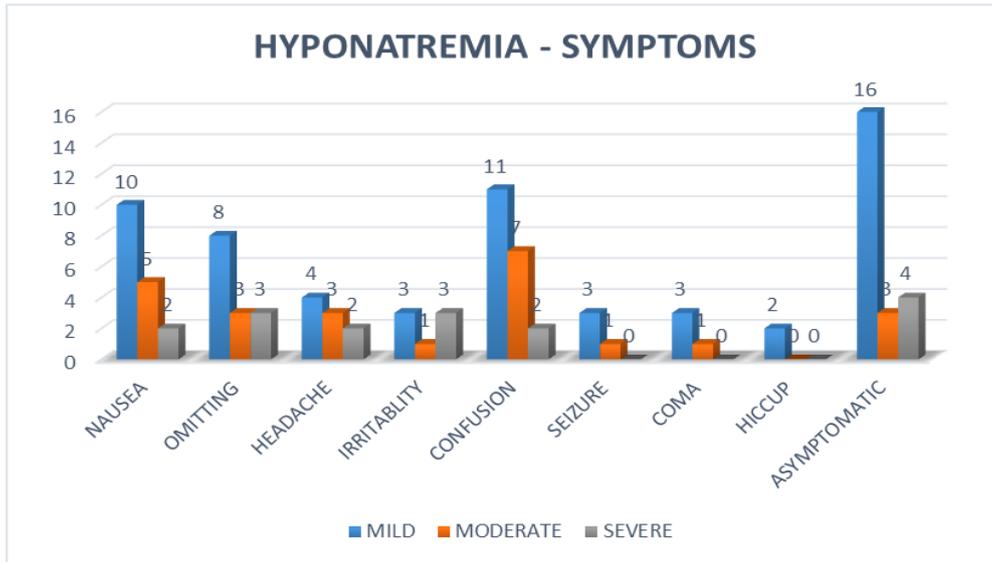|	HYPONATREMIA		
	MILD	**MODERATE**	**SEVERE**
NAUSEA	10	5	2
VOMITING	8	3	3
HEADACHE	4	3	2
IRRITABLITY	3	1	3
CONFUSION	11	7	2
SEIZURE	3	1	0
COMA	3	1	0
HICCUP	2	0	0
ASYMPTOMATIC	16	3	4

Chart 1. Symptoms in Hyponatremia based on severity.

In our study diuretic therapy was the most common aetiology for hyponatremia followed by heart failure, the least one being endocrine disorders. (Table 2).

Table 2: Etiology

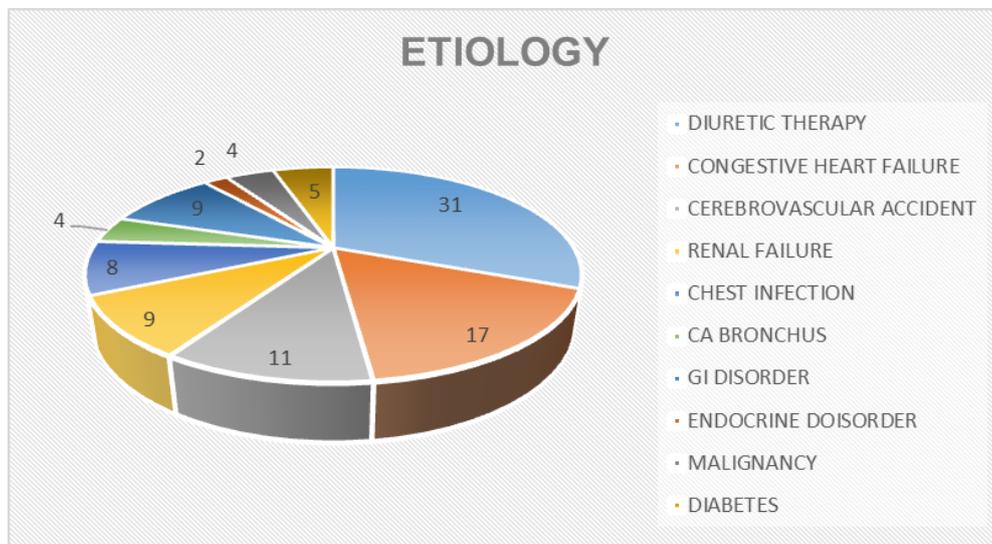| ETIOLOGY - HYPONATREMIA	No .of cases
DIURETIC THERAPY	31
CONGESTIVE HEART FAILURE	17
CEREBROVASCULAR ACCIDENT	11
RENAL FAILURE	9
CHEST INFECTION	8
CA BRONCHUS	4
GI DISORDER	9
ENDOCRINE DOISORDER	2
MALIGNANCY	4
DIABETES	5

Chart 2: Etiology of Hyponatremia.

Among 100 patients studied, 7 patients with hyponatremia died, of which 4 had moderate hyponatremia and 3 had severe hyponatremia. (Table 3).

Study showed strong association between serum sodium value and mortality(P value = 0.003).

Table 3: Impact of severity of hyponatremia on mortality.

HYPONATREMIA	DEATH	ALIVE
MILD	0	58
MODERATE	4	25
SEVERE	3	10
TOTAL	7	93
P VALUE - 0.03		

DISCUSSION
Out of 4025 patients admitted in IMCU during the study period, 144 patients had various degrees of hyponatremia. This was lower in comparison to the study done by Chatterjee et al[2] on descriptive study of hyponatremia. Out of 100 patients studied, male sex was predominant (62%), which was similar to the study done by Huda et al.[3] However the study done by Ashraf et al' showed a female predominance (71%). Age distribution were between 20 – 75 years of which majority were above 41 years and mean age was 55.05 ± 2D. 68% were between ages 41 – 70 years. Average lifespan of males and females in Tamilnadu as per 2000 Population Reference Bureau and 2001 Census of India are 62.6 and 65.4 years respectively. Considering this data, hyponatremia was common in elderly age group. Out of the 100 cases, predominant cause for hyponatremia was diuretic use. In an Indian study by Lath et al[4], the most common causes of hyponatremia were SIADH and diuretics. The commonest cause for SIADH in our study was respiratory infections (pneumonia, PTB) and stroke. Huda et al' in his study on hyponatremia had just 2% of patients with renal failure and no patients with hyponatremia with cardiac disease. This is in contrast to our study which comprised of 16% and 9% of CCF and renal disease respectively. Gill et al[5] in his study had 5% patients with liver disease but our study showed one. Confusion was seen in 34% of patients which is much lesser than that reported by Ellis in his study where 76% of the patients had clouding of consciousness and, 11% had coma which was similar to both studies. Seizures were seen with moderate to severe hyponatremia. In the study by Chatterjee et al[2] large fraction of cases (48.21%) was asymptomatic. This study comprised of 23 asymptomatic patients. Seasonal variation was noted in this study with 46.0% patients presenting during monsoon season and 28% during summer. This was probably due to variations in the ambient temperature influencing insensible fluid losses that could possibly have altered hydration status and sodium balance. Chakrapani et al[6] in his study on Seasonal variation of Incidence in hyponatremia concluded that hyponatremia is higher during the peak monsoon season which had a similar pattern for our study period. Mortality was seen only in the group with moderate and severe hyponatremia and majority was due to bronchogenic carcinoma accounting for 7 deaths during the study period. Study done by Gill et al' also showed similar result of deaths occurring with severe hyponatremia.

CONCLUSION
Hyponatremia should be detected early and if present should be corrected promptly in IMCU. The commonest cause of hyponatremia was diuretic therapy. Diuretics should be used appropriately especially in elderly. Frequent serum sodium monitoring should be done in patients on chronic diuretic therapy as it is an easily correctable entity if identified earlier and it improves the overall outcome.

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