

STUDY OF HYPONATREMIA IN HOSPITALISED ELDERLY PATIENTSHarshita Ganji^{*1}, Reddy Prasad Kondaveeti² and Prabhakar Kamarthy³^{1,2,3}MBBS, (MD General Medicine)

Department of General Medicine, Sri Devaraj Urs Academy of Higher Education and Research, Kolar, Karnataka, India.

***Corresponding Author: Dr. Harshita Ganji**

MBBS, (MD General Medicine), Department of General Medicine, Sri Devaraj Urs Academy of Higher Education and Research, Kolar, Karnataka, India.

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ABSTRACT

Introduction: Disorders of sodium and water metabolism are common in hospitalized patients and are occasionally encountered in outpatients. The amount of sodium in blood plasma is typically 140mmol/L. Hyponatremia is defined as serum sodium concentration of less than 135 mEq per litre. It is estimated that nearly 7 percent of healthy elderly persons have serum sodium concentrations of 135mEq/L or less. **Material and Methods:** It is a Retrospective study of patients above the age of 60 yrs, admitted and treated in R.L. Jalappa Hospital in the Department of General Medicine. Patients above the age of 60 years and patients whose serum sodium less than 135mMol/L are included. Data regarding general and systemic clinical examination, investigation namely – Serum Sodium, Serum Osmolality, Urine Osmolality, Urine Spot Sodium, Thyroid Function Tests, chest X-ray, CT brain and stay in MICU/ICU will be collected from the hospital records. The data were analyzed using SPSS for Windows version 14 software. A p-value ≤ 0.05 was considered statistically significant. **Results:** Out of 86 patients, 48.83% were belonging to age group of 61-65 years and 23.25% were belonging to age group of 66-70 years. Mean age was 68.55 \pm 7.7 years. 58.1% were males and 41.9% were females. Amongst presenting symptoms the most common presenting symptoms was altered sensorium which was present in 50%. Amongst etiology, renal failure was the most common etiology in this study.

KEYWORDS: Hyponatremia, altered sensorium, renal failure.**INTRODUCTION**

Disorders of sodium and water metabolism are common in hospitalized patients and are occasionally encountered in outpatients.^[1] Serum sodium concentration and serum osmolality normally are maintained under precise control by homeostatic mechanisms involving thirst, antidiuretic hormone (ADH) and renal handling of filtered sodium.^[2] The amount of sodium in blood plasma is typically 140mmol/L.^[3]

Management of abnormalities in water homeostasis is frequently challenging. Because age related changes and chronic diseases are often associated with impairment of water metabolism in elderly patients, it is absolutely essential to be aware of the pathophysiology of hyponatremia in the elderly.^[4]

Hyponatremia is defined as serum sodium concentration of less than 135 mEq per litre. It is estimated that nearly 7 percent of healthy elderly persons have serum sodium concentrations of 135mEq/L or less.^[1]

Cross sectional studies suggest that hyponatremia may be present in 15 to 18 percent of patients in chronic care facilities.^[2]

The etiology of hyponatremia should be considered under the following three categories based on the hydration status of the individual.^[3]

1. Hypovolemic hyponatremia: seen in burns, pancreatitis, excessive sweating, vomiting, diarrhoea, acute or chronic renal insufficiency, salt wasting nephropathy, cerebral salt wasting syndrome^[3]
2. Euvolemic hyponatremia: seen in psychogenic polydipsia, administration of hypotonic intravenous fluids^[3]
3. Hypervolemic hyponatremia: seen in hepatic cirrhosis, congestive heart failure, nephritic syndrome, hypothyroidism, Syndrome of Inappropriate ADH secretion.^[3]

Hyponatremia can be caused by many medications like thiazide diuretics, acetazolamide, angiotensin II receptor blockers etc. Hyponatremia is often seen in association with pulmonary/mediastinal disease or CNS disorders.^[4]

Clinical features include headache, nausea, vomiting, muscle cramps, lethargy, restlessness, disorientation and depressed reflexes. Severe and rapidly evolving

hyponatremia may present with seizures, coma, permanent brain damage, respiratory arrest, brainstem herniation and death.^[5]

MATERIAL AND METHODS

Retrospective study of patients above the age of 60 yrs, admitted and treated in R.L. Jalappa Hospital in the Department of General Medicine. Patients above the age of 60 years and patients whose serum sodium less than 135mMol/L are included.

The severity and etiology of hyponatremia is assessed. Data regarding general and systemic clinical examination, investigation namely – Serum Sodium, Serum Osmolality, Urine Osmolality, Urine Spot Sodium, Complete blood count, liver function tests, renal function tests, Thyroid Function Tests, chest X-ray, CT brain and stay in MICU/ICU will be collected from the hospital records.

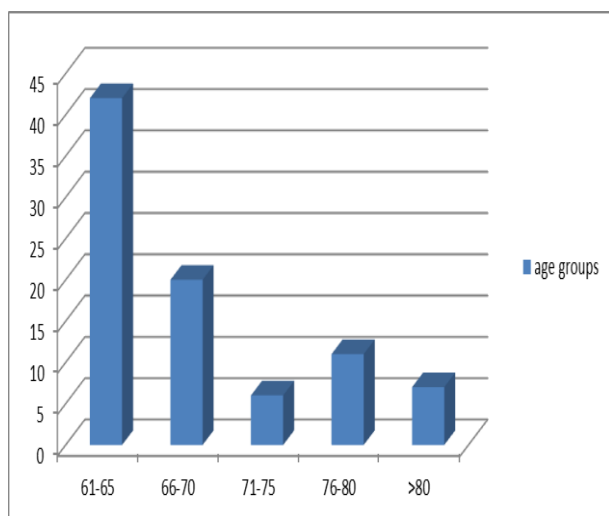
The data were analyzed using SPSS for Windows version 14 software. A p-value ≤ 0.05 was considered statistically significant.

RESULTS

It was a retrospective study done from August 2015 to July 2016. Total 86 patients are included in this study.

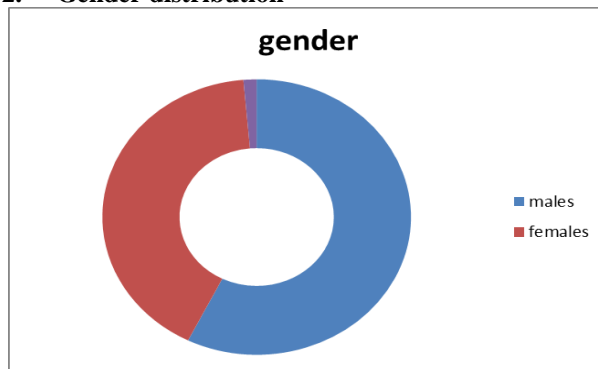
1. Age distribution

AGE	NO.OF PATIENTS
61-65 years	42(48.83%)
66-70	20(23.25%)
71-75	6(6.97%)
76-80	11(12.7%)
>80	7(8.13%)



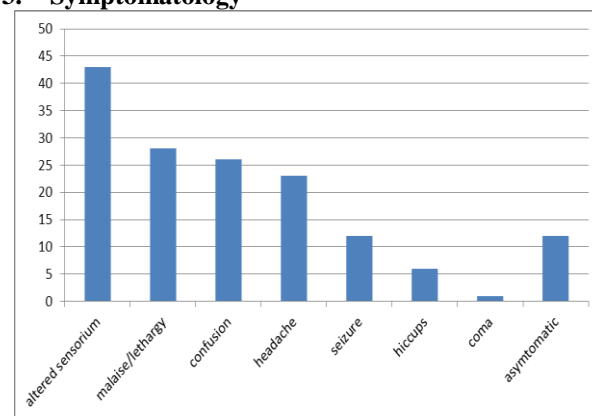
As stated above, out of 86 patients, 42(48.83%) were belonging to age group of 61-65 years followed by 66-70 years having 20 (23.25%) patients. Mean age was 68.55 \pm 7.7 years.

2. Gender distribution



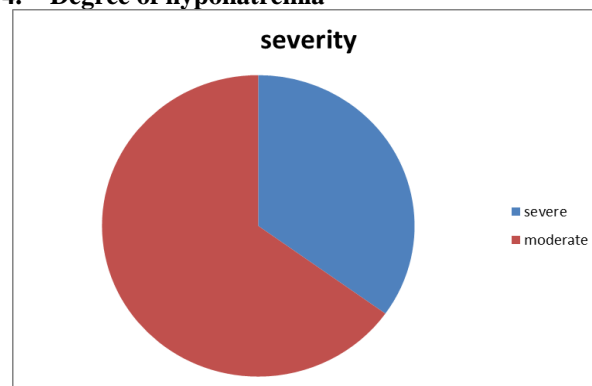
In my study males were 50(58.1%) and female were 36(41.9%).

3. Symptomatology



Amongst presenting symptoms the most common presenting symptoms was altered sensorium which was present in 43 patients(50%). Amongst those 43 patients having altered sensorium 12 patients had seizure while one was presented with coma.

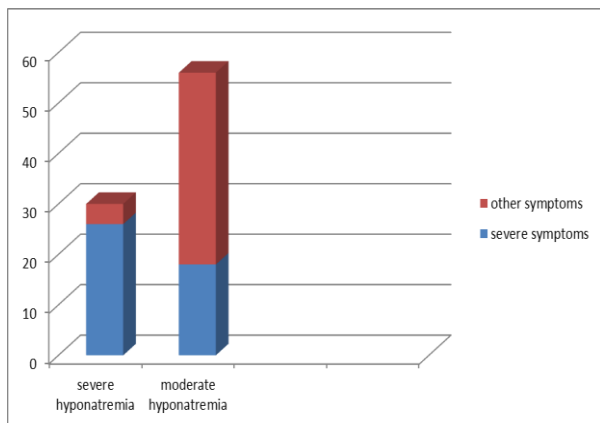
4. Degree of hyponatremia



Degree of hyponatremia	No of patients(n=86)
Mild (130-135)	zero
Moderate (120-129)	56(65.1%)
Severe (<120)	30(34.9%)

Severe neurological symptoms- altered sensorium, seizure, coma etc

Others- headache, hiccups, malaise/lethargy, Asymptomatic.



In the above mentioned chart, we have compared the severity of symptoms with degree of hyponatremia.

DISCUSSION

In our present study, the mean age was 68.55±7.7 years with maximum number of patients were being in the age group of 61-65(48.83%) which was similar to findings in Gili G in which mean age was 69.

In my study male to female ratio was 1.39:1 which was maximum in the age group of 61-65 and then difference gradually decreases as age increases. In Gilli G study, there was no sex difference noted. In Agarwal SM study also male (64.3%) patients were predominated.

Among symptomatology in my study, 43(50%) patients were having altered sensorium, 28(32.56%) patients had malaise/lethargy, 26(30.23%) patients had confusion, 12(13.95%) patients had a seizure episodes and 12 (13.95%) were asymptomatic for their hyponatremia. In Hochman's study, 43.4% were asymptomatic, 39.1% patients had moderate symptoms and 17.5% patients had severe neurological symptoms.

In my study, 26 out of 30 (86.67%) patients with severe hyponatremia had a major neurological symptom while 18 out of 56(32.14%) patients with moderate hyponatremia were having a severe neurological symptoms.

Amongst etiology, renal failure was the most common etiology in my study which was followed by multifactorial, diuretics and SIADH.

In my study, 80 patients had good outcome while only 5 patients died out of which 4 patients had a severe hyponatremia while only patient was having a moderate hyponatremia which is statistically significant which implies that patients with severe hyponatremia are having higher mortality compared to moderate hyponatremia.

CONCLUSION

Only 5.82% mortality was noted during study which was statistically more related with severe hyponatremia. Though mean serum sodium level was low in patient with death compared to patients who discharged, it was not statistically significant.

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