Journal Homepage: -www.journalijar.com
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)
Article DOI:10.21474/IJAR01/5379
DOI URL: http://dx.doi.org/10.21474/IJAR01/5379
ISSN NO. 2320-5407

RESEARCH ARTICLE

CLINICAL STUDY ON HYPONATRAEMIA.

DR. P.Srikanth[1], DR. Jayaraju[2], DR. Ramdas[3], DR. Srinivas[4], DR. Raghuramlu[5] and DR. Ramkeshav Reddy[6].

1. Asso. Prof. - Pinnamari Siddhartha Medical College, Vijayawada, A.P.
2. Asso. Prof. - Bhaskar Medical College, R.R Dist., Telangana.
3. Asso. Prof. - Bhaskar Medical College, R.R Dist., Telangana.
4. Asso. Prof. – FIMS, Kadapa, A.P.
5. Asso. Prof. – MNR Medical College, A.P.
6. Asso. Prof.-Kamineni Medical College, Hyderabad, Telangana.

Manuscript Info

Manuscript History

Received: 09 July 2017
Final Accepted: 11 August 2017
Published: September 2017

Abstract

Disorder of water and electrolyte abnormalities like sodium and potassium are common in hospitalized patients, sometimes observed in out-patients also. The entire emergency specialist including anesthesiologist and General physicians should know the causes and pathophysiology of Hyponatremia. This study was conducted in A.P &Telangana medical colleges where 210 hospitalized patients Were screened 63pts (30%) were found to have Hyponatremia (serum Na less than 135mm/L) average age in 65yr. 45% are male 55% female. In our Study the mortality in also associated with septic shock and progressive real failure.

Introduction:-

Defined as a serum sodium concentration less than 135m.eq/L in most common electrolyte abnormality in hospitalized patients. The physician should aware about hyponatremia. Iatrogenic complications from aggressive and inappropriate therapy is more harmful than Hyponatremia itself.

Most cases of Hyponatremia reflect water imbalance & abnormal water handling not Sodium imbalance indicating primary role of ADH in the pathophysiology of Hyponatremia. (1)

40% of body Na in present in above 55% is present in blood plasma. The amount of Na in blood in typically 140mm/L higher than ultra-cellular Na. This difference in essential to human life and useful in
2) Maintenance of BP and proper nerve conduction 15-18% chronic pts may have Hyponatremia. In hospitalized patients, it is >30%. (2)

Aims & Objectives:-
Our aim is to study the etiology and clinical features ofHyponatremia in hospitalized patients.

Materials AndMethods:-

Patients admitted in May 2016 to Dec Jan 2017 taken in to consideration patient age more than 55 years and serum Na<135m Mole/L. were included in this study. Patient serum Na>135 m.mol/L and age <55 years were excluded from the study. When serum Na is <125m.mol/L. The plasma & urine sample are sent for measurement of

Corresponding Author:- Dr. Jayaraju.
Address:- Asso. Prof. - Bhaskar Medical College, R.R Dist., Telangana.

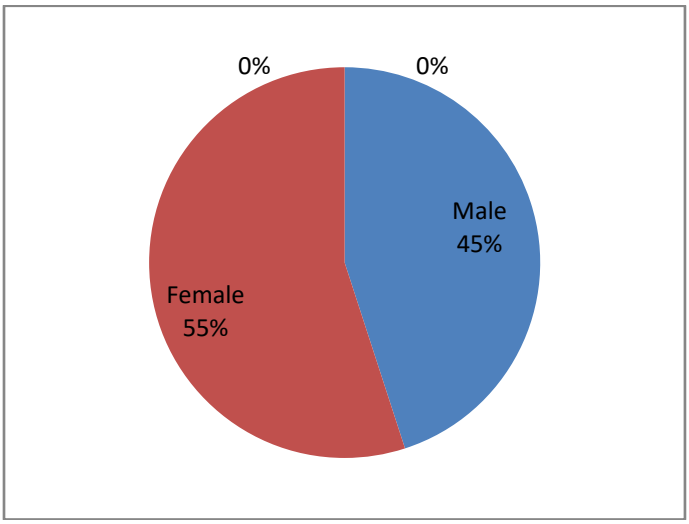
osmolality by freezing point depression osmometerses serum electrolytes and urine spot sodium are measured by ion sensitive electrode method.

In patient with sever Hyponatremia serum Na< 125m.mol/L. Were investigated for Serum osmolality urine osmolality urine, spot sodium, costisol, serum, T3, T4, TSH.

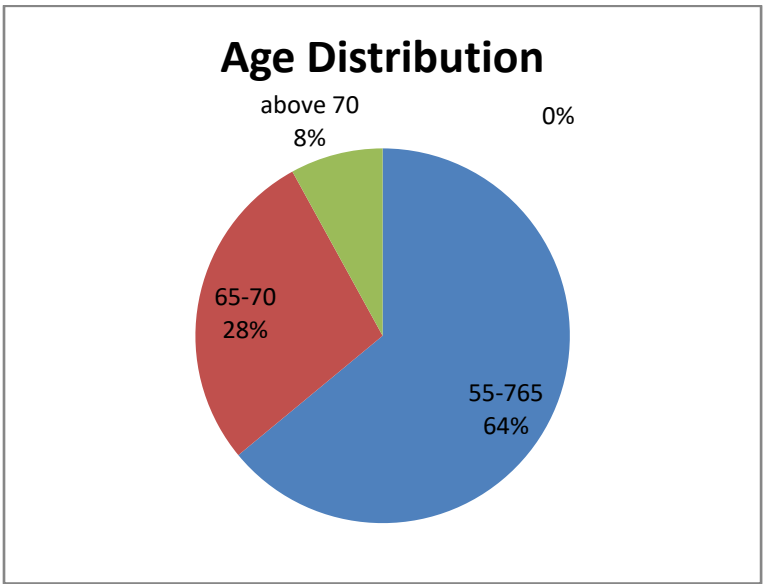
Observation AndResults:-

1. Total no of patients admitted in 7 months ,210 patients
2. Total no of patients with Hyponatremia no is 30%
3. Total no of patients with severe Hyponatremia no is -5%<125m.mol/L. (3)

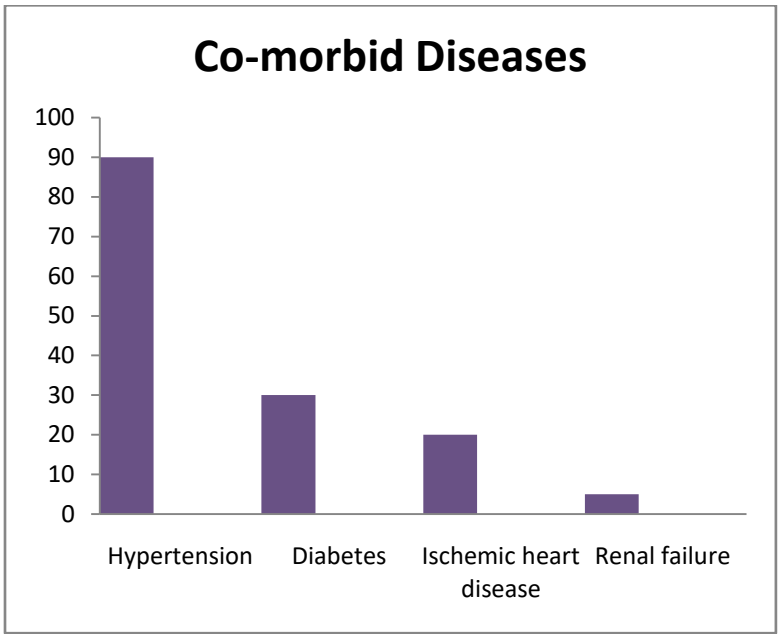
Male patients-45%
Female patients-55%



Age distribution: Maximum Numbers
Patients ranged between 55-65 years (80)
Next group is 70 years to 75-(35)
Above 75 is-(10)

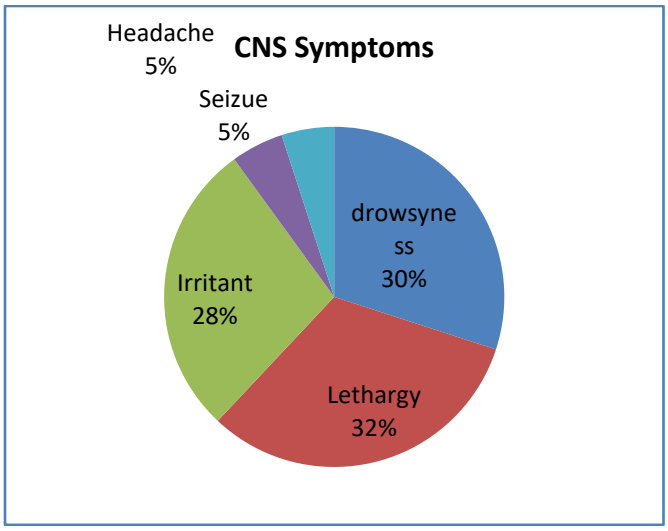


Co-Morbid Diseases:-
The common Co-morbid diseases were like this – Hypertension (90)
Diabetes (30)
Ischemic heart disease (20)
Renal failure (5)



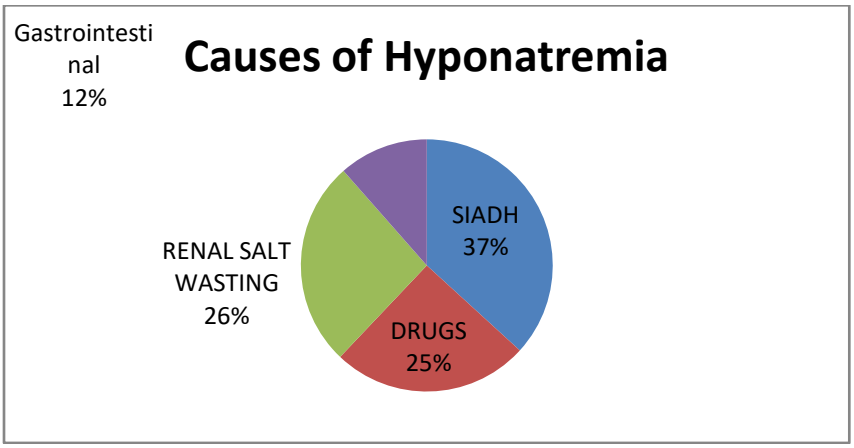
Symptoms in Hyponatremia- Symptoms depends on severity and acuity. In chronic diseases serum Na may be less than 110m.mol/L but may be asymptomatic because the brain has adapted by decreasing its tonicity over weeks to month.

Symptoms observed are drowsiness 42(30%), Lethargy 48(32%), Irritability 38(28%), Seizures (5%), Headache 6(5%)

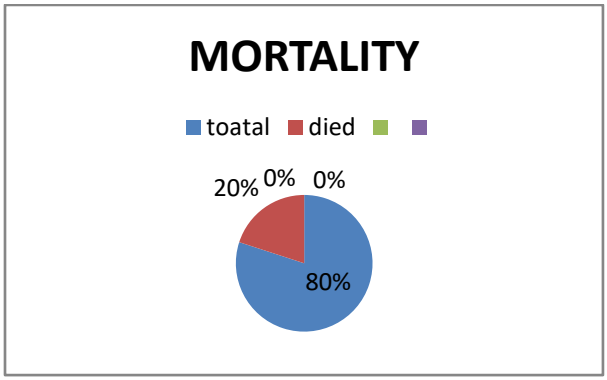


Severity of Hyponatremia:-
15 patients had very severHyponatremia with serum sodium <105m.mol/L and serum sodium in 22 patients in between 105-115m.mol/L and in 80 patient serum sodium is between 115-125m.mol/L

Causes of Hyponatremia:-
55(32%) cases are due to SIADH in 26(22%) it is due to drug and in 28(23%) patients it is due to renal salt wasting and in 16(10%) patients it is due to Gastrointestinal loses.



Treatment of Hyponatremia -40patients (20%) were died because of sever Hyponatremia i.e. serum sodium<105-115m.mol/L



Discussion:-

There is increase in Hospitalization because of increase in Co-morbid conditions like hypertension (55%)
Diabetes mellitus (48%) Ischemic heart disease (20%), and rental failure (2%) most of the patents are a multiple drug like ARBS, ACE Inhibitors, diuretics and oral hypoglycemic agents. These drugs can interfere and predispose them to electrolyte imbalance with metabolism of various electrolytes.

In our study the patients with serum sodium between 125-135m mol/L are rarely having any symptoms. The patients with serum sodium <125m mol/L was having CNS Symptoms like, lethargy, drowsiness irritability confusion, seizures CT Scan (plain& contract) of brain was done in all here patients and there was no structural abnormality and these symptoms are attributed to hyponatremia.

The patient with CNS Symptom were treated with intravenous 3% saline infusion to raise their serum sodium levels by 0.5 m.mol/L per hour to maximum of 12 m.mol/L increase in serum per day. Patients who did not have any CNS symptom were treated with intravenous hypertonic saline or oral correction with salt supplementation. Central pontinemyelinoss is described as a rare complication of treatment of hyponatremia but recent data has (leave) shown that the rate of correction has little of with the 3,4,5 development of central pontinemyelinoss.

Appropriate correction of hyponatremia in patients with symptamatichyponatremia is recommended in accordance to the guidelines for correction of hyponatremia, in general plasma sodium shall not be corrected to more than 25 to

130 m.eq/L assuming that total body water compises 50% of total body weight 1 m/kg of 3 % sodium chloride will raise the plasma sodium by 1 meq/L.
In male's mortality is higher 28% when compared with female (10%) may be related to age related brain atrophy. On the basis of the results it appears that physical factors may be more dominat factor of the two in ensuring brain survival during hyponatremia in elderly female subjects. Many studies show a higher mortability in the elderly patient with sever hyponatremia in 30% to 48% in our study the mortability is 26% and causes of death were coronary artery diseases, cerebro vascular accidents, sever sepsis and progressive renal failure. (6)

In our study the commnest cause of the hyponatremia was due to SIADH 32% followed by drugs 22% then rental salt wasting and Gastrointestinal loses. Most important factor is drug induced as VII JNC recommended diuretics as front line drug for treatment of hypertension a word of caution should be maintained while prescribing duties to the patients especially elderly patients. (7)

Conclusion:-

In our study the mean age in 68 years' light preponderance to female patient that is 55% whereas males 45%.

The CNS symptoms are attributed to hyponatremia those are symptoms were lethargy 42% irritability in 38% patients, sewiyers in 6 % and headache is 6%.

The causes of Hyponatremia in decreasing order of frequency are, of SIADH drug Induced reneval salt wasting & gastrointestinal loss cerebral salt washing. The common type is isomolo emic hyposmolarhyponatremia serum sodium levels are with a range 97m.mol/L to 125m.mol and mortality occurred in 40patients.

References:-

1. Narsing Rental –Diagnostic strategies in fluid and electrolyte and acid base balance AMJ -1982 March 72(3) 496-520
2. AB Dey et al 2000 "Health in Old Age" (1);7
3. Dubois GD, Arieff AI, Symptomatic hyponatremia the case for rapid correction, in Narsins R G New Yark; Churchil Livingstone 1984 3393-407
4. Ayus JC Arieff Al, Abnormalities of water metabolism in the elderly seminNephrol 1996:16:277-88
5. Richard H Sterns sever Symptomatic hyponatremia: treatment and outcome a study of 64 cases annals of internal medicine 1987; 107: 656-669
6. Rowe JW, Shock NW Defranzo RA. The influence of age and the rental response to water deprivation in man Nephron 1976; 17: 270-8
7. SterusRH,treatinghyponatremia why haste makes waste, south med J 1994.87.1238-1287(medline).