Original Article

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A Clinical Study on Hyponatremia in Elderly, Hospitalized Patients

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Abstract

Background: Electrolytes abnormalities are very common abnormalities in elderly individuals, among these hyponatramia is very dangerous and with high mortality hyponatramia is labelled as when serum sodium is less than 135 m.eq/l. It is associated with profound disturbance of cerebral function. Clinical features of hyponatremia include confusion, lethargy, vomiting convulsions and coma. To most cases of hypomatremiareflects water imbalance and abnormal water handling not sodium. Rapid rate of development of electrolyte abnormality causes more severe cerebral symptoms than the levels of Na Aggressive treatment and inappropriate therapy is more harmful than hyponatremia. Common causes of hyponatremia are dehydration, chronic renal failure, AIDS, Hypothyroidism and infections. **Aim:** To study the pattern, clinical features and outcome of patients with hyponatremia. **Subjects and Methods:** This study in conducted for 1year in 2 rural medical colleges in Telangana and Andhra Pradesh we have conducted this study on 80 elderly patients. Hospitalized patients. The age group is between 6.5 and 80 years males were 54 and females were 36. **Results:** We have examined 80 patients, males were 54 and females were 36. The age group is between 65 and 80 years. Hyponatremia was observed in 28 patients out of these 28 patients males were 18 and females were 10. The common age group is between 70 and 75 years. **Conclusion:** Hyponatremia is very common in elderly patients. And it is mostly seen in pts withCVA CAD, diabetes and sepsis. So when the elderly patients admitted with these coma bid conditions look for the early symptoms of hyponatremia and serum electrolyte should be tested. Early detection and early managements can prevent the mortality and morbidity is these patients.

Keywords: Electrolyte abnormalities, Hyponatremia elderly patients, altered sensorium, serum sodium, morbidity.

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Introduction

The total body fluid is distribution mainly between 2 compartments. The extracellular fluid and intracellular fluid the extracellular fluid in divided into interstitial fluid and blood plasma.[1] Sodium, potassium and chlorides are in extracellular fluid compartment the total body water ingested in the form of liquid or water in the food is 2100ml/day. The water synthesised in the body as a result of oxidation of carbohydratesis about 200ml/day, so total body intake in about 2300 ml/day.[2] Daily loss of body water through skin and resp. tract is 700/ml /day, through sweat is 100ml/day and through faces is 100ml and through kidney is 500ml/day. When the sodium concentration is reduced to less than 135mEq/l is called hyponatramia when 142meql/l exceeds is called hyponatremia.[3] A Common misconception is that the sodium concentration is a reflection of total body water or sodium. In fact total body water and sodium can be low normal or high in hyponatremia since the kidney independently regulates sodium and water homeostasis.[4] ADH got primary role in patho physiology of hyponatremia.

Serum osmollity identifies isotonic and hypertonic hyponatramiaisotonichyponatramea is seen with severehyponatramia and hyponatramic and hyprotonic hyponatremia occurs with mannitol administration for increased intracranial pressure. Glucose and mannitol osmotically pull intracellular water into the extracellular space. The Na Concentration Fall 2Meq/l for every 100mg/dl. Rise in glucose concentration is between 200mg/dl and 400mg/dl.[5, 6]

Hypotonic hypernatremia is common than other types or it is sub divided into hypovolemia hypotonic hyponatremia euvolrmic hypotonic hyponatremia and hypervolemic hypotonic hyponatremia.[7] The causes of hyponatrimic hyponatremia are dehydrates, diarrheal and vomiting, diuretics and cerebral Na wasting syndrome.

The cause of euvolemi hyponatremia are SIADH, Hypothysoidism, psychogenic polyolypsia and heart failure, liver disease can cause hypervolemic hyponatremia.[8]

Hyponatremia is seen up to 50% of hospitalized HIV patients and 20 % ambulatory HIV patients. Clinical features includes lethargy, weakness, attered sensorium, convulsions, coma: chronic disease can be severe Sr. Na< 110meq/l, yet remarkably asymptamatic because the brain has adopted by decreasing its tonicity over weaks to months. Mild hyponatramia Sr Na is beteen 130 Meq./l to 135 Meq/l. Is usually asymptamatic. Pre menpousal women are much more likely than menopausal women to die or suffer perment brain damage from hyponatremic encephalopathy, suggesting a hormonal role in pathophysiology.[9]

Subjects and Methods

This is conducted in 80 patients males were 54 and females were36. Age group is between 65 and 80 year. The maximum no. Of patients were between 65yr - 69yr. The no. of patients was 38(47.56%). The minimum no. of patients were above 80years 6(7.5%). 12 patients expired. Maximum morlality is observed in above 75years causes include other comorbid conditions like cerebrovascula accidents diabetes, reval failure and sepsis.

Results

Out of 80 patients males were 54 and females were 36. Severs hyponatremia is observed in 12 patients.in those patients serum Na is less than 110m eq/l mild hyponatremia was observed in 25 patients. The serum Na is these patients were between 130m eq/l and 135m eq/l.

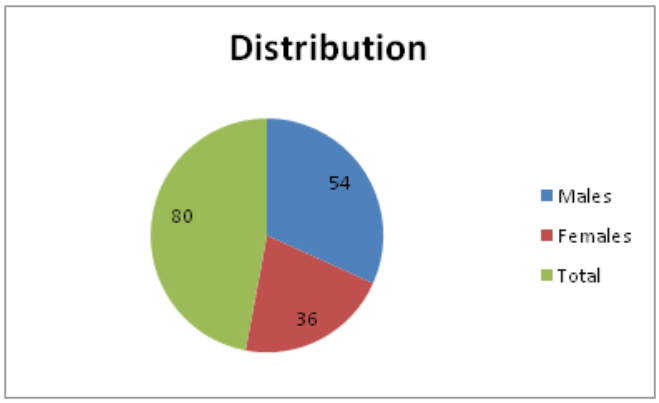

Chart 1:

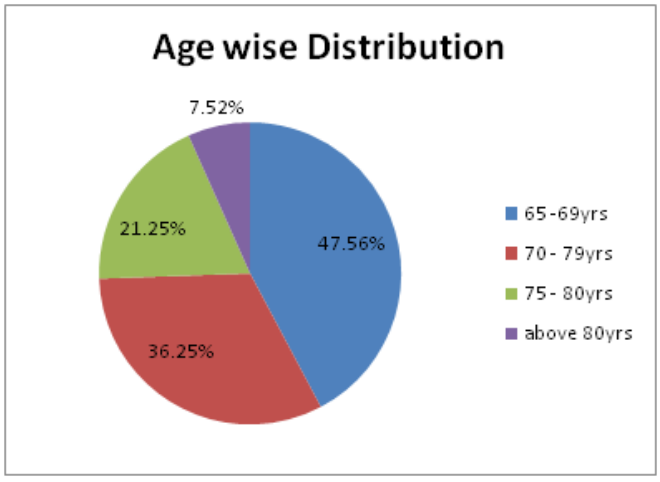

Chart 2:

Table 1: Age wise distribution

S.no	Age yr	No of pt	Percentage
1	65 – 89yr	38	47.56%
2	70 – 74yr	29	36.25%
3	75 – 80yr	17	21.26%
4	>80yr	6	9.52%

Table 2: Different levels of so. No extents

S.no	Sr . no m.gm/l	No. Of. Pts	Percentage
1	135 – 130	25	31.25%
2	125 - 130	29	36.28%
3	120 – 125	14	17.56%
4	115 – 120	12	15.05%

Discussion

The investigations advised are blood sugar, TC, DC, Urea, Serum creatne 12 patients were expired during hospital stay. The common causes observed were higher age group and co morbid conditions like carabro vascular accidents, diabetes, revel failure and sepsis.

Discussion: In our study the patients with serum sodium between 130 and 135meq/L rarely have symptoms. The CNS Symptoms reasons systems like, altered sensorium, convulsions and coma were observed in patients with serum sodium around 125m.eq/l. The study conducted by Al Abri et al shows similar results[9] CT scan was done for all the patients, there was no structural abnormality in CT Scan Brain, all these symptoms were attributed to low serum sodium levels only.

The patients with CNS symptoms were treated with intravenous 3% saline infusion to raise their sodium levels by 0.5m.m/hr to maximum of 12 mm/l/hr. Recent data show that rate of correction has little affect on central positive my lionises. In males mortality is higher when compared with females. May be related to age related to age related brain atrophy. The studies conducted by John kugler et al shows similar results.[10]

Co morbid conditions like hypertension, diabetes coronary artery disease, renel failure, and drugs like ARBS increases the rate of hospitalization in patients with hyponatremia In general plasma sodium shall not be corrected to more than 125 to 130 meg/l assuming that total body water comprise 50% of total body wt.1mg/kg of 3% sodium chloride will raise the plasma sodium by 1 mg/l.

Conclusion

Hyponatremia is very common in elderly patients. And it is mostly seen in pts withCVA CAD, diabetes and sepsis. So when the elderly patients admitted with these coma bid conditions look for the early symptoms of hyponatremia and serum electrolyte should be tested. Early detection and early managements can prevent the mortality and morbidity is these patients.

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