



E-ISSN: 2616-3470
P-ISSN: 2616-3462
© Surgery Science
www.surgeryscience.com
2020; 4(4): 241-244
Received: 12-08-2020
Accepted: 18-10-2020

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Hyponatraemia and its management in the department of surgery

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DOI: <https://doi.org/10.33545/surgery.2020.v4.i4d.844>

Abstract

Hyponatremia is usually discovered on laboratory tests as a lower than normal sodium level in the blood. It will appear as sodium or Na⁺ in your lab results. Actually, the main problem in the vast number of situations is too much water that dilutes the Na⁺ value rather than too much sodium. As a result, water moves into body cells, causing them to swell. This swelling causes the major problem, which is a change in mental status that can progress to seizures or coma. Hyponatremia can result from multiple diseases that often are affecting the lungs, liver or brain, heart problems like congestive heart failure, or medications. This study is intended to help the physicians and also clinical practitioners to identify and also help the patients so as to stall the always fatal outcome if treatment is delayed.

Keywords: Clinical, management profile, Hyponatraemia

Introduction

Hyponatremia is usually discovered on laboratory tests as a lower than normal sodium level in the blood. It will appear as sodium or Na⁺ in your lab results. Actually, the main problem in the vast number of situations is too much water that dilutes the Na⁺ value rather than too much sodium. As a result, water moves into body cells, causing them to swell. This swelling causes the major problem, which is a change in mental status that can progress to seizures or coma. Hyponatremia can result from multiple diseases that often are affecting the lungs, liver or brain, heart problems like congestive heart failure, or medications. Most people recover fully with their doctor's help. A serum level of less than 135mmol/lit is defined as hyponatraemia. It can be due to be either hypervolemia, euvolemia or hypovolemia condition [1, 2, 3]. It has a high prevalence especially with patients with metabolic disorders [4, 5]. Diabetes is one such condition. Over correction of dehydration is the leading cause of the illness. Acute is a state where the whole scenario arises and manifests within 48 hours. Hyponatremia causes neurological deficits and the patients come with a plethora of symptoms. Pinpoint diagnosis is the need of the hour as any delay in identifying can actually cause fatal irreversible brain damage to the patients [6, 7, 8]. The correction also if identified has to be done in a graded manner, if not may again be fatal by causing osmotic demyelination [8].

The grading of the hyponatraemia is as follows. Mild is defined as serum level in the range of 125 Eq/lit to 134 mEq/lit. Moderate Hyponatraemia is defined as serum levels between 125 mEq/L - 129 mEq/L, and Severe Hyponatraemia is defined as less than 124 mEq/lit. The treatment should never be corrected more than 25mEq/lit over 24 hours [9, 10].

This study puts in an effort to study the clinical and management profile of hyponatraemia cases. This study is intended to help the physicians and also clinical practitioners to identify and also help the patients so as to stall the always fatal outcome if treatment is delayed.

Aims and Objectives

To study the clinical and management profile of hyponatraemia cases in the Department of Surgery.

Materials and Methods:

Study design: A retrospective study.

Study period: February 2019 – August 2020.

Study setting: Department of Surgery, Azeezia Institute of Medical Sciences and Research

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Study population: All patients presented to our centre.

Sample size: 73 patients

Study group: Patients clinically and laboratory diagnosed with Hyponatremia.

Exclusion Criteria

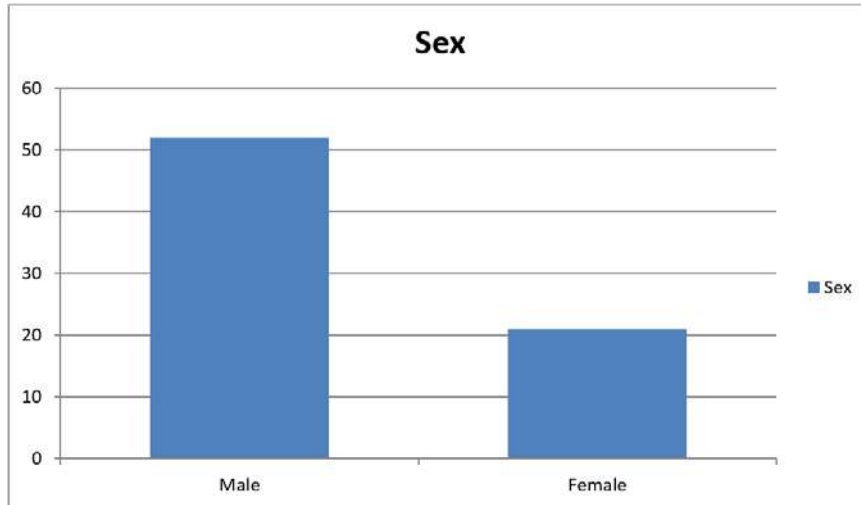
Patients who did not consent.

All the statistical Analysis was done using latest SPSS software 2015 California.

Inclusion Criteria

All the patients were below 60 years.

Results



Graph 1: Sex Distribution

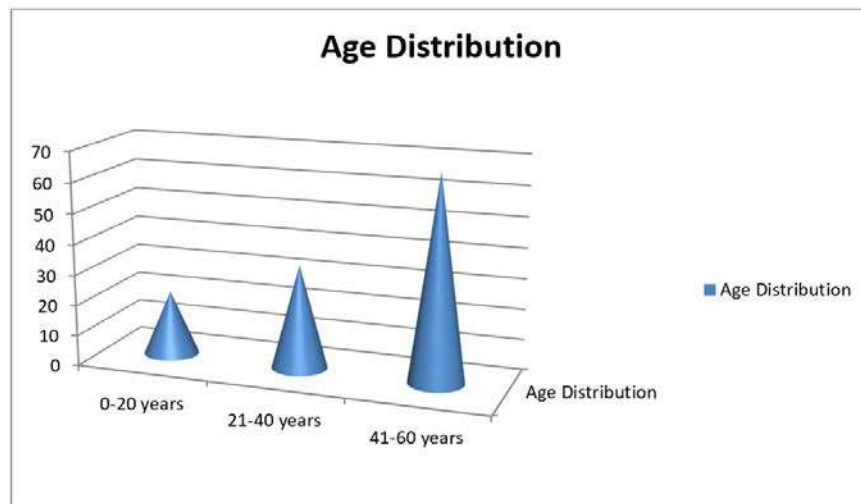


Fig 1: Age Distribution

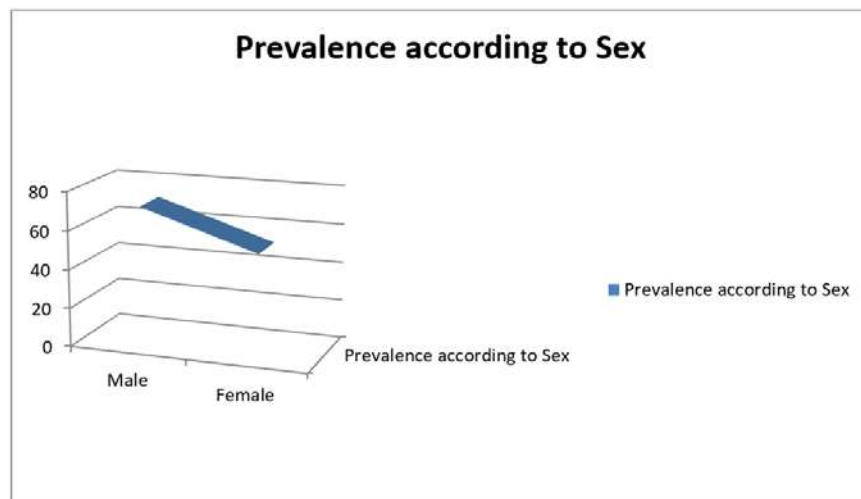


Fig 2: Male and Female Prevalence

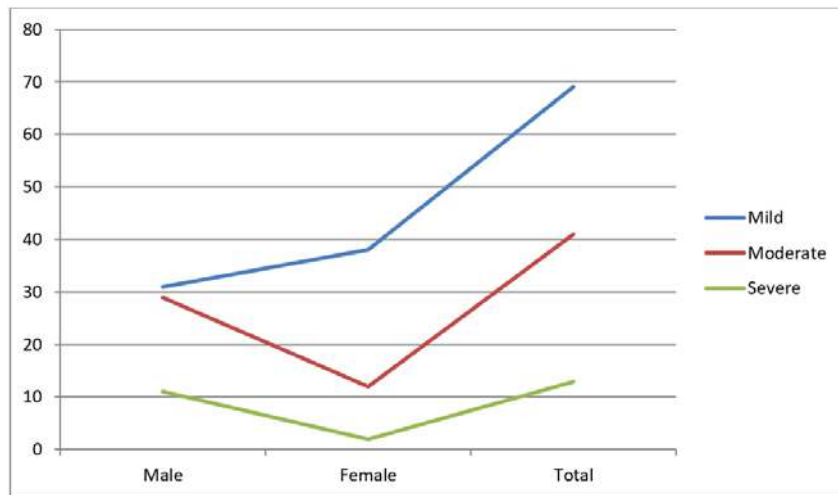


Fig 3: Severity

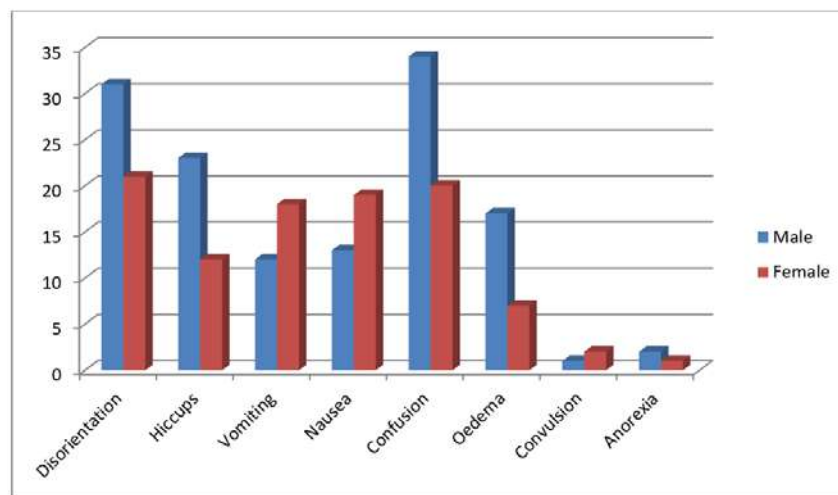


Fig 4: Clinical Symptoms

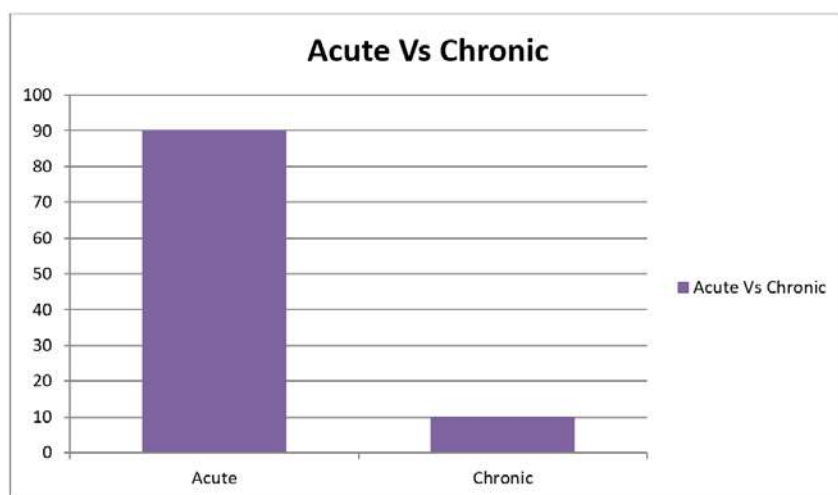


Fig 5: Acute vs Chronic

Table 1: Treatment Modality

	Treatment	Duration	Complication
Acute	3% saline, IV fluids, fluid restriction	4.34 days	2 people with sequale
Chronic	3% saline, IV fluids, fluid restriction	6.92 days	1 person with sequale 1 person demyelination syndrome

Table 2: Association of fatality/Complication

	Treatment	Duration	Complication	P-value
Acute	3% saline, IV fluids, fluid restriction	4.34 days	2 people with sequale	>0.05
Chronic	3% saline, IV fluids, fluid restriction	6.92 days	1 person with sequale 1 person demyelination syndrome	>0.05

Discussion

In our study majority of the patients who came belonged to the age group 40-60 years. This perhaps reflects on the fact that younger generation suffers less as they have systems working to the full capacity to correct the alterations. In our study majority of the patients were males. Four fifths were alcoholics and were also known to have different metabolic disorders. The severity was more seen in males. They had it because majority of them had other metabolic disorders and also many of them were alcoholics. Disorientation which followed closely vomiting and nausea were the commonest complaints. And males and females had similar symptoms and definitely they followed a pattern. Over 90 percent of them had acute onset of the disease. Only ten percent had chronic onset. Treatment was similar to both the groups. Saline, iv fluids and also fluid restriction was followed. The duration of the stay in chronic patients was more when compared to the other group. The complications were also of the same magnitude. Immediate and Prompt treatment is necessary for the condition. Hyponatremia is a low sodium concentration in the blood. It is generally defined as a sodium concentration of less than 135 mmol/L (135 mEq/L), with severe hyponatremia being below 120 mEq/L. Symptoms can be absent, mild or severe. Mild symptoms include a decreased ability to think, headaches, nausea, and poor balance. Severe symptoms include confusion, seizures, and coma.

The causes of hyponatremia are typically classified by a person's body fluid status into low volume, normal volume, or high volume. Low volume hyponatremia can occur from diarrhea, vomiting, diuretics, and sweating. Normal volume hyponatremia is divided into cases with dilute urine and concentrated urine. Cases in which the urine is dilute include adrenal insufficiency, hypothyroidism, and drinking too much water or too much beer. Cases in which the urine is concentrated include syndrome of inappropriate antidiuretic hormone secretion (SIADH). High volume hyponatremia can occur from heart failure, liver failure, and kidney failure. Conditions that can lead to falsely low sodium measurements include high blood protein levels such as in multiple myeloma, high blood fat levels, and high blood sugar.

Treatment is based on the underlying cause ^[4]. Correcting hyponatremia too quickly can lead to complications ^[5]. Rapid partial correction with 3% normal saline is only recommended in those with significant symptoms and occasionally those in whom the condition was of rapid onset ^[4, 6]. Low volume hyponatremia is typically treated with intravenous normal saline ^[4]. SIADH is typically treated by correcting the underlying cause and with fluid restriction while high volume hyponatremia is typically treated with both fluid restriction and a diet low in salt ^[1, 4]. Correction should generally be gradual in those in whom the low levels have been present for more than two days ^[4].

Hyponatremia is the most common type of electrolyte imbalance ^[10]. It occurs in about 20% of those admitted to hospital and 10% of people during or after an endurance sporting event ^[3, 5]. Among those in hospital, hyponatremia is associated with an increased risk of death ^[5].

Conclusion

Immediate and Prompt treatment is necessary for the condition

and reduces the fatality by enormous times.

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