



A STUDY OF HYPONATREMIA AS A PROGNOSTIC INDICATOR IN ACUTE MYOCARDIAL INFARCTION

General Medicine

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ABSTRACT

Background And Objective: Coronary artery disease is one of the most common cause of morbidity and mortality in both low income countries and developed countries. Hyponatremia is one of the common electrolyte disorder. In case of heart failure it is the main predisposing factor for cardiovascular mortality. Hyponatremia most frequently found after MI, which is due to neurohumoral activation seen in acute STEMI & HF. **Methodology:** A total of 100 patients admitted to the ICCU and Department of Internal Medicine, Narayana medical college, Nellore, between December 2020 to September 2021 with Acute Myocardial Infarction (STEMI) were studied in a prospective manner. The study design is prospective comparative study. **Results:** STEMI occurs earlier among Asians. Smoking, Diabetes, Hypertension and hypercholesterolemia are the major risk factors in acute Myocardial Infarction. Hyponatremia (i.e. sodium levels < 135 mEq/l) on admission or within 72 hrs have poor prognosis. More severe the Hyponatremia and more poorer the prognosis. Low sodium levels are more common among males and those with other risk factors. Anterior wall MI patients are more prone for Hyponatremia and lower ejection fraction than those with normal sodium levels. **Conclusion:** STEMI occurs earlier among Asians. Smoking, Diabetes, Hypertension and hypercholesterolemia are the major risk factors in acute Myocardial Infarction. Hyponatremia (i.e. sodium levels < 135 mEq/l) on admission or within 72 hrs have poor prognosis. More severe the Hyponatremia and more poorer the prognosis. Low sodium levels are more common among males and those with other risk factors. Anterior wall MI patients are more prone for Hyponatremia and lower ejection fraction than those with normal sodium levels.

KEYWORDS

Myocardial Infarction, Hyponatremia, Hypertension, Heartfailure.

INTRODUCTION:

Coronary artery disease is one of the most common cause of morbidity and mortality in both low income countries and developed countries. In the year 2012, globally 27 cardiovascular diseases led to more than 17.5 million deaths. About 80% of these deaths occurred in low income/ middle income countries. According to WHO report in 2014, age adjusted cardiovascular disease mortality in India were 349 and 265 per 1,00,000 deaths in men and women respectively. The prevalence of CAD increased for past 30 years as per studies conducted in both rural and urban India.

NSSO Survey (National Statistical Survey Organisation) in its 16th survey (2004 to 2005) said that a total of 3,90,313 subjects evaluated. The prevalence of CAD, found to be 7% in urban and 3% in rural population.

Hyponatremia is one of the common electrolyte disorder. In case of heart failure it is the main predisposing factor for cardiovascular mortality. Hyponatremia most frequently found after MI, which is due to neurohumoral activation seen in acute STEMI & HF.

AIMS AND OBJECTIVE:

1. To study the effect of hyponatremia in acute myocardial infarction.
2. To study the association between severity of hyponatremia and ejection fraction, outcome in myocardial infarction.
3. To predict the importance of hyponatremia in acute Myocardial Infarction and assess the significance of hyponatremia as an independent factor in predicting short term mortality.

METHODOLOGY:

This is a study with a sample size of 100 patients admitted to the ICCU and Department of Internal Medicine, Narayana medical college, Nellore, between December 2020 to September 2021. Patients were grouped into two

GROUP 1: Normal Sodium levels

GROUP 2: Serum Sodium less than 135 mEq/L

Inclusion Criteria

1. All adult cases of acute myocardial infarction (STEMI) as per the above definition;

Exclusion Criteria

- Any history of rheumatic heart disease
- Infective endocarditis
- Cardiomyopathy

- Old MI 70
- patients with renal failure (ARF and CRF)
- Acute and chronic liver failure
- Acute gastroenteritis
- Malignancy
- Adrenal insufficiency
- Hypertensive patients on diuretics
- patients with other electrolyte abnormalities

Patients who fulfilled the above Inclusion criteria and not with any of the above Exclusion criteria were included as a participant.

Statistical Analysis

All the data were analysed with SPSS software (version 21.0)

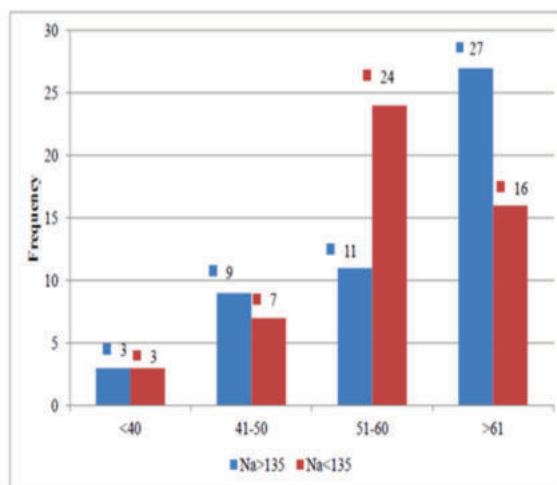
Variables are compared using

PEARSON CHI SQUARE TEST

INDEPENDENT SAMPLE T TEST

OBSERVATIONS AND RESULTS

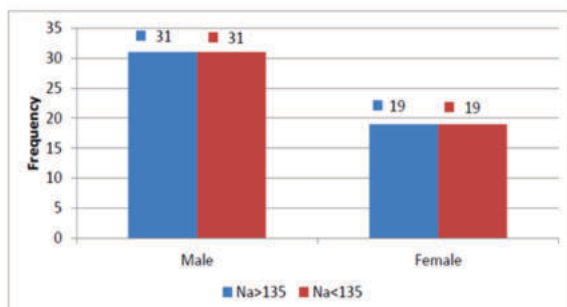
Table no 1. Age Distribution Of Cases



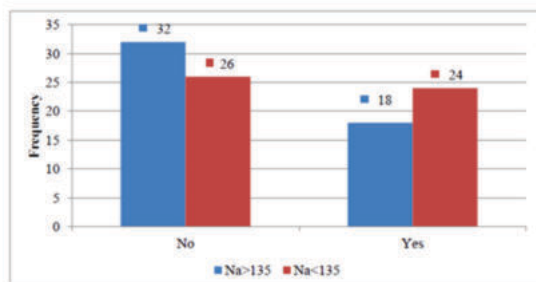
In our study majority of cases were in age group of > 61. Minimum age was

30. Maximum age was 80.

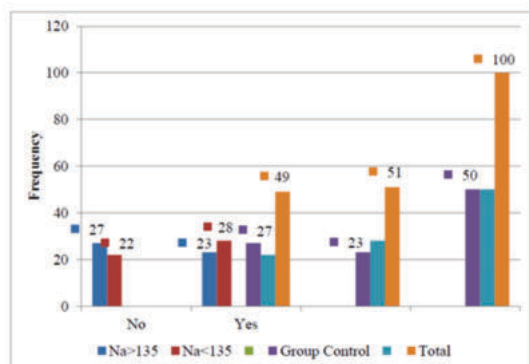
GRAPH 2 SEX DISTRIBUTION OF CASES



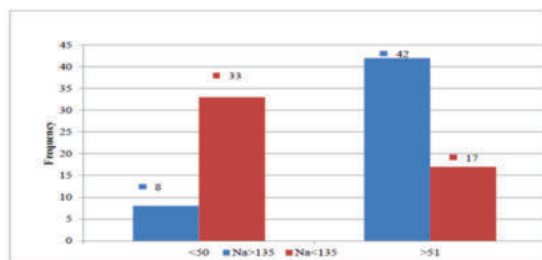
GRAPH 3 SHOWING DISTRIBUTION AMONG DIABETES MELLITUS



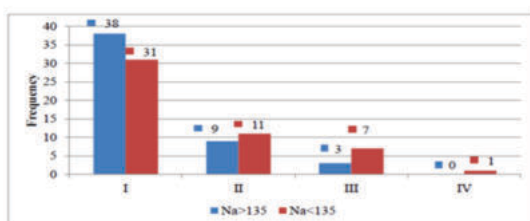
GRAPH 4: SHOWING DISTRIBUTION AMONG HYPERTENSION:



GRAPH 5: EJECTION FRACTION



GRAPH 6: SHOWING KILLIP CLASS



GRAPH 6: SHOWING INHOSPITAL COMPLICATION:

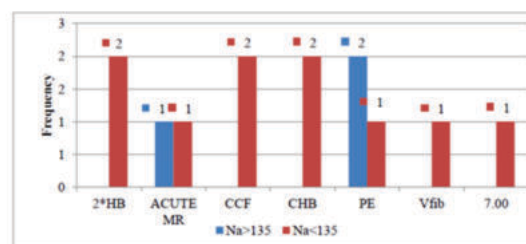
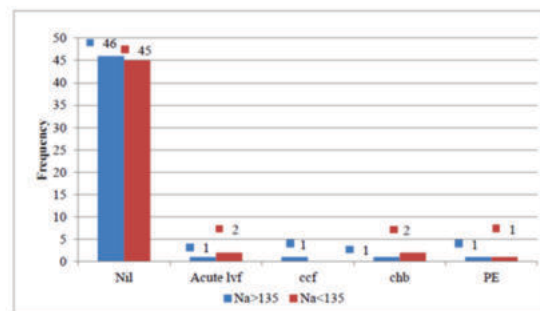


Table 8: Table Showing Followup Period

GRAPH 8: FOLLOWUP PERIOD



CONCLUSION

1. STEMI occurs earlier among Asians.
2. Smoking, Diabetes, Hypertension and hypercholesterolemia are the major risk factors in acute Myocardial Infarction.
3. Hyponatremia (i.e. sodium levels < 135 mEq/l) on admission or within 72 hrs have poor prognosis.
4. More severe the Hyponatremia and more poorer the prognosis.
5. Low sodium levels are more common among males and those with other risk factors.
6. Anterior wall MI patients are more prone for Hyponatremia and lower ejection fraction than those with normal sodium levels.

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