



A Cross Sectional Study on Hypokalemia in Patients with Acute Myocardial Infarction

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Hypokalemia was found to be more common in women, those with hypertension, and those on chronic diuretic therapy.

Objectives of the Study: The main objective of the study is to analyse the hypokalemia in patients with acute myocardial infarction.

Materials and Methods: This cross sectional study was conducted in District Head Quarter Teaching Hospital Faisalabad during 2019 to 2020. The data was collected from 100 male and female patients with myocardial infarction. The effect of plasma potassium concentration on patient survival after a myocardial infarction is investigated.

Results: The data was collected from 100 patients of MI. Mean age of male patients was found to be 64.12 ± 12.34 and female patients was 46.21 ± 10.24 . There was statistically significant decrease in serum sodium and potassium levels in study group among both the ages compared to normal healthy control group. Serum sodium, potassium, chloride, calcium levels were significantly lower in the AMI patients and magnesium levels were slightly raised among cases than controls.

Conclusion: It is concluded that reduction in sodium level was assessed only in patients with AMI as compared to healthy persons. Estimation of serum electrolyte is of utmost importance for diagnosis and prognosis of AMI.

Keywords: Hypokalemia; hypertension; chronic diuretic treatment.

1. INTRODUCTION

Hypokalemia was more common in individuals with anterior infarction than in those with inferior infarction, and in patients with big versus small infarcts. No reasonable distinction was seen between patients whose localized necrosis was affirmed and those in whom the analysis was not affirmed [1].

Extracellular (serum) potassium focus is regularly kept up with inside the estimated reference scope of 3.5-5.2 mmol/L; this is significant for typical cardiovascular capacity. Both decreased serum potassium (hypokalemia) and expanded serum potassium (hyperkalemia) can, if adequately serious, be related with possibly deadly cardiovascular arrhythmia [2].

Some suggest a higher objective of 4.5-5.5 mmol/L. The review, which was imagined to test the legitimacy of this master guidance, involved recovery of the clinical records of 38,689 patients conceded with intense myocardial dead tissue (AMI) to 67 US medical clinics for the period 2000-2008 [3]. Every one of these patients was allotted to one of seven gatherings, contingent upon their mean serum potassium fixation for the span of medical clinic stay [4].

Potassium homeostasis is basic to forestall unfavorable occasions in patients with cardiovascular sickness. A few examinations have exhibited a connection between low serum potassium levels, typically under 3.5 mEq/L, and the danger of ventricular arrhythmias in patients with intense myocardial dead tissue (AMI) [5].

A new report tried to decide the effect of plasma potassium fixation for patient endurance following myocardial localized necrosis. Current rules underline the significance of staying away from hypokalemia, prompting that patients determined to have myocardial dead tissue ought to be given potassium supplements, if vital, to keep up with serum potassium in the scope of 4.0-5.0 mmol/L [6].

1.1 Objectives of the Study

The main objective of the study is to analyse the hypokalemia in patients with acute myocardial infarction.

2. MATERIALS AND METHODS

This cross sectional study was conducted in District Head Quarter Teaching Hospital

Faisalabad during 2019 to 2020. The data was collected from 100 male and female patients with myocardial infarction. We decide the effect of plasma potassium focus for patient endurance following myocardial localized necrosis. Current rules underline the significance of staying away from hypokalemia, prompting that patients determined to have myocardial localized necrosis ought to be given potassium supplements, if important, to keep up with serum potassium in the scope of 4.0-5.0 mmol/L. Serum potassium was estimated in the crisis division and over and over from there on all through hospitalization, and was utilized in the investigation, alongside a huge cluster of clinical and research facility factors.

2.1 Statistical Analysis

SPSS version 19.0 was used to collect and analyse the data. The mean and standard deviation were used to express all of the data.

3. RESULTS

The data was collected from 100 patients of MI. Mean age of male patients was found to be 64.12 ± 12.34 and female patients was 46.21 ± 10.24 . There was statistically significant decrease in serum sodium and potassium levels in study group among both the ages compared to normal healthy control group. Serum sodium, potassium, chloride, calcium levels were significantly lower in the AMI patients and magnesium levels were slightly raised among cases than controls.

4. DISCUSSION

In patients with an unconfirmed myocardial infarction, there is almost certainly an increase in circulatory catecholamines. Patients with foremost localized necrosis and those with bigger infarcts would in general have more hypokalemic episodes than those with sub-par and those with more modest infarcts. Such discoveries raise the likelihood that the relationship between infarct size and the event of serious ventricular arrhythmias, which has recently been could, somewhat, rely upon the more successive improvement of hypokalemia in patients with enormous infarcts [7]. Our results fit with the speculation that a higher thoughtful tone builds the danger for advancement of hypokalemia. Then again, a higher beginning pulse didn't essentially expand the danger for improvement of hypokalemia [8].

Table 1. Analysis of comparison of electrolytes

Serum (mmol/L)	Case	Control	p-value
Sodium	82.641±6.412	94.612±5.241	0.001
Potassium	4.234±1.156	4.562±1.214	0.728
Magnesium	6.624±2.562	2.431±1.124	0.001
Chloride	72.421±6.561	78.432±6.112	0.134
Calcium	3.431±0.456	4.428± 1.141	0.005

MI patients were found to have hyponatremia which could be ascribed to the way that non osmotic emission of vasopressin debilitates the water discharge causing dilutional hyponatremia [9]. AVP or vasopressin is known to manage tone and heart withdrawal and may unfavorably influence cardiovascular hemodynamics and myocardial rebuilding. Hyponatremia on confirmation or early improvement of hyponatremia in patients with intense STelevation myocardial localized necrosis is an autonomous indicator of 30-day mortality, and guess deteriorates with the seriousness of hyponatremia [10].

5. CONCLUSION

It is concluded that decrease in sodium level was evaluated uniquely in patients with AMI when contrasted with sound people. Assessment of serum electrolyte is of most extreme significance for conclusion and visualization of AMI.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The data was collected with the permission of ethical committee of hospital.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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