

# STUDY OF SERUM ELECTROLYTES AND ARRHYTHMIAS IN FIRST 24 HOURS OF ACUTE MYOCARDIAL INFARCTION

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**ABSTRACT**--acute myocardial infarction is a major cause of death and disability in both developed and developing countries. To correlate various electrolytes(na,k,ca,mg) abnormalities with arrhythmias in acute myocardial infarction during the first 24 hours of admission.To correlate types of arrhythmias in first 24 hours of acute myocardial infarction with relation to site of infarction. Patient fulfilling diagnostic criteria of acute myocardial infarction Evaluation of serum electrolytes like serum k,Mg,Na,Ca at the time of admission.Recording of ECG at the time admission and subsequently at 6hour interval and as when needed I expect from the following study that there will be presence of co-relation of serum electrolytes imbalance and arrhythmias in 1<sup>st</sup> 24 hours of myocardial infarctionConclusions will be drawn when expected outcomes will be received.

**Keywords**-- K+, na+, mg+, ca+, ecg

## I. INTRODUCTION

Acute myocardial infarction is the irreversible necrosis of heart muscle secondary to prolonged ischemia result from an imbalance in oxygen supply and demand caused by plaque rupture with thrombus formation in a coronary vessel resulting in an acute reduction of blood flow to a portion of the myocardium. <sup>(1)</sup>

The incidence of myocardial infarction in india is 64.37/1000 people in men aged 29-69years. It is known that myocardial ischaemia and infarction leads to severe metabolic and electrophysiological changes that induce silent or symptomatic life-threatening arrhythmias. Sudden cardiac death is most often attributed to this pathophysiology, but many patients survive the early stage of an acute coronary syndrome (ACS) reaching a medical facility where the management of ischaemia and infarction must include continuous electrocardiographic (ECG) and hemodynamic monitoring, and a prompt therapeutic response to incident sustained arrhythmias

## II. Objectives

To correlate various electrolytes(na,k,ca,mg) abnormalities with arrhythmias in acute myocardial infarction during the first 24 hours of admission.

To correlate types of arrhythmias in first 24 hours of acute myocardial infarction with relation to site of infarction.

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### III. METHODS

#### *Study design:*

It is a cross-sectional study.

#### *Setting:*

The study will be carried out in Acharya VinobaBhaveHospital,Sawangi (Meghe)

### IV. PARTICIPANTS

Study subjects will be chosen as per inclusion and exclusion criteria as described as below.

### V. INCLUSION CRITERIA

Patients satisfying WHO definition for diagnosis of myocardial infarction were included in the study.

### VI. EXCLUSION CRITERIA

1. Known case of arrhythmogenic heart disease.
2. The patients admitted with previous history of myocardial infarction.
3. Patients with valvular heart diseases.

### VII. STATISTICAL ANALYSIS

The test of significance used between the associations of different characteristics was the Chi square test. For statistical significance, the p value was calculated and a value less than 0.05 was considered significant. SPSS 11.5 was used to analyse the data.

+ Suggestive significance (P value:  $0.05 < P < 0.10$ )

\* Moderately significant ( P value:  $0.01 < P \leq 0.05$ )

\*\* Strongly significant (P value :  $P \leq 0.01$ ).

**Sample size:** 100 patients

The total study population was 500 of which for current study prevalence of Myocardial infarction patients in our hospital was 20%. Sample size was calculated with by using the following formula:  $n = \{z^2 p(1 - p)\} / d^2$   
Where n=sample size for current study Z = Z Statistics for level of confidence (i.e. 1.96 for 95% confidence level)  
Confidence level = 95% p= Expected prevalence or proportion = 20% = 0.2 d= Precision = 0.078 Therefore,  $n = [(1.96)^2 (0.2)(1 - 0.2)] / (0.078)^2 = 100.009 \approx 100$  Hence, sample size taken for the study was 100 patients.

### VIII. EXPECTED OUTCOMES/ RESULTS

By conducting this study we will be gaining knowledge about the correlation between various electrolytes (Na, K, Ca, Mg) abnormalities with arrhythmias in acute myocardial infarction during the first 24 hours of

admission and also help in predicting outcome. Limited studies are available related to this topic and so this study intends to investigate whether there is an association between

Electrolytes abnormalities and arrhythmias in 1<sup>st</sup> 24 hour of myocardial infarction

**Discussion:** Discussion of the study will be conducted after the completion of study. A number of studies in this region on the various aspects related to stroke were reviewed(4-38). Many factors and non-communicable diseases having direct or indirect correlation with stroke (39-57). Few other related studies from this region of Vidarbha were also explored (58-68).

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