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Study outcome in acute myocardial infarction patients

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Abstract

Background: Coronary artery disease (CAD) and Acute Myocardial infarction (MI) are a major cause of death and morbidity. Cardiovascular disease remains leading cause of death in women in most part of the world. Atherosclerosis is the major cause of cardiovascular disease and coronary atherosclerosis is the main cause of acute myocardial infarction. **Aim & Objective: 1**. clinical profile of Myocardial infarction.2. study of risk factors in young acute Myocardial infarction. 3. Study outcome in acute MI patients **Methods: Study design:** Prospective Observational Study. **Study setting:** cardiology department of tertiary care centre. **Study population:** The study population included all the cases with Myocardial infarction admitted at a tertiary care center **Sample size:** 100 **Results:** majority of cases presented with HTN 95%, followed by Diabetes 45%, Obesity 38%, low physical activity 35%, Hyperlipidemia 27%, and Tobacco 12%. majority of cases age above 30 years 100% and 12 patients had a Family history of MI. majority of cases was belonged in Above 45 years age group e.g 87% and 13 cases was found in less than 45 years age group. majority of cases was male 80% and 20% female. majority of cases had a complain of chest pain 96, followed by Breathlessness 49, Radiating pain 37 cases, sweating 27 cases, vomiting 21 cases, abdominal pain was found in 4 cases and syncope in 4 cases. Majority of cases were discharged e.g 64 cases and 35 cases were died, 1 case discharged against medical advice **Conclusions:** Hypertension is the most common Modifiable Risk factor for acute MI. Age above 30 years and Family history of MI is the most common Non modifiable risk factors for acute MI. Most common clinical features of acute MI was Chest pain

Keywords: Myocardial infarction, Risk factors, HTN, DM.

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Introduction

Coronary artery disease (CAD) and Acute Myocardial infarction (MI) are a major cause of death and morbidity. Cardiovascular disease remains leading cause of death in women in most part of the world.[1] Atherosclerosis is the major cause of cardiovascular disease and coronary atherosclerosis is the main cause of acute ST elevation myocardial infarction (STEMI).Acute coronary syndrome is classified into two groups name patients with acute ST

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segment elevation MI(STEMI) on their presenting electrocardiogram (ECG) and those with Non ST segment elevation myocardial infarction(NSTEMI).

Studies have shown that 500 thousand women die every year in the United States according to AHA (American Heart Association 2003).[1]Coronary artery disease (CAD) is believed to be the major cause responsible for the deaths. (American Heart Association 2003).[1] Over a quarter of a million deaths per year are attributed to CAD alone in the United States.

Acute myocardial infarction (AMI) is one of the most common diseases among the developing countries. which occurs when there is a sudden block in blood flow in one or more of the coronary arteries and this cut off blood supply to a part of the heart muscle, causing necrosis.

If the block is severe, the heart can stop beating (cardiac arrest). This is most commonly due to occlusion or blockage of a coronary artery following the rupture of a vulnerable atherosclerotic plaque which is an unstable collection of lipids (cholesterol and fatty acids) and white blood cells (especially macrophages) in the wall of an artery. Myocardial infarction usually begins in the endocardium and spread towards the epicardium.[2-5]

There are many symptoms of acute myocardial infarction but the most common is chest pain, which may travel into the shoulder, arm, back, neck or jaw. This type of pain always starts from the center or left side of the chest and remains for few minutes. The onset of symptoms in acute myocar-dial infarction is usually gradual, over several minutes and rarely instantaneous.[6-8]

The incidence of myocardial infarction in the world varies greatly. In the United States and United Kingdom, nearly 650.000 and 180.000 patients get an acute myocardial in-farction every year, respectively.[9] Worldwide, more than 3 million people have STEMIs and 4 million have NSTEMIs.[10]

Indians are four time more prone to AMI as compared to the people of other countries due to a combination of the genetic and lifestyle factors that promote metabolicdysfunction.[11] The incidence of myocardial infarction in India is 64.37/1000 people.[12]

The mortality rate of myocardial infarction is approximately 30% and for every 1 in 25patients who survive the initial hospitalization, dies in the first year after AMI.[11] In India, 31.7% of deaths occur due to myocardial infarction. Incidence of cardiovascular diseases was about 7% in 1970 and increased up to 32% in 2011 inIndia.[13]

Aim And Objective

Objective

1. clinical profile of Myocardial infarction.

2. Study of risk factors in young acute Myocardial infarction

3. Study outcome in acute MI patients

Material And Methods

Study design: Prospective Study.

Study setting: Cardiology department tertiary care centre

Study population: The study population included all the cases with MI admitted at a tertiary care center

Inclusion Criteria

1. All cases with Acute myocardial infarction.

Exclusion Criteria

1. Not willing to participate

Approval for the study

Written approval from Institutional Ethics committee was obtained beforehand. Written approval of Medicine and Related department was obtained. After obtaining informed verbal

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consent from all patients with the definitive acute myocardial infarction admitted to Medicine ward of tertiary care centre such cases were included in the study.

Sample Size: 100

Sampling technique:

Convenient sampling technique used for data collection. All patients admitted in the Medicine department of tertiary care center with acute MI were included in the study.

Methods of Data Collection and Questionnaire

Predesigned and pretested questionnaire was used to record the necessary information. Questionnaires included general information, such as age, sex, religion, occupation of parents, residential address, and date of admission. Medical history- chief complain, past history, general examination, systemic examination

Data on demographic profile of stroke patient, investigation, personal history, medical past history, treatment modalities, and clinical outcome data collected from patients admitted in medicine ward.All the procedures and investigations conducted under direct guidance and supervision of pg guide. Proforma of stroke notes maintained.

Data entry and analysis: The data were entered in Microsoft Excel and data analysis was done by using SPSS demo version no 21 for windows. The analysis was performed by using percentages in frequency tables and $p<0.05$ was considered as level of significance using the Chi-square test

Results And Observations

Table 1: Proportion of various Modifiable Risk factors of acute MI (n=100)

Risk factors of stroke	**Frequency**	**Percentage**
Hypertension	95	95%
Diabetes	45	43%
Hyperlipidemia	27	27%
Tobacco	12	12%
Obesity	38	45%
Low physical activity	35	35%
Total		**100**

The above table shows majority of cases presented with HTN 95%, followed by Diabetes 45%, Obesity 38%, low physical activity 35%, Hyperlipidemia 27%,and Tobacco 12%.

Table 2: Proportion of various Non-modifiable Risk factors of acute MI (n=100)

Non-modifiable Risk factors of STEMI	**Frequency**	**Percentage**
Age above 30 years	100	100%
Family History	12	12%
Total	**130**	**100**

The above table shows majority of cases age above 30 years 100% and 12 patients had a Family history of MI

Table 3: Distribution of cases according to Age

Age in years	**Frequency**	**Percentage**
Less than 45 years	13	13%
Above 45 years	87	87%
Total	**100**	**100**

The above table shows Distribution of cases according to Age majority of cases was belonged in Above 45 years age group e.g 87% and 13 cases was found in less than 45 years age group.

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Table 4: Distribution of cases according to sex

Sex	Frequency	Percentage
Male	80	80%
Female	20	20%
Total	**100**	**100**

The above table shows Distribution of cases according to sex majority of cases was male 80% and 20% female.

Table 5: Distribution of cases according to clinical features of acute MI (n=100)

Clinical features of MI	Frequency	Percentage
Chest pain	96	100%
Radiating pain	37	37%
sweating	27	27%
Breathlessness	49	48%
Vomiting	21	21%
Abdominal pain	4	4%
Syncope	4	4%
Total		**100**

The above table shows majority of cases had a complain of chest pain 96, followed by Breathlessness 49, Radiating pain 37 cases, sweating 27 cases, vomiting 21 cases, abdominal pain was found in 4 cases and syncope in 4 cases.

Table 6: Distribution of cases according to Outcome

Outcome	Frequency	Percentage
Discharged	64	64%
Died	35	35%
DAMA	1	1%
Total	**100**	**100**

The above table shows Majority of cases were discharged e.g 64 cases and 35 cases were died, 1 case discharged against medical advice

Discussion

In this study Proportion of various Risk factors of MI 35 cases presented with low physical activity (35%) .similar finding in the study of D'Avanzo et al., examined the relationship between physical activity and acute myocardial infarction (AMI) and confirm that low physical activity is an indicator of subsequent risk of AMI.[14] Similarly, Gong et al., suggested that a light indoor activity pattern is associated with reduced AMI risk.[15]

In this study Proportion of HTN among MI cases was 95%. similar result found in the Singh B et al (2019)[15] He found that the overall prevalence of MI among younger patients was 12.8% and risk factor for MI was hypertension (16%). other similar study observed the same result Lovleen C et al (2013)[16] He observed that the Hypertension risk factors were associated with MI.

In this study Proportion of Tobacco use among MI cases was 4% as compared with other study our result was low.In the study of Sonia S et al (2008)[17] He found that the Tobacco use proportion was high as compared with our study result. High proportion of Tobacco use observed in the study of Mishra TK et al (2016)[18] He found that the Tobacco use were associated with MI.

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In this study majority of cases was belonged in Above 45 year's age group 87% and 13 cases was found in less than 45 years age group.Similar result observed in the study of Mishra TK et al (2016)[18]

In this study majority of cases was male 80% and female were 20%.similar result found in the stud of Mishra TK et al (2016)[18]

In this study 35 MI cases were died during treatment .similar result was found in the study of Mishra TK et al (2016)[18] He found that the Women had higher crude in hospital mortality than men, driven mainly by younger age (46-55 years, odds ratio: 2.60 [95% CI, 1.80-3.7];

Conclusions

Hypertension is the most common Modifiable Risk factor for acute MI. Age above 30 years and Family history of MI is the most common Non modifiable risk factors for acute MI. Most common clinical features of acute MI was Chest pain

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