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CLINICAL PROFILE AND RISK FACTOR OF ACUTE ST SEGMENT ELEVATION MYOCARDIAL INFARCTION IN FEMALE PATIENT

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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.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 segment elevation MI(STEMI) on their presenting electrocardiogram (ECG) and those with Non ST segment elevation myocardial infarction(NSTEMI). **Aim & Objective:** 1.To study Clinical profile of ST Segment elevation MI (STEMI) in female patient. 2.To analyze various risk factors in female patient of acute ST segment elevation MI.3. To study the outcome in women with acute ST Segment elevation MI admitted in ICCU. **Methods:** Hospital based Cross sectional study. Study setting: Cardiology Department of tertiary care centre. **Study duration:** from January 2016 to December 2016 Study population: The study population included all the cases with Acute ST segment elevation Myocardial infarction in female patients 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 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 were discharged e.g 64 cases and 35 cases were died, 1 case discharged against medical advice. The proportion of HTN among STEMI outcome cases was 10.52% and Non HTN cases was 60%. When statistical analysis using Chi- square test was done, proportion of HTN among STEMI outcome cases was statistically significant at ($p < 0.05$). **Conclusions:** Hypertension is the most common Modifiable Risk factor for STEMI. Age above 30 years and Family history of MI is the most common Non modifiable risk factors for

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STEMI. Proportion of HTN among STEMI outcome cases was statistically significant at ($p < 0.05$).

Keywords: STEMI, Hyperlipidemia, HTN, Diabetes, Obesity

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 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]

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Need for the study:

Now a day's burning issue is Cardiovascular diseases. 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 infarction 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 25 patients who survive the initial hospitalization, dies in the first year after AMI. 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]I am interested to study the Clinical profile of ST Segment elevation MI (STEMI) in female patient. To analyze various risk factors in female patient of acute ST segment elevation MI and To study the outcome in women with acute ST Segment elevation MI admitted in ICCU

Methodology

Study design: Hospital based Cross sectional study, **Study setting:** Cardiology department of tertiary care centre

Study duration: from January 2016 to December 2016 **Study population:** The study population included all the cases with Acute ST segment elevation Myocardial infarction in female patients admitted at a tertiary care center.

Inclusion criteria:

1. **All confirmed** Acute ST segment elevation Myocardial infarction in female patients **admitted in Tertiary care center** were **included in the study**
2. **18 years and above patients with** Acute ST segment elevation Myocardial infarction were **included in the study**

Exclusion criteria:

1. Male patients **with** Acute ST segment elevation Myocardial infarction
2. Not willing to participate in the study.

Approval for the study: Written approval from Institutional Ethics committee was obtained beforehand. Written approval of Cardiology and Radiology department was obtained. After obtaining informed verbal consent from all female patients with Acute ST segment elevation Myocardial infarction admitted to Medicine ward of tertiary care centre such cases were included in the study.

Sample Size: With reference to study by **Singh B et al (2017)[105]** Prevalence of ST segment Elevation Myocardial infarction was 53%

Formula for sample size = 4* P* Q / L2 ,**Where P** = 53% ,**Q** = 100 -53 = 47, **L** = Allowable error = 20% (Absolute error)

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Sample size = 4 * 53 * 47 / 112.36 =88.67. **Sample size Rounded to** = 100

Sampling technique: Convenient sampling technique used for data collection. All female patients with Acute ST segment elevation Myocardial infarction admitted in the Medicine department of tertiary care center from Jan 2016 to Dec 2016 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.

Screening procedure: History of patients including presenting complaints, medical illness, drug history, personal history, past medical history

- Clinical Examination- General and systemic examination
- Patients fasting blood sample were send for checking lipid profile
- Patients blood sample were send for checking random lipid profile

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 correlation of stroke. $p<0.05$ was considered as level of significance using the Chi-square test

RESULTS AND OBSERVATIONS

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

Sr No	Risk factors of stroke	Frequency	Percentage
1	Hypertension	95	95%
2	Diabetes	45	43%
3	Hyperlipidemia	27	27%
4	Tobacco	12	12%
5	Obesity	38	45%
6	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%.

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

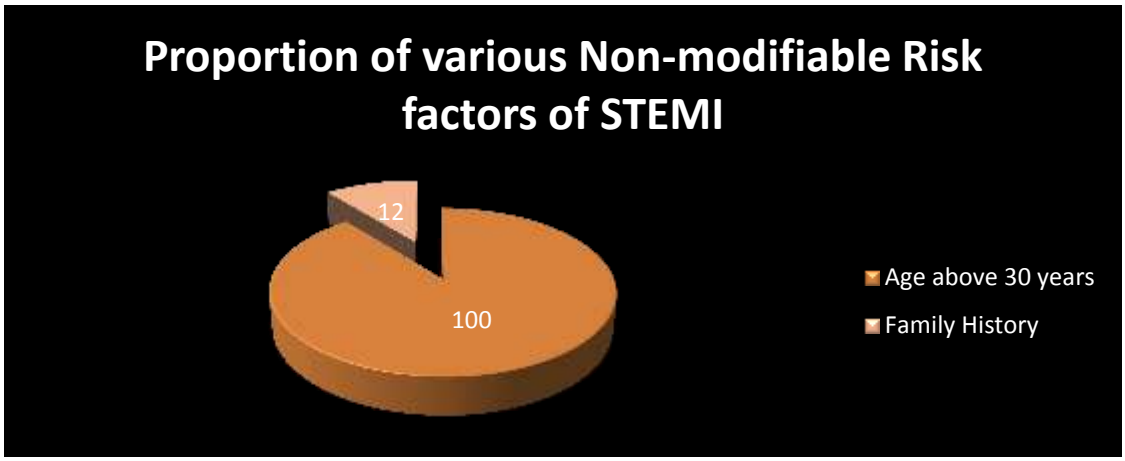

Figure no 1 : Proportion of various Non-modifiable Risk factors of STEMI (n=100)

The above figure no 2 shows majority of cases age above 30 years 100% and 12 patients had a Family history of MI.

Table no 2: Distribution of cases according to Age

Sr No	Age in years	Frequency	Percentage
1	Less than 45 years	13	13%
2	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.

Table no 3: Distribution of cases according to Outcome

Sr No	Outcome	Frequency	Percentage
1	Discharged	64	64%
2	Died	35	35%
3	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

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

Table no 4: Association of Hypertension with Outcome of STEMI

Sr No	Hypertension	Outcome of STEMI				Total (%)
		Present	Percentage	Absent	Percentage	
1	Present	10	10.52%	85	89.48%	95(100)
2	Absent	03	60%	02	40%	5 (100)
	Total	13	13.68%	87	86.32%	100(100)

Chi- square- 10.2797, df-1, p-0.001345

The proportion of HTN among STEMI outcome cases was 10.52% and Non HTN cases was 60%. When statistical analysis using Chi- square test was done, proportion of HTN among STEMI outcome cases was statistically significant at ($p < 0.05$)**.**

Discussion:

The incidence of myocardial infarction in India is 64.37/1000 people.[14] 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. 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.[15]

In this study Proportion of various Risk factors of STEMI 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.[16] Similarly, Gong et al., suggested that a light indoor activity pattern is associated with reduced AMI risk.[17]

In this study Proportion of HTN among STEMI cases was 95% . similar result found in the Singh B et al (2017)[18] He found that the overall prevalence of STEMI among younger patients was 12.8% and risk factor for STEMI was hypertension (16%)., other similar study observed the same result Lovleen C et al (2013)[19] He observed that the Hypertension risk factors were associated with MI.

In this study the proportion of HTN among STEMI outcome cases was 10.52% and Non HTN cases was 60%. When statistical analysis using Chi- square test was done, proportion of HTN among STEMI outcome cases was statistically significant at

($p < 0.05$). Similar result found in the study of Sonia S et al (2008)[20] He found that the Hypertension risk factors were associated with MI in women and men. Hypertension [2.95(2.66

ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

–3.28) vs. 2.32(2.16–2.48)]. Similar result revealed in the study of Mishra TK et al (2016)[21] He found that the Hypertension were associated with MI

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)[21], Sonia S et al (2008)[20], Nanna MG et al (2017)[22] Similar result found in the study of Singh B et al (2017)[18] And Karim, M.A et al (2015)[23] He found that the mean age of the young and older patient groups was 36.5 ± 4.6 years and 57.0 ± 9.1 years respectively.

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ISSN: 0975-3583,0976-2833 VOL 09, ISSUE 03, 2018

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