CLINICAL PROFILE AND RISK FACTORS OF ACUTE ST SEGMENT ELEVATION MYOCARDIAL INFARCTION IN FEMALE PATIENTS

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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. Atherosclerosis is the major cause of cardiovascular disease and coronary atherosclerosis is the main cause of acute ST elevation myocardial infarction (STEMI).[1]

Myocardial infarction is defined pathologically as the irreversible death of myocardial cells caused by ischemia. Clinically MI is the syndrome that can be recognised by a set of symptoms, chest pain being the hallmark of these symptoms in most cases, supported by biochemical laboratory changes, electrographic changes or findings on imaging modalities able to detect myocardial injury and necrosis.[2]

Indians are four times more prone to AMI (acute myocardial infarction) as compared to the people of other countries due to a combination of the genetic and lifestyle factors that promote metabolicdysfunction.[3] The incidence of myocardial infarction in India is 64.37/1000 people.[4]

The present study was conducted to study the clinical profile of ST segment elevation MI (STEMI) in female patients and to find out various risk factors in female patients of acute ST segment elevation MI and also to study the outcome in women with acute ST Segment elevation MI admitted in ICCU.

MATERIALS & METHODS:
The Present hospital based cross sectional study was conducted in the intensive coronary care unit (ICCU) of Government Medical College & Hospital, a tertiary care teaching institute during October 2018 to February 2021. Female patients of age more than 18 years with clinical features and ECG changes of acute STEMI admitted in ICCU of Medicine Department were selected for the present study.

In present study to define MI, fourth universal definition of myocardial infarction was used. Detection of elevated cTn value above the 99th percentile upper reference limit was defined as myocardial injury. The injury is considered acute if there was rise and or fall of cTn values.

1. The criteria for type 1 MI includes detection of a rise or fall of cTn with at least one of the following [5]
A] Symptoms of acute myocardial infarction
B] New ischemic electrographic changes
C] Development of pathologic q waves
D] Imaging evidence of new loss viable myocardium or new regional wall motion abnormality in pattern consistent with an ischemic aetiology.

2. The criteria for Type 2MI includes detection of a rise and or fall of cTn with at least one value above the 99th percentile and evidence of imbalance between myocardial oxygen supply and demand unrelated to coronary thrombosis at least one of the following
A] Symptoms of acute myocardial infarction
B] New ischemic electrographic changes
C] Development of pathologic q waves
D] Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality in pattern consistent with an ischemic aetiology.

3. Cardiac procedural myocardial injury is arbitrarily defined by increases in of cTn values (99th percentile URL) in patients with normal baseline values (less than or equal to 99th percentile URL) or rise of cTn values >20% of baseline value when it is above the 99th percentile but it is stable or falling.

4. Coronary intervention related MI is arbitrarily defined by elevation of cTn values >5 times the 99th percentile URL in patients with normal baseline values. in patients with elevated pre-procedure cTn in whom the cTn level as are stable or falling ,the post-procedure cTn must rise by>20%.However,the absolute post-procedure value must still be at least 5 times the 99th percentile URL ,in addition one of the following required
A] New ischemic electrographic changes
B] Development of pathologic q waves
C] Angiographic findings consistent with a procedural flow-limiting complication such as coronary dissection, occlusion of a major epicardial artery or a side branch occlusion/thrombus, disruption of collateral flow to distal embolization.

5. Coronary artery bypass grafting (CABG) related MI is arbitrarily defined by elevation of cardiac biomarker value (>10 x99th percentile URL) in patients with normal baseline cTn in addition either a] new pathologic q waves or new LBBB or b] angiographic documented new native coronary artery occlusion or c) imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.

Approval from Institutional Ethics committee was obtained before start of the study. By using convenient sampling technique we studied total 100 study subject during whole study period.

Pre-formulated proforma was used to record the necessary information and data collection, which included general information, such as age, sex, religion, occupation of parents, residential address, and date of admission, medical history, and chief complaints, past history, general examination, and systemic examination findings.

Data on demographic profile of STEMI patients, investigation, and personal history, medical past history, treatment modalities, and clinical outcome collected from patients admitted in ICCU ward. ECG of every patient taken at time of presentation and after thrombolysis

The data were entered in Microsoft Excel on regular basis and data analysis was done with the help of SPSS trial version 21. The analysis was performed by using percentages in frequency tables and correlation of STEMI.

RESULTS:
Table No.1: Distribution of cases according to Age

Age group in years	Frequency	Percentage
30- 45	8	8%
45-60	33	33%
61-75	45	45%
>75	14	14%
Total	100	100

Majority of cases that is 45 out of 100 were in age between 61 to 75 yrs, followed by 33 cases were belongs to age between 45 to 60 yrs and 14 were above 75 yrs of age while only 8 cases out of 100 were in age of 30 to 45 yrs.

Table No.2: Distribution of cases according to Occupation

Occupation	Frequency	Percentage
Housewife	88	88%
Service	12	12%
Total	100	100

The above table shows majority of cases were Housewife that is 88 out of 100 cases.

Table No.3: Distribution of cases according to clinical features of SETMI

Clinical features of SETMI	Frequency	Percentage
Chest pain	96	96%
Breathlessness	49	49%
Radiating pain	37	37%
Sweating	27	27%
Vomiting	21	21%
Abdominal pain	4	4%
Syncope	4	4%

*Multiple responses

The most common symptom was chest pain shown by 96% patients, followed by Breathlessness among 49 % patients. Radiating pain found in 37 cases, sweating was present in 27 cases out of 100, vomiting found in 21 cases and abdominal pain was found in 4 cases and syncope in 4 cases.

Table No.4: Proportion of various Modifiable Risk factors of STEMI

Risk factors	Frequency	Percentage
Hypertension	66	66%
Diabetes	50	50%
Hyperlipidemia	41	41%
Obesity	38	38%
Low physical activity	35	35%
Tobacco	12	12%

*Multiple responses

The above table shows majority of cases presented with HTN 66%, followed by Diabetes 50%, Obesity 38%, low physical activity 35%, Hyperlipidemia 41% and Tobacco 12%.

Table No.5: Proportion of various Non-modifiable Risk factors of STEMI (n=100)

Non-modifiable Risk factors of STEMI	Frequency	Percentage
Menopause	92	92%
Family History	12	12%

*Multiple responses

Among non modifiable risk factors majority (92%) women were

having their menopause & 12 % study subjects were having family history of similar disease.

Table No.6: Distribution of cases according to Lipid profile (LDL CHOLESTEROL)

LDL CHOLESTEROL	NO. OF PATIENTS
<130mg/dl	38
130-160 mg/dl	21
>160 mg/dl	41

38% cases presented without dyslipidemia and hyperlipidemia was found in 62% cases. Among these 62 patients 41 study subjects were having LDH > 160 mg/dl.

Table No.7: Types of STEMI and outcome

Type of STEMI	Frequency	Discharged	Died
IWMI	31	24	7
ALWMI	19	10	9
AWMI	17	9	8
ASWMI	12	6	6
IPWMI	5	3	2
LWMI	5	4	1
QRBBMI	3	-	3
ILWMI	2	1	1
PWMI	2	2	-
SWMI	1	1	-
RVMI	1	1	-

Cases of IWMI were more i.e. 31 % and 24 out of 31 got discharged and 7 out of 31 patients died in case of IWMI. Similarly 19 cases were presented as ALWMI were 10 got discharged and 9 patients out of 19 were died.

DISCUSSION:
In this present study majority of cases were above 61 years of age, Similarly in the study of Mishra TK, Das Biswajit et al (2016)[6] found that population of STEMI presented at age of 56.34±11.88 years. In the study of Sonia Islam Shofiqul et al (2008)[7] on Risk factors for myocardial infarction in women and men observed that the median age of first acute MI was higher in women than men (65 Vs 56 years P=0.0001). In the study of Nanna MG, Alexandra M. Hajduk, et al (2019)[8] on Sex-Based Differences in Presentation, Treatment, and Complications Among Older Adults Hospitalized for Acute Myocardial Infarction found that, women were slightly older than men (STEMI;82.2 vs. 80.6, p<0.001).

In this present study maximum number of patients i.e. 92 out of 100 had menopause. Study done by Wayne TF, Mukherjee Debabrata (2015)[9] found that a woman under age 60, who suffers a myocardial infarction (MI), has a 2-year post-MI mortality of 28.9%; it is 19.6% in men. CHD and MI in women are subtle. In addition, female mortality from CHD increases after the menopause. The increased inflammatory risk factor status of women plays a role in development of atherosclerosis, before and after the menopause.

In this present study 66 patients out of 100 had hypertension as a risk factor. In study by Lovleen CB Bhatia, Ruchi Naik (2013)[10] on Clinical profile of acute myocardial infarction in elderly patients which included 200 consecutive patients with AMI admitted in the ICCU, in a tertiary care center in West India. They classified cases in group I consisted of 107 patients aged equal to or above 65 years and group II consisted of 93 patients aged below 65 years. They conclude that risk factors like hypertension, dyslipidemia and diabetes were equally present in both groups but obesity; smoking and family history of coronary artery disease was more prevalent in younger age group.

In study of Shan LU, Ming-Yang Bao[11] on prevalence of hypertension, diabetes and dyslipidemia and their additive effects on myocardial infarction and stroke found that hypertension was the most prevalent chronic disease among 11,036 participants enrolled (18.5%) followed by dyslipidemia (8.3%) and diabetes (6.0%)

In this study Hyperlipidemia was found in 62% similar result found in the study Hedayatnia Mahshad, Asadi Zahra [12]on "Dyslipidemia and cardiovascular disease risk among the MASHAD study population". They collected Data from Mashad stroke and heart atherosclerotic disorders (MASHAD) study and found that unadjusted baseline serum

LDL-C, TC and TG Levels were positively associated with the risk of total CVD events among entire population of their study.

CONCLUSION:

Maximum patients were post-menopausal old age group having most common symptom as chest pain followed by breathlessness. Hypertension & hyperlipidemia was seen in more than half of study subjects. Majority of patients had Inferior wall MI.

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