Clinical Profile and Outcome of ST Elevation Myocardial Infarction Among Women in Southern Urban Part of India

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Abstract

The evaluation of IHD in women presents a unique and sometimes difficult challenge for clinicians, owing to the difference in symptoms, clinical features and mortality as compared to men. This study is to analyse the clinical presentation, complications and outcome in those women who presented with ST Elevation Myocardial Infarction. A descriptive study at the intensive cardiac care unit of Sundaram Arulrhaj Hospitals, Tuticorin, involving urban population, during November 2011 to November 2013 was undertaken. Hundred female patients admitted at cardiac ICU with clinical features and ECG changes suggestive of myocardial infarction, elevated CK-MB and Trop I taken as cases. It was found that the mean age was 60.97 years, 57 showed atypical symptoms which had significant correlation with outcome of disease. Participant having more than one risk factors had diffuse coronary artery disease. It was concluded that the atypical symptoms were found more among participant than typical symptoms of MI. Women with advanced age had a poorer outcome. Atypical symptoms had significant relation with outcome of MI.

Key words: Female, ST elevated Myocardial Infarction, Outcome.

Introduction

The evaluation of IHD in women presents a unique and sometimes difficult challenge for clinicians, owing to the difference in symptoms, clinical features and mortality as compared to men. The diagnosis and treatment of CHD have been primarily based on research conducted in men, either excluding women entirely or including limited number of women. The use of traditional risk factors assessment was limited in prediction of CAD in women.[1]

The compendium of coronary heart disease data indicate that current research and strategy development must focus on gender-specific issues in order to address the societal burden and costs related to these demographic shifts in IHD that place women in the majority of those impacted. This significant burden of the disease in women places unique diagnostic, treatment, and financial encumbrances on our society that are only further intensified by a lack of public awareness about the disease on the part of patients and clinicians alike. This societal burden of the disease is, in part, related to our poor understanding of gender-specific pathophysiologic differences in the presentation and prognosis of IHD and the paucity of diagnostic and treatment guidelines tailored to phenotypic differences in women.[2]

Present study is to analyse the clinical presentation, complications and outcome in those women who presented with ST Elevation Myocardial Infarction.

Materials and methods

The study was conducted at intensive cardiac care unit of Sundaram Arulrhaj Hospitals, Tuticorin involving urban population during November 2011 to November 2013. This study was done as a descriptive study.

- Hundred female patients admitted with clinical features and ECG changes suggestive of ST segment elevation myocardial infarction, elevated CK-MB and Trop I taken as cases.
- **Inclusion criteria:**

- Female patients admitted with the clinical features and ECG changes suggestive of STEMI.

- **Exclusion criteria:**

- Female patients with unstable angina, NSTEMI

Information like age, symptoms, time interval to reach hospital, associated co morbid conditions such as hypertension, diabetes, coronary artery disease, family history, menstrual status, complete clinical examination and treatment details were collected.

Chest pain or discomfort, Upper body discomfort, Shortness of breath were considered as typical symptoms of MI while dyspnoea, sweating, fatigue/weakness, light headedness and stomach pain were considered as atypical symptoms of MI.

Investigations like electrocardiogram, echocardiogram, renal function test, lipid profile were also done.

The collected data were analysed with regards to age of presentation, menstrual status, symptoms, time to reach hospital since the onset of symptoms, severity of clinical presentation according to Killip's classification[3] electrocardiographic changes and echocardiographic changes within hospital outcome.

Results

Mean age of study participants was 60.97 ranging between 35-85 years, age wise distribution (table 1) revealed that maximum (33) participants were in the age group of 51-60 years.

Typical symptoms of MI were noted among 43 and atypical among 57 consisting of dyspnea 18(31.5%), sweating 13(22.8%), fatigue/weakness 12(21.3%), light headedness11 (19.2%), stomach pain 3(5.2%), 57 showed atypical symptoms had significant correlation with outcome of disease (p value 0.049).

In this study 32 women had no risk factors at all. 49 had at least one risk factor and 19 had two risk factors that can predispose to coronary artery disease.

Out of 100 women 66 underwent coronary angiogram to evaluate the extent of coronary artery disease. Women with two or more risk factors like Diabetes, HTN, Obesity, and Menopause have diffuse coronary disease.

On studying left ventricular dysfunction and its outcome, 85% deaths occurred in those with severe LV Systolic dysfunction. 17.85% in those with Moderate LV Systolic dysfunction

Discussion

Age and disease outcome: Total mortality is 22% and there is a significant correlation between mortality and age (p value 0.0281). Women of advanced age develop more complications and mortality. This finding is consistent with the study of Marrugat et al. (1998) in their study; women were eight years older than men who experience their first MI.[4] Thomas and Braus (1998) report that women develop coronary artery disease later in their life than men. A possible explanation could be the protective effect of estrogen in women.[5]

Duration to reach hospital and disease outcome: When the duration to reach hospital after the onset of symptoms is compared with outcome, 18(31.57%) out of 57 deaths occurred in the group of women who reached hospital more than 6 hours from the onset of symptoms whereas only 4(9.3%) out of 43 deaths occurred in those

who reached the hospital within 6 hours of onset of symptoms. This is statistically significant (p value 0.080). Mosca et al suggest that the traditional role of the female as the care giver rather than care seeker has been implicated in their reluctance to seek medical assistance for the atypical symptoms that they often develop. Also NSTEMI's are more common in women. This clearly adds to the difficulty in diagnosing AMI in women and further confounds delay to initiation of appropriate treatment. [6]

Symptoms and disease outcome: In our study atypical symptoms of MI were found among 57 consisting of dyspnea 18(31.5%), sweating 13(22.8%), fatigue/weakness 12(21.3%), light headedness11 (19.2%), stomach pain 3(5.2%) Meischke, Larsen, and Eisenberg investigated gender differences in acute myocardial infarction symptom presentation. A sample consisted of 4,497 patients (n =1,527 women, n = 2,970 men) diagnosed with acute myocardial infaction. These patients were consecutively included in the study their findings showed that gender differences in symptom presentation do exist.[7] Penque et al. found that women reported with back pain, dyspnoea, and loss of appetite more often than men. [8]While comparing Symptoms and outcome 17(29.82%) out of 57 death were recorded in those who presented with atypical symptoms and only 5 (11.62%) out of 43 died of those who presented with typical symptoms. This is statistically significant (p value 0.0495).

Killip class and disease outcome: When disease outcome is compared with killip classification (table 6) 1(100%) deaths occurred in those with class IV, 20 (71.4%) out of 28 deaths were occurred in class III, no death in class II and 1(2.2%) out of 44 death in those with class I was observed. A study by menyar EI et all showed that patients with higher Killip class had worse clinical profile and were less likely to be treated with evidence-based therapy. High Killip class was independent predictors of mortality in ST-elevation myocardial infarction and non–ST-elevation acute coronary syndrome. [9]

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Abbreviations

CAD: Coronary Artery Disease ,CHD: Coronary Heart Disease, ECG: Electro Cardio Gram,HTN: Hypertension, ICU: Intensive Care Unit ,IHD: Ischemic Heart Disease, LV: Left Ventricle,MI: Myocardial Infarction, NSTEMI: Non ST Elevated Myocardial Infarction, STEMI: ST Elevated Myocardial Infarction

Tables:

Table 1: Distribution of cases according to Killip classification

Killip Class	Frequency(n=100)
I	45
II	26
III	28
IV	1

Table 2: Coronary Angiogram finding

Risk factors	Single vessel disease	Double vessel disease	Triple vessel disease	Total
No Risk factor	14(77.7%)	03(16.6%)	01(5.7%)	18
1 Risk factor	21(56.7%)	09(24.3%)	07(19%)	37
2 and more risk factors	01(9.1%)	02(18.2%)	08(72.7%)	11

Table 3: Type of MI according to ECG finding and outcome

Type of MI by ECG	Frequency (n=100)	Outcome	
		Recovered	Death
ASMI	11	10(90.9%)	1(9.1%)
AWMI	41	33(80.5%)	8(19.5%)
HLMI	2	2(100%)	0(0%)
IWMI	29	26(89.7%)	3 (10.3%)
IWMI & PWMI	3	2(66.7%)	1(33.3%)
IW&RV&PWMI	14	10(71.5%)	4 (28.5%)