

Original article:

Study of management and complications of ST elevation myocardial infarction (STEMI)

***Dr Aakash R Badgujar , **Dr Vijay K Joglekar**

*Department of Medicine, GMC, Mumbai

**Head of Department, Department of Medicine, GMC, Mumbai

Corresponding author**

Abstract:

Introduction: Cardiovascular diseases have assumed epidemic proportions in India. The Global Burden of Diseases (GBD) study reported the estimated mortality from coronary heart disease (CHD) in India at 1.6 million in the year 2000.

Methodology: This present study was carried out at Intensive care unit & Medicine wards & Cardiology Department of tertiary care hospital for one year duration. Sample size of 300 cases of acute coronary syndrome was included in the present study. In present study included patients suffering from acute myocardial infarction were included in this study.

Results: The mean age of patients presenting with STEMI in males was 57.47 ± 8.27 years and 66.41 ± 7.18 years in females with age ranging from 44 years to 82 years. This shows that females with STEMI were significantly older than males ($p < 0.01$). This may be because CAD is more common in elderly post menopausal females due to lack of estrogen production.

Conclusion: Overall the mortality in females was 16(33.33%) and 14(13.20%) in males. This difference was observed to be statistically significant (p value 0.0389).

Introduction:

Cardiovascular diseases have assumed epidemic proportions in India. The Global Burden of Diseases (GBD) study reported the estimated mortality from coronary heart disease (CHD) in India at 1.6 million in the year 2000. ¹A total of nearly 64 million cases of CVD are likely in the year 2015, of which nearly 61 million would be CHD cases (the remaining would include stroke, rheumatic heart disease and congenital heart diseases). Deaths from this group of diseases are likely to amount to be a staggering 3.4 million.²

There is Significant differences in the prevalence of coronary artery disease exist with respect to gender, age and ethnicity. Cardiovascular disease has emerged as a major health burden in developing countries¹

Methodology :

This present study was carried out at Intensive care unit & Medicine wards & Cardiology Department of tertiary care hospital for one year duration.

SAMPLE SIZE:

300 cases of acute coronary syndrome were included in the present study.

INCLUSION CRITERIA:

Patients suffering from acute myocardial infarction were included in this study.

DEFINITION OF ACUTE CORONARY SYNDROME:

Acute coronary syndrome (ACS) is a unifying term representing a common end result, acute myocardial ischemia. Acute ischemia is usually, but not always, caused by atherosclerotic plaque rupture, fissuring, erosion, or a combination with superimposed intracoronary thrombosis, and is associated with an increased risk of cardiac death and myonecrosis. It encompasses acute myocardial infarction (resulting in ST elevation or non-ST elevation) and unstable angina⁹.

EXCLUSION CRITERIA:

1. Patients of chest pain with or without ST-T changes suggestive of ischemia only.
2. Known case of myocardial infarction.
3. Patients with post CABG status.
4. Patients with compromised renal function.

Results :

Table 1: Characteristics among males and females with ST-segment elevation myocardial infarction (STEMI).

Variables	Males (n=106)	Females (n=48)
< 6 hrs	74(69.81%)	6(12.5%)
7-12 hrs	8(7.54%)	34(70.83%)
13-24 hrs	22(20.75%)	8(16.67%)
>24 hrs	2(1.88%)	0
Mean duration of symptoms Before hospitalisation (Hrs)	6.80±5.99	9.95±3.20

The mean age of patients presenting with STEMI in males was 57.47±8.27 years and 66.41±7.18 years in females with age ranging from 44 years to 82 years. This shows that females with STEMI were significantly older than males ($p < 0.01$). This may be because CAD is more common in elderly post menopausal females due to lack of estrogen production.

Table 2: Complications of STEMI

Sr. No.	Complications	Females (n=48)	Males (n=106)	P value
1	Cardiogenic shock	18(37.5%)	18(16.98%)	0.0448
2	Congestive cardiac failure	18(37.5%)	18(16.98%)	0.0488
3	Post infarct angina	12(25%)	22(20.75%)	0.6774
4	Arrhythmia	32(66.67%)	60(56.60%)	0.4043
	(A)Tachyarrhythmia	20(62.5%)	22(36.67%)	
	(B)Bradyarrhythmia	12(37.5%)	38(63.33%)	
5	Death	16(33.33%)	14(13.20%)	0.0389

Discussion:

300 cases of acute coronary syndrome were studied. These included 154 cases of ST-elevation myocardial infarction and 146 cases of Non-ST-elevation myocardial infarction and unstable angina. Of the total study population 140 (46.67%) were females and 160 (53.33%) males. Clinicoangiographic profile was studied in details and was compared.

Out of 300 patients of acute coronary syndrome 160 (53.33%) were males and 140 (46.67%) were females with a female to male ratio of 1: 1.14.

Mean duration of symptoms before presentation was 6.80±5.99 hours in males and 9.95±3.20 in females. 74(69.81%) males presented with symptom duration less than 6 hours while only 6(12.5%) females presented within 6 hours of symptom onset. Mean age of presentation for Non ST – Elevation myocardial infarction was 55.67±7.28 years in males and 61.32±9.17 years in females with age range of 48 to 92 years. This again shows that age at presentation for Non ST – Elevation myocardial infarction was higher for females than males.

Mean duration before hospitalisation was 5.18±2.94 hours in males and 9.46±2.96 hours in females and the difference is not statistically significant. 38(70.37%) males and 16(17.39%) females presented within 6 hours of symptom onset. This difference was statistically significant. This may be because of negligence by females towards their symptoms.

18(37.5%) females and 18(16.98%) males with STEMI suffered from cardiogenic shock. The prevalence was higher in females and this difference was statistically significant (p value 0.0448). Congestive cardiac failure as a complication was present more in females i.e. 18(37.5%) females and 18(16.98%) males and the difference was statistically significant (p=0.0488). There was no statistically significant difference in occurrence of post infarct angina as a complication of STEMI among males and females (p=0.67). 32(66.67%) females and 60(56.60%) males

had arrhythmia which was further divided into tachyarrhythmia and bradyarrhythmia. There was no statistically significant difference in females and males for occurrence of arrhythmia as a complication of STEMI ($p=0.4043$). Thus complications of shock and congestive heart failure were more common in females than in males.

Conclusion:

Overall the mortality in females was 16(33.33%) and 14(13.20%) in males. This difference was observed to be statistically significant (p value 0.0389).

References :

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