ORIGINAL ARTICLE

Thirty Days Mortality Among Men and Women with Acute Myocardial Infarction After Treatment at Tertiary Care Hospital

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ABSTRACT

Background: Acute myocardial infarction (AMI) is a major cause of hospitalization and mortality worldwide. Furthermore, sex is among the most important factors influencing the occurrence and extent of acute myocardial infarction (AMI).

Objective: To determine the frequency of 30 days mortality after treatment of myocardial infarction among males and females at tertiary care Hospital.

Study design: Descriptive case series study

Setting: Study has been conducted at cardiology department, Liaquat University hospital, Hyderabad

Study duration: Six months form July 2018 to December 2018

Methodology: Patients presented with acute myocardial infarction and under treatment, 25 to 85 years and of either gender were included. Each patient was followed for 30 days during Hospital stay and after discharge from department through contact numbers of patient's close relatives. All the information was recorded via study proforma and data was analyzed in SPSS 20.

Results: The mean of age of study population was 54.76±5.82years. Most of the patients 78.4% had ST-elevation MI. Hypertension was found most common risk factor for acute MI among 50.5% of the cases. Overall 30 days mortality rate was found 43(23.1%). Thirty days mortality was found significantly higher among males 51.2% as compared to females as 48.8% (p-0.003), while this mortality rate was statistically insignificant according to ST elevation and non ST elevation MI (p-0.341).

Conclusion: The overall frequency of mortality rate was 23.4%, affecting the males more than the females.

Keywords: Mortality, acute myocardial infarction, gender

INTRODUCTION

Acute coronary syndrome (ACS) is an acute form of coronary artery disease (CAD) that is the leading factor of mortality in the industrialized nations, accounting for 1 in each 7 deaths[1,2]. The term ACS involves the diagnoses of unstable Angina, STEMI, and NSTEMI[3]. In 2010, nearly 15.6 million people died as a result of cardiovascular disease (CVD), out of a total of 52.7 million deaths globally (in comparison to around 3.8 million deaths occurring due to human immunodeficiency virus, tuberculosis, and malaria combined)[4]. In 2030, it is expected that 23.4 million people will die from CVD.[5] AMI can affect anyone at any age; however it gets more prevalent as people get older, roughly tripling with growing age of every 10 years. Males are more likely to be affected than females.[6] The study regarding gender-based differences in terms of myocardial infarction outcome has acquired researchers' interest over the past two decades. Several studies found raised rates of mortality among females following AMI, while others failed to find any sex differences in terms of mortality, even after adjusting for discrepancies in age as well as other prognostic factors[7-11]. In past few decades, clinical trials, epidemiological research, and prospective registries have reported a decrease in the rate of mortality among hospitalized AMI patients because of advances in healthcare[12,13]. While AMI-related mortality has decreased over time. Some studies report that decline in AMI-related mortality among hospitalized patients is lesser than the mortality after discharge, implying that mortality following discharge has increased[14,15]. Short-term mortality following AMI treatment continues to be a concern, even after significant advancements in AMI treatment. It is yet uncertain whether women have higher rates of mortality than men following AMI treatment[16]. The aim of this research, however, was to assess the frequency of mortality and the effect of gender on survival following AMI treatment.

MATERIAL AND METHODS

Setting: This study was carried out at cardiology department, Liaquat University hospital, Hyderabad**.**

Study Design: Descriptive case series study

Study Duration: Six months form July 2018 to December 2018

Sample Size: The sample size was calculated by using raosoft computer program for "Sample size calculation" while using a least proportion (it showed that proportion of mortality among males and females is around 14% following treatment against acute myocardial infarction), with a 95 percent confidential interval as well as a 5% margin of error, sample size stood at n= 186.

Sample Technique: Non-Probability consecutive

Inclusion criteria: Patients presented with acute myocardial infarction and under treatment, 25 to 85 years and of either gender were included.

Exclusion criteria: Patients with bleeding disorders history, pregnant and lactating mothers, any intracranial haemorrhage, known structural cerebral vascular lesions,

suspected aortic dissection, decompensated liver or kidney disease and those who did not agree to take part in this study were excluded.

Data collection procedure: All the patients fulfilling the inclusion criteria were recruited in the study. Informed consent was taken from each patient. Cardiac enzymes were obtained from the laboratory section of Liaquat university Hospital. Information on electrocardiogram was obtained from history and physician's progress records. Presenting symptoms were noted from the history and physician's progress notes. Each patient was followed for 30 days during Hospital stay and after discharge from department through contact numbers of patient's close relatives. Proforma attached were filled accordingly. The data analyses were performed by Statistical Package for Social Science (SPSS) software, Version 20.

RESULTS

The mean of age and CKMB in whole population was 54.76±5.82 and 312.31±8.67 respectively. Most of the patients 146(78.4%) had ST-elevation MI and 40(21.5%) cases had Non ST- elevation MI. Hypertension was found most common risk factor for acute MI among 94(50.5%) of the cases, followed by type II diabetes mellitus 36(20.4%), smoking 35(18.8%), dyslipidemia 21(11.3%) and family history 24(12.9%).Table 1

Overall 30 days mortality rate was found 43(23.1%) out of total 186 patients of acute myocardial infarction. Figure. 1

Thirty days mortality was found significantly higher among males 51.2% as compared to females as 48.8% (p-0.003). However mortality rate was statistically insignificant according to types of MI (ST elevation and non ST elevation MI) p-0.341, as shown in table.2

Table.1 Descriptive statistics of demographic characteristics of the patients n=186

Variables		Statistics
Age	Mean±sd	54.76±5.82 years
CKMB	Mean±SD	312.31±8.67
Gender	Male	129(69.4%)
	Female	57(30.6%)
Types of the MI	STEMI	146(78.4%)
	NSTEMI	40(21.5%)
Risk factors	Hypertension	94(50.5%)
	Diabetes	36(20.4%)
	Smoking	35(18.8%)
	Dyslipidemia	21(11.3%)
	Family History	24(12.9%)

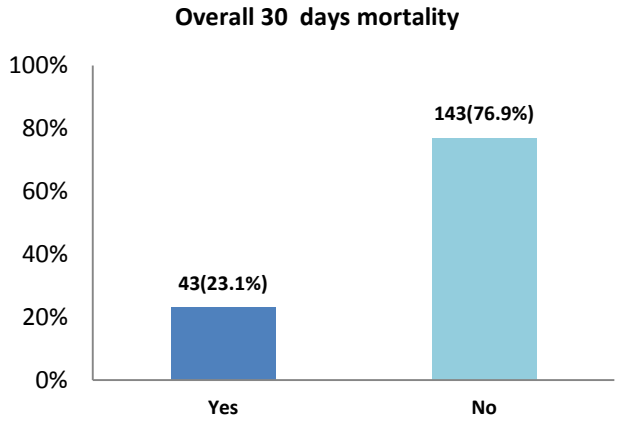

Fig: 1. Overall 30 days mortality rate after treatment of acute MI n=186

Table 2: frequency of 30 days mortality according to gender and types of acute MI n=186

Variables		Mortality		Total	p-value
		Yes	No		
Genders	Males	22	107	129	0.003
		51.2%	74.8%	69.4%	
	Females	21	36	57	
		48.8%	25.2%	30.6%	
	Total	43	143	186	
		100.0%	100.0%	100.0%	
Types of MI	ST- Elevation MI	36	110	146	0.341
		83.7%	76.9%	78.5%	
	NST-Elevation MI	7	33	40	
		16.3%	23.1%	21.5%	
	Total	43	143	186	
		100.0%	100.0%	100.0%	

DISCUSSION

In present study overall 186 patients were studied who were hospitalized at Liaquat university hospital Hyderabad and were diagnosed as acute myocardial infarction (AMI). Males were in majority 129(69.45%) and females were 57 in number. Epidemiological studies, such as the study of Framingham, revealed that CHD in males occurs at an earlier age as compared to females[17,18]. In this study mean age of patients was 54.76±5.82 years. Marrugat et al. showed that women were about 8 years older in comparison to men[19]. Thomas and Braus showed that men had coronary artery disease early in their life than women. This could be attributed to the presence of estrogen in females which protects them from atherosclosis formation[20]. Women experience significantly lesser event of coronary artery disease (CAD) until their menopause as compared to age matched men, because of oestrogen's influence on plasma lipoproteins, which raises the levels

of high density lipoprotein (HDL) cholesterol and lowers the levels of low density lipoprotein (LDL) cholesterol.[21]

In present study, even though diabetes was common among females, dyslipidemia and smoking were frequent among males; hypertension was the most frequent risk factor within both genders. According to Shahab et al. Females were older than men and were more likely to have hypertension, diabetes, and dyslipidemia. Women were more likely to be obese, while men were more likely to smoke tobacco[22]. One study also reported about risk factors in men and women and found Hypertension 2.9 vs. 2.32, diabetes 4.26 vs. 2.67, physical activity 0.48 vs. 0.77, and moderate intake of alcohol 0.41 vs. 0.88 were more closely correlated with MI in females than males. The correlation of abdominal obesity, abnormal lipids, high risk diet, psychosocial stress and current smoking with MI was comparable in both genders (females and males)[23].

In this study overall mortality rate was 23.4% out of total 186 patients of myocardial infarction during 30 days after treatment. Large observational research on non-selected population of patients, on the other hand, still show nearly 20% rates of MI-associated mortality. In this study, the overall rates of in-hospital mortality among unselected population of patients was 43 (23.4%) of the overall 186 patients who died within thirty days of an acute myocardial infarction. Moreover, females had higher mortality (36.8%) out of 57 patients as compare to males (17.05%) out of 129 patients. One of the recent studies shows gender differences of long term mortality after myocardial infarction, the researchers explained that this is because of age difference, co-morbids and utilization of treatment. Further research is needed to validate that whether this is gender bias or possibly gender affects the outcomes of acute myocardial infarction (AMI)[24]. Women with AMI die in hospitals at a higher rate than males. Their more prevalent comorbidities, older age, and lesser usage of revascularization have all been responsible for the differences. Future studies should focus on the disparities in presentation and risk factors that lead to the disparity between men and women in terms of mortality.

CONCLUSION

This study concluded that there is gender difference in mortality after myocardial infarction. The overall frequency of mortality was 23.4%, and it had greater effect on frequency of men.

Limitations: This was a small sample size and single center study and mortality was not observed by taking co-morbidities among genders.

Suggestions/recommendations: Further larges sample size and multicenter studies are recommended with equal numbers of males and females by taking all effect modifiers including co-morbidities.

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