Age and Gender Distribution in Patients with Acute ST Elevation Myocardial Infarction; A Survey in a Tertiary Care Government Hospital—NICVD, Karachi, Pakistan

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Citation

Abstract

Introduction: Coronary Heart Disease is still a leading cause of death in developing as well as in developed countries. Incidence and prevalence of myocardial infarction increases progressively with the age; Women lag behind men by 10 years, however, this difference in male, female genders narrows progressively with advancing age. The mortality ratio is higher in women.

Objective: To determine the age and gender distribution in patients with acute ST Elevation Myocardial Infarction and its comparison with other studies.

Study Design: Descriptive analytical study consisting of 100 patients from both genders with acute STEMI, who were selected for thrombolytic and had underwent routine investigations. The data was collected by interviewing the patients and filling out the questionnaires, accordingly. Old IHD, late arrivals or STEMI during admission were excluded.

Results: Study of 100 patients; Mean age 53.99 years. 81% were males and 19% were females. Mean age of females 56.0 years and males 53.4 years. 49 % patients belong to age group 51-70 years, 44 % to 31-50 years, 7% to 71-90 age groups. The Majority (51.85 %) of male patients were from 51-70 years age group and the majority of female patients (52.63%) from 31-50 years age group.

Conclusion: In our community, like other communities, males are more at risk than females. However, quite unexpectedly, majority of the female patients were found to be in premenopausal period i.e. before 50years. On comparison, the percentage of our female patients is far less than in the international study. Less frequency of smoking or ignorance regarding consultation to hospital could be the cause of it in the female gender of our community, further studies required for the verification.

INTRODUCTION

Coronary heart disease is the leading cause of death in adults in the United States, accounting for about one-third of all deaths in subjects over age 35.3 The death rate is higher in men than in women (three times higher in ages 25 to 34, falling to 1.6 times in ages 75 to 84) and in blacks compared to whites. Among the Hispanic population, coronary mortality is not as high as it is among blacks and whites.

In contrast to the above data, mortality from CHD is expected to increase in developing countries (including China, India, sub-Saharan Africa, Latin America, and the Middle East), from an estimated 9 million in 1990 to a projected 19 million by 2020.4, 5 This projected increase is thought to be a consequence of social and economic changes in non-Western countries, leading to increased life expectancy, Westernized diets, physical inactivity, and cigarette smoking.6

After six years following a recognized MI, men have a two-fold increase in the age-adjusted risk of a recurrence, a four-fold increase in the risk of developing angina, a five-fold increase in the risk of heart failure, and more than a two-fold increase in the risk of stroke. For women, the age-adjusted outlook is substantially worse for all of the events except angina. However, women who sustain MIs generally have a greater burden of major risk factors; when adjustment is made for these in addition to age, women fare no worse than men.7

Our main purpose of this study is to distinguish the age and

gender pattern in STEMI patients in our community and to identify any differences with other communities.

Objectives:

To find out the Age and Gender distribution in patients with acute ST segment Elevation Myocardial Infarction, and to compare with other studies.

PATIENTS AND METHODS

This is a descriptive analytical study, consisting of 100 patients. Case recruitment was done in the Emergency department of National Institute of Cardiovascular Diseases (NICVD), which is the largest, high volume tertiary care public hospital concerning heart diseases located in the centre of Karachi city, Pakistan. Study period: consisted of 6 months (from May 31, 2006 to Dec 1, 2006). Inclusion criteria: Patients of both genders, between the age group of 31-90 years, diagnosed as acute ST-segment elevation myocardial infarction that were selected for thrombolysis. Exclusion criteria: Patients, who had myocardial infarction in the past, developed MI after admission or late arrivals (came in hospital after 12 hrs of typical chest pain) were excluded from the study. Questionnaires were filled out during an interview with patients and included these variables: Age, gender, address and ECG findings. Data analysis was performed through SPSS version 10. No statistical test was applicable for this descriptive study.

RESULTS

The Study consisted of 100 patients. The age ranges between 31-90 years; mean age was 53.99yrs (Table-1). Age divided into three groups: Group A (31-50yrs), Group B (51-70yrs) and Group C (71-90yrs). Majority of the patients (49 %) belongs to age group B (51-70 yrs) (Figure-1). On gender distribution we found 81% were males and only 19% were females (Figure-2). Majority of the male patients belongs to the age group of 51-70 years i.e. 51.85 % of males. While majority of female patients belongs to age group of 30-50 years i.e. 52.63 % of females (Table-2). The mean age of females is 56.0 years, higher than that of in males i.e. 53.4 years (Table-1).

On comparison to other National and International studies, no major difference was found except that in international study females ratio is higher i.e. 39.47 % than our national studies, i.e. 19 % and 15.1% (Figure-3).

Table 1

STATISTICAL ANALYSIS

	Mean+- Std. Deviation	Minimum	Maximum
Age of Patient(Years)	53.99+_ 12.40	31	90
FEMALE	56.00 +-- 12.98	42	90
MALE	53.40 +-- 11.99	31	84

Figure 1

AGE DISTRIBUTION IN PATIENTS WITH STEMI
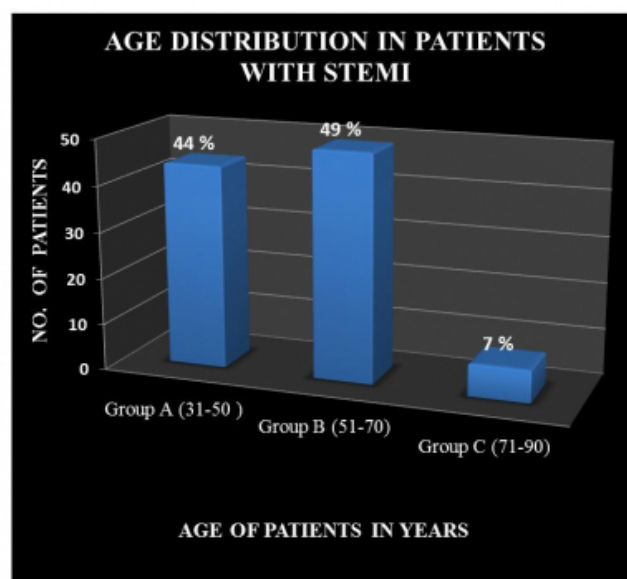
Figure 2

GENDER DISTRIBUTION OF PATIENTS WITH STEMI.

Table 2

GENDER DISTRIBUTION IN DIFFERENT AGE GROUPS

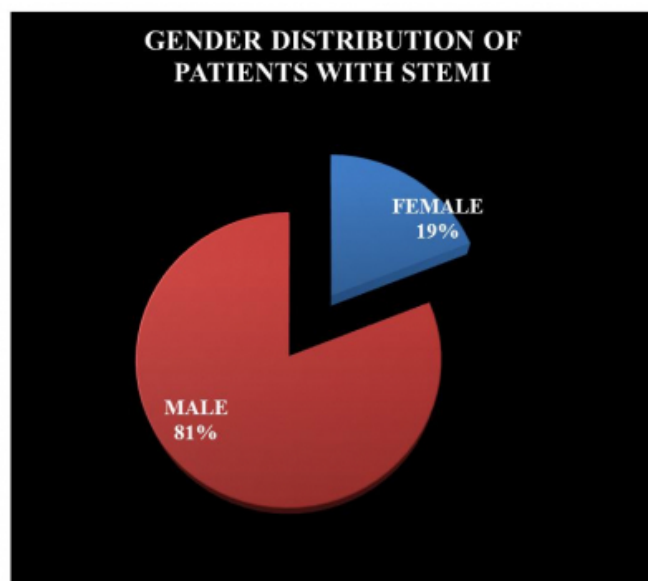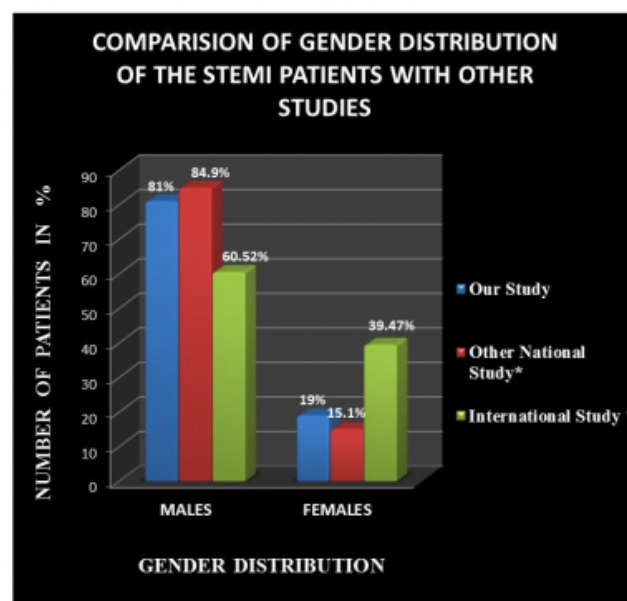| AGE GROUP (YEARS)	MALE	FEMALE	TOTAL
31 – 50	34	10	44
51 – 70	42	7	49
71 – 90	5	2	7
TOTAL (N)	81	19	100

(N = number of patients)

Figure 3

COMPARISION OF GENDER DISTRIBUTION OF THE STEMI PATIENTS WITH OTHER STUDIES

* Badar Ul Ahad et al [1], * Barbara et al [2].

DISCUSSION

The incidence and prevalence of myocardial infarction (MI) increases progressively in older women, especially after the age of 45, 8 predominantly in old age (greater than 65 years). It is not uniquely a disease of elderly women, as shown in our study. In the United States, more than 100 000 women younger than 65 years are diagnosed as having acute MI each year, which represents 21% of all acute MI cases in women.9 Many cases of MI in women go unrecognized, particularly at younger ages.10 Women presenting with a first symptomatic MI are generally older than men (by six to ten years) 11 and are more likely to have a history of diabetes, hypertension, hyperlipidemia, heart failure and unstable angina as compared to their male counterparts.12

Recurrent recognized MI occurred in 21 percent of men and 33 percent of women; the long-term risk of recurrence may be greater with an NSTEMI in men under age 65. Heart failure developed in 21 percent of men and 30 percent of women. Stroke was noted in 9 percent of men and 13 percent of women. Following unrecognized MIs, the age-adjusted mortality rate for MI and HF was similar in men and women, but risk ratios were higher in women than men for all events except stroke.3

Much of the increased early mortality after myocardial infarction in women is explained by the older age and more

unfavorable risk characteristics of the women. In the long run, when differences in age and other risk factors are controlled for, women tend to have an improved survival compared with men.7

At the turn of the century, it was reported that coronary heart disease mortality was expected to increase approximately 29 percent in women and 48 percent in men in developed countries between 1990 and 2020. The corresponding estimated increases in developing countries were 120 percent in women and 137 percent in men.13

For people aged 40 years, the lifetime risk of developing CHD is 49 percent in men and 32 percent in women. For those reaching age 70 years, the lifetime risk is 35 percent in men and 24 percent in women.8

For total coronary events, the incidence rises steeply with age; with women lagging behind men by 10 years. For the more serious manifestations of coronary disease, such as MI and sudden death, women lag behind men in incidence by 20 years. However, the difference in male, female genders for incidence narrows progressively with advancing age. The incidence in ages 65 to 94 compared to ages 35 to 64 more than doubles in men and triples in women. 14 In contrast, our study shows that, the incidence of MI is higher in 31-50 years age group in females and 51-70 years in males, showing the difference. In premenopausal women, serious manifestations of coronary disease, such as MI and sudden death, are relatively rare. Beyond the menopause, the incidence and severity of coronary disease increases abruptly, with rates three times more than those of women of the same age who remain premenopausal. 14 Whereas, in our study majority of female having STEMI were premenopausal. However, since the sample size we had in this study for the females was small in size (n=19), these findings need to be probed further to check whether these findings were incidental or if apply to our general population as well.

The male predominance of CHD is least striking for angina pectoris. Under age 75, the initial presentation of coronary disease in women is more likely to be angina pectoris than MI.8 Furthermore; angina in women is more likely to be uncomplicated (80 percent), while angina in men often occurs after a MI (66 percent). Infarction predominates at virtually all ages in men in whom only 20 percent of infarctions are preceded by long-standing angina; the percentage is even lower if the MI is silent or unrecognized.8 similarly our study showed male predominance.

CONCLUSION

It is acknowledged from this study that in our community, like other communities, males are more at risk for STEMI than females. Whereas, in our study the predominant age group for STEMI is the middle age group of 51 – 70 years instead of old age group as seen in western communities. This difference could be due to the fact that the life expectancy is low in our community. Very small number of population reaches the age more than 70, as also indicated in our study that only 7% of MI patients belong to old age group of 71-90 years. Another important finding is that majority of the female patients was found to be in premenopausal period i.e. before 50years which is an incidental and distinguishing finding in comparison to other international studies. Also on comparison with an international study done in England, we found that percentage of our female patients is less than that study. This finding could be either due to less frequency of females smoking in our community, which decreases the risk for MI in our female population, or it could be due to the ignorance in relating to symptoms or conveyance issues particularly for our female patients so that many of them remain unreported. Further studies are required for the validation of these facts.

It is suggested that younger age males and premenopausal females should not be ignored regarding the risk of STEMI and should be properly evaluated and managed if there is any sort of symptoms or the presence of any risk factor.

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