Original article:

Study of clinical presentations of acute myocardial infarction in Indian Population

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Abstract

Introduction: Cardiovascular disease (CVD) is now the most common cause of death worldwide. Before 1900, infectious diseases and malnutrition were the most common causes and CVD was responsible for less than 10% of all deaths. Today, CVD accounts for approximately 30% of deaths worldwide, including nearly 40% in high-income countries and about 28% in low- and middle-income countries.

Material & Methods: The descriptive present study was carried out at tertiary care hospital . Intensive care unit & Medicine wards & Cardiology Department of tertiary care hospital. 300 cases of acute coronary syndrome were included in the present study.

Results: Typical angina was present in 112 (80%) females and 150 (93.75%) males. 24 (20%) female had atypical angina and 10 (6.25%) male had atypical angina as presenting symptom. Hence atypical angina was more common in females than males and this difference was statistically significant (p value 0.014).

68 (48.57%) females and 46 (28.75%) had vomiting on admission. The difference was statistically significant (p value 0.0126). Palpitation as symptom was present in 78 (55.71%) females and 50 (31.25%) of males. This difference was statistically significant (p value 0.0030).

Conclusion: Atypical chest pain was significantly more common in female patients 28 (20%) than male patient 10 (6.25%) with acute coronary syndrome (p = 0.0114). Vomiting and palpitation were significantly more common in female patients with acute coronary syndrome than male patients (p=0.0126, p= 0.0030 respectively.

Introduction:

Cardiovascular disease (CVD) is now the most common cause of death worldwide. Before 1900, infectious diseases and malnutrition were the most common causes and CVD was responsible for less than 10% of all deaths. Today, CVD accounts for approximately 30% of deaths worldwide, including nearly 40% in high-income countries and about 28% in low- and middle-income countries.[1]n 1990, CVD accounted for 28% of the world's 50.4 million deaths and 9.7% of the 1.4 billion lost disability-adjusted life years (DALYs), and by 2001, CVD was responsible for 29% of all deaths and 14% of the 1.5 billion lost DALYs. By 2030, when the population is expected to reach 8.2 billion, 33% of all deaths will be the result of CVD. IHD causes more deaths and disability and incurs greater economic costs than any other illness in the developed world. IHD is the most common, serious, chronic, life-threatening illness in the United States, where 13 million persons have IHD, >6 million have angina pectoris, and >7 million have sustained a myocardial infarction.[2] 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 .[2] A 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.

Material & Methods

The descriptive present study was carried out at tertiary care hospital. Intensive care unit & Medicine wards & Cardiology Department of tertiary care hospital.

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.

WHO has led down the following criteria as guidelines for diagnosis of acute myocardial infarction. There should be presence of at least two of following three criteria for diagnosis of acute myocardial infarction (AMI)

1. A history of ischemic chest discomfort.
2. Evolutionary changes on serially obtained ECG tracings as:
   a. ST segment elevation more than or equal to 2mm in two or more contiguous chest leads.
   b. ST segment elevation more than or equal to 1mm in two or more limb leads.
3. A rise and fall in serum cardiac markers.

Results:

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.

Table 1: Age Distribution of study population

Sr. No.	Age Group (Years)	Male (n=160)	Female (n=140)
1	< 50	26(16.25%)	10(7.14%)
2	50-59	80(50%)	44(31.42%)
3	60-69	40(25%)	64(45.71%)
4	70-79	10(6.25%)	14(10%)
5	>80	04(2.5%)	08(5.71%)
	Total	160	140
	Mean Age (Years)	56.86 $\pm$ 7.95	63.07$\pm$ 8.83

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Table 1 shows that 26 (16.25%) males and 10 (7.14%) females were of age < 50 years. While age group 50-59 years comprised of 80(50%) males and 44(31.42%) females. In age group 60-69 years 40(25%) were male and 64(45.71%) were female. 10(6.25%) males and 14(10%) females were from 70-79 years age group. Only 4(2.5%) males and 8(5.71%) females were above 80 years. Thus below 50 years number of females with acute coronary syndrome are comparatively less but with increase in age number of female increases.

Table 2: Sex Distribution in Acute Coronary Syndrome

	STEMI	**UA/NSTEMI**
Male(n=160)	106(66.25%)	54(33.75%)
Female(n=140)	48(34.28%)	92(65.71%)

Table 3: Symptomatology in patients with Acute Coronary Syndrome

Sr no	**Symptoms**	**Female(n=140)**	**Male(n=160)**	**P value**
1	Typical angina	112 (80%)	150 (93.75%)	0.01440
2	Atypical angina	28 (20%)	10 (6.25%)	0.01440
3	Breathlessness	62 (44.28%)	64 (40%)	0.5957
4	Vomiting	68 (48.57%)	46 (28.75%)	0.0126
5	Palpitation	78 (55.71%)	50 (31.25%)	0.0030
6	Sweating	96 (68.57%)	120 (75%)	0.3817
7	Syncope	24 (17.14%)	50 (31.25%)	0.0577

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Typical angina was present in 112 (80%) females and 150 (93.75%) males. 24 (20%) female had atypical angina and 10 (6.25%) male had atypical angina as presenting symptom. Hence atypical angina was more common in females than males and this difference was statistically significant (p value 0.014).

68 (48.57%) females and 46 (28.75%) had vomiting on admission. The difference was statistically significant (p value 0.0126). Palpitation as symptom was present in 78 (55.71%) females and 50 (31.25%) of males. This difference was statistically significant (p value 0.0030).

Breathlessness was present in 62 (44.28%) of females and 64 (40%) of males. Sweating was present in 96 (68.57%) females and 120 (75%) of males. But the gender difference in these symptoms was not statistically significant. Syncope as presenting symptom was present in 50 (31.25%) of males and 24 (17.14%) of females and the difference was statistically significant (p value 0.0577).

Hence atypical angina, vomiting and palpitation were significantly more in females than males and typical angina & syncope was significantly more in males than in females.

Discussion:

This finding in present study was similar to that observed by Kudenchuk et al[3](1996) and Malacrida et al [3] (1998) in their respective studies. Hochman et al[4] (1999) also reported that females develop AMI at later age than males.

In our study, the mean duration of symptoms before admission to hospital was 9.95±3.20 hours for females in cases of ST elevation MI and 9.46±2.96 hours in cases of Non STEMI and Unstable angina. Male patient with STEMI got admitted within 6.80±5.99 hours and that with NSTEMI/UA within 5.18±2.94 hours of onset of symptoms. In both forms of acute coronary syndrome delay before hospital admission was more in females and this was observed to be statistically significant ($p < 0.01$).

In Indian social setting usually there is negligence towards the symptoms by females as well as by their relatives as compared to males. This may be the most probable reason for the delay in seeking emergency treatment by females as compared to males. This finding in this study was similar to that in study by Vaccarino et al[5](1999) and Becker et al[7] (1994) who observed that the time from symptom onset to study entry was delayed in females compared with males. However Fiebach et al[8] (1990) Maynard et al[6] (1991) did not find any such significant difference which can be explained by difference in cultural settings in study population.

Chest Pain

In this study, 112 (80%) females and 150 (93.75%) males had typical chest pain. Atypical chest pain was present in more number of females {n=28 (20%)} than males {n=10 (6.25%)} and the difference was statistically significant ($p = 0.0144$).

Vomiting:

In this study, vomiting was present in 68 (48.57%) females and 46 (28.75%) males. This difference was statistically significant ($p = 0.0126$).

Palpitation:

In this study, 78 (55.71%) females and 50 (31.25%) males had palpitation. Hence palpitation as a symptom was more common in females than males ($p = 0.0030$).

Thus in this study, atypical chest pain, vomiting and palpitation were common symptoms in females as

compared to males at to time of admission. According to Douglas[6] (1996) and Shaw et al[7] (1994) atypical chest pain is more common in females than males, because of higher prevalence of vasospastic and micro vascular angina[67] among females. Females also are more likely to have neck and shoulder pain, nausea, vomiting, fatigue or dyspnea during an acute myocardial infarction.

Fiebach et al[81] (1990), Kudenchuk et al[8] (1996) and Devon et al[9] (2002) found significant differences between females and males about clinical features of their myocardial infarctions. More females had symptoms other than chest pain as their initial complaint.

Conclusion:

Atypical chest pain was significantly more common in female patients 28 (20%) than male patient 10 (6.25%) with acute coronary syndrome (p = 0.0114). Vomiting and palpitation were significantly more common in female patients with acute coronary syndrome than male patients (p=0.0126, p= 0.0030 respectively

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