International Journal of Medicine Research
ISSN: 2455-7404
www.medicinesjournal.com
Volume 3; Issue 2; April 2018; Page No. 44-46

Demographic features of patients with acute coronary syndrome in a tertiary care hospital in India

Ayush Jain[1*], Mahendra C Parmar[2]
Department of Medicine, S.S.G. Hospital, Medical College, Vadodara, Gujarat, India

Abstract
Our objective was to study the demographic features of patients with acute coronary syndrome and the incidence of complications in such cases in a tertiary care hospital in India
The study contained 120 study participants presenting with acute coronary syndrome. Standard 12-lead ECG was taken on admission, after thrombolysis (if required), six hour after admission, twenty four hours after admission and daily till the patient remained in the ICCU. The relevant history regarding chief complaints, risk factors for atherosclerosis were taken and each patient examined for vital signs and signs of cardiac failure.
Incidence of acute coronary syndrome was higher in males. Males in the age group of 31-50 years and females in the age group of 41-50 years had higher incidence of acute coronary syndrome. Incidence of STEMI and NSTEMI/UA were approximately equal in both sexes. Smoking, alcoholism and obesity were common risk factors for acute coronary syndrome in males. There was no significant difference in incidence of complications like LVF, arrhythmias, conduction block, hypotension and death between both sexes.

Keywords: acute coronary syndromes, left ventricular failure, arrhythmia

1. Introduction
India has the highest burden of ACS in the world. The rising incidence of ACS in Indians may be related to the changes in the lifestyle, the westernization of the food practices, the increasing prevalence of diabetes mellitus and probably genetic factors.
Acute coronary syndromes comprise the spectrum of unstable cardiac ischemia from Unstable Angina (UA) to Acute Myocardial Infarction. They are classified based on the presenting ECG as either "ST segment elevation myocardial infarction" (STEMI) or "Non–ST-segment elevation acute coronary syndrome." Non–ST-segment elevation acute coronary syndrome is further divided into Non–ST-Elevation Myocardial Infarction (NSTEMI) or Unstable Angina (UA), based primarily on presence or absence of elevation of cardiac biomarkers. This allows for immediate classification and guides determination of whether patients should be considered for acute reperfusion therapy. The evolution of cardiac biomarkers then allows determination of whether myocardial infarction has occurred.

2. Material and Methods
2.1 Study Population
This study of 120 patients was carried out at SSG Hospital & Baroda Medical College in year December 2013 - November 2014.
All patients between age 18 to 75 admitted in Intensive Cardiac Care Unit with clinical history/examination compatible with an Acute Coronary Syndrome and ECG changes and/or Cardiac enzyme elevation suggestive of Acute Coronary Syndrome were included in the study.
The diagnosis of ACS is defined by at least one of the following: (1) Occurs at rest or minimal exertion and usually lasts > 20 minutes (If nitroglycerin is not administered) (2) Being severe and described as frank pain and of new onset (i.e., within 1 month) (3) Occurs with a crescendo pattern (more severe, prolonged, or increased frequency than previously).
The study protocol was approved by the institutional ethics committee and a signed informed consent was obtained from every enrolled patient.

2.2 Methods
In all the patients presenting with symptoms/signs suggestive of acute coronary syndrome a relevant history regarding chief complaints, risk factors(like smoking, alcoholism, OCPs),occupation, income were taken and each patient examined for vital signs especially noting the pulse rate and blood pressure on admission and signs of cardiac failure. A detailed respiratory and cardiovascular examination was done specifically looking for S-3 and/or S-4 and basal rales so as to classify the patients into various Killip's classes of left ventricular failure and to rule out clinically, mechanical complications like MR, VSD etc.
The provisional diagnosis of acute coronary syndrome was made. Every patient undergone routine hematological, biochemical (including CPK-MB) and urine examination for detecting associated illnesses eg. Diabetes, infections, renal failure etc. Standard 12-lead electrocardiographic recordings were performed at randomization (and at 90 min if streptokinase is to be given) at a paper speed of 25 mm/s and were standardized at 1.0 mV to 1.0 cm. Patients were classified as having STEMI (Anterior Wall STEMI in case of ST-segment elevation in I, aVL and V1-V6; Inferior Wall STEMI in case of ST-segment elevation in II, III, aVF) or NSTEMI/UA.

ST-segment changes (elevation or depression) were measured manually at 60 ms after the J point, and a magnitude of 1 mm was considered significant.

3. Statistical Analysis

The data was expressed as the mean +SD for continuous variables and as percentages for categoric variables. Comparisons were done by McNemar's test for continuous variables, and the statistical significance of differences were calculated by using Chi^2test. Chi^2 analysis was used to compare categoric variables.

The variables used for analysis include age, sex, absence of previous angina within 24 h before ACS, Killip class on hospital admission and time from symptom onset to hospital admission. A two-tailed p value of <0.05 was considered to indicate statistical significance.

4. Results

This study of 120 patients was carried out at SSG Hospital & Baroda Medical College in year December 2013 - November 2014.Out of 120 patients 98 were male (81.7%) and 22 were female (18.3%).

Table 1: Age-sex profile

AGE GRP	Male	Female	Total
20-30	6 (5%)	0	6
31-40	24 (20%)	3 (2.5%)	27
41-50	36 (30%)	12 (10%)	48
51-60	15 (12.5%)	2 (1.6%)	17
61-70	15 (12.5%)	5 (4.2%)	20
71-80	2 (1.6%)	0	2
TOTAL	98 (81.7%)	22(18.3%)	120

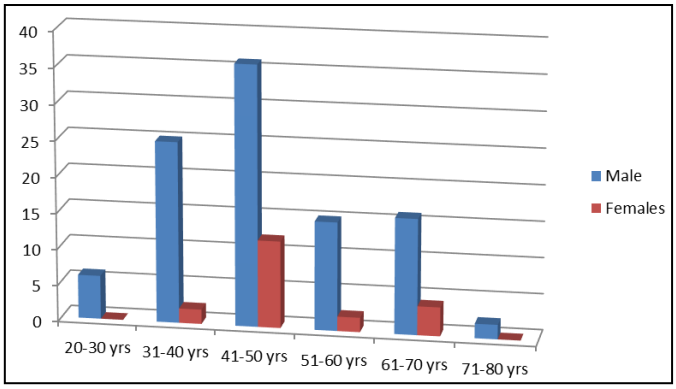

Fig 1: Age-Sex Profile. Predominant male population in less than 40 years age group.

Anterior wall STEMI occupied 59.2% of acute coronary syndromes. Inferior wall STEMI were 24.2 % and NSTEMI/UA were 16.6%.

The majority (61.2%) of males were in the age group 31-50 years and majority (54.5%) of females were in the age group of 41-50 years. Acute coronary syndromes were common in males in younger age group. Among cases of < 40 years, males were predominant, this was statistically significant [p=0.047].

The most common presenting complaint between both males and females were chest pain. Breathlessness, perspiration, nausea and vomiting were next common presenting complaints.

Table 2: Presenting Complaints

Presenting Complaints					
Complaints	**Male**	**Female**	**Male %**	**Female %**	**Total**
Chest Pain	98	22	100	100	120
Breathlessness	18	6	18.3	27.2	24
Palpitation	7	4	7.1	18.1	11
Nausea/Vomiting	7	3	7.1	13.6	10
Perspiration	15	2	15.3	9.1	17

Smoking was most common risk factor for acute coronary syndromes (65%).Next common risk factor was alcoholism (23.3%) and hypertension (20.8%). Obesity, diabetes and family history were other significant risk factors. P values for smoking, alcoholism and obesity was <0.001, 0.0069 and 0.0054 respectively, which was statistically significant.

Table 3: Risk Factors

Risk Factors			
Factor	**Male**	**Female**	**P value**
DM	10	5	0.064
HT	25	8	0.17
Smoking	78	0	< 0.001 [significant]
Alcohol	28	0	0.0069 [significant]
F/H	4	2	0.26
Obesity	24	9	0.0054 [significant]
OCP	-	0	-
Multiple	31	7	0.72

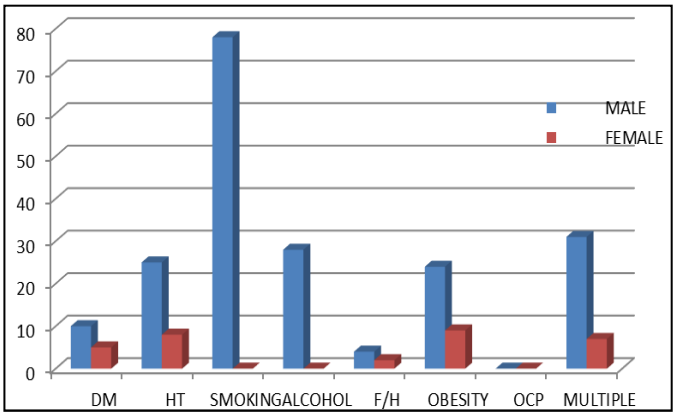

Fig 2: Risk Factors. Smoking was most common.

87.5% of patients presented with acute coronary syndromes had normal pulse rates. 9.1% of patients had tachycardia. 3.3% of patients presented with bradycardia. Anterior wall MI had more tachycardia than inferior wall MI, [p=0.044, significant]

11.6% patients of acute coronary syndromes presented with blood pressure more than 140 mm Hg systolic and 78.3% of patients had normal blood pressure. 10% of patients of acute coronary syndromes had blood pressure <100 mm Hg. Hypertension was equally seen in all types of MI, [p=0.87, not significantly different].

Anterior wall STEMI occupied 59.2% of acute coronary syndromes. Inferior wall STEMI were 24.2 % and

NSTEMI/UA were 16.6%. Anterior wall MI was the predominant type [p<0.001, significant].

Table 4: Type of Acute Coronary Syndrome

Type of Acute Coronary Syndrome		
	No. of Patients	%
Anterior Wall STEMI	71	59.2
Inferior Wall STEMI	29	24.2
NSTEMI/UA	20	16.6
Total	120	100

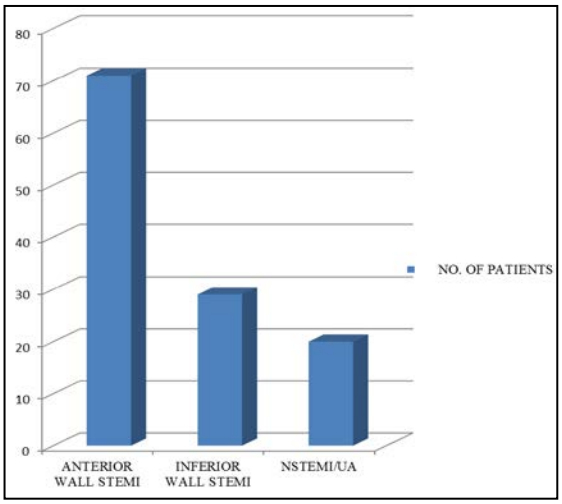

Fig 3: Type of Acute Coronary Syndrome. Anterior wall MI was most common.

5. Discussion

In our study age of presentation varied from 22 years to 75 years. Maximum numbers of male patients were in age group 31-50 years (mean age-47.6years) and most of the females were in age group 41-50 years (mean age-50.1 years).

Raihanathul Misiriya *et al.* [1] (Kottayam Medical College, Kerala) also reported higher mean age at presentation among females. In 2013 Pagidipati *et al.* [2] (DEMAT Registry) reported that approximately one in five (21%) ACS patients were women, whose mean age (60.8 years) was older than men.

In our study, both STEMI as well as NSTEMI had more male patients compared to females as seen in the study by Raihanathul Misiriya *et al.* [1]

In our study, most common presenting complaint between both males and females were chest pain (100%). Breathlessness, perspiration, nausea and vomiting were next common presenting complaints.

In the study by Raihanathul Misiriya *et al.* [1], six hundred forty-six cases (61.9%) of STEMI presented with central chest discomfort, 296 (28.4%) with left-sided chest pain, 69 (6.6%) with right-sided chest pain and 16 (1.5%) with jaw pain. Seventeen cases presented with acute onset of palpitation and/ or collapse due to ventricular tachycardia.

P. Yadav *et al.* [3] showed that chest pain as predominant symptom (94%) followed by sweating (78%) breathlessness (67%).

Smoking was the most common risk factor in this study followed by alcoholism, hypertension and obesity.

P. Yadav *et al.* [3] also reported tobacco consumption as a major risk factor in their study.

In our study 59.2% patients of acute coronary syndrome had anterior wall affection, 24.2% patients had inferior wall involvement (i.e a total of 83.3% of ST Elevation acute coronary syndromes) and 16.7% of patients had NSTEMI/UA. Raihanathul Misiriya *et al.* [1] reported 1865 cases of ACS that qualified the inclusion criteria of which 56% had STEMI and 44% had NSTEMI/UA. Among the patients with STEMI, 522 (50%) had inferior wall and 459 (43.97%) had anterior wall infarctions. Of the remaining 63 (6.03%) cases, 54 were lateral wall and nine were isolated posterior wall infarctions. Among the NSTEMI/UA cases, 482 patients (58.7%) presented with central chest pain, 267 (32.5%) with left- sided chest pain and 58 (7.1%) with right-sided chest pain. 14 cases (1.7%) were admitted with palpitation/ collapse secondary to ventricular tachycardia.

Similarly in Demat Registry[2] more than half of patients presented with ST segment elevation myocardial infarction (STEMI, 52%).

In males, percentages of LVF, arrhythmias, conduction block, hypotension and death were 86.1%, 88.2%, 100 %, 80% and 66.7% respectively. However their p values were insignificant.

Demat Registry[2] show that after adjustment for possible confounding factors, there were no significant differences between men and women in in-hospital and discharge management for ACS.

6. Conclusion

Following conclusions were drawn:

1. Incidence of acute coronary syndrome was higher in males. Males in the age group of 31-50 years and females in the age group of 41-50 years had higher incidence of acute coronary syndrome.
2. Incidence of STEMI and NSTEMI/UA were approximately equal in both sexes.
3. Smoking, alcoholism and obesity were common risk factors for acute coronary syndrome in males.
4. There was no significant difference in incidence of complications like LVF, arrhythmias, conduction block, hypotension and death between both sexes.

7. References

1. Raihanathul Misiriya KJ, Sudhayakumar N. *et al*. The Clinical Spectrum of Acute Coronary Syndromes: Experience from a Major Center in Kerala. JAPI. 2009; 57:377-83.
2. Pagidipati NJ, Huffman MD. *et al*. Association between Gender, Process of Care Measures, and Outcomes in ACS in India: Results from the Detection and Management of Coronary Heart Disease (Demat) Registry. PLoS One. 2013; 8(4):e62061. doi:10.1371/journal.pone.0062061
3. Yadav P. *et al*. Clinical profile & risk factors in acute coronary syndrome. National Journal of Community Medicine, 2010, 1(2).