

Original Article

A Prospective Study To Know Socio-Demographic Profile In Patients With Acute Coronary Syndrome Admitted At A Tertiary Health Care And Teaching Hospital In Himachal Pradesh, North India

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Abstract

Background: India alone is burdened with approximately 25% of cardiovascular-related deaths and acute coronary syndrome (ACS) is a commonest mode of presentation among patients of CAD and carrying high rate of morbidity and mortality. The present study was planned and commenced to know the socio-demographic profile in patients with acute coronary syndrome (ACS), as limited studies has been conducted so far in this region on this topic exclusively. **Material and Methods:** A prospective study was carried out to know the socio-demographic profile in acute coronary syndrome (ACS) including ST elevation and non ST elevation myocardial infarction. We enrolled 201 patients to know their socio-demographic profile admitted in the intensive care unit at Dr. R. P. Govt. Medical College, Kangra at Tanda, Himachal Pradesh, over a period of one year wef. 20th November 2016 to 19th November 2017. A predefined proforma was completed in every patient with a detailed socio-demographic history which revealed information about age, gender, education level, economic independency & occupation. **Results:** Our study showed a significant male predominance with the mean age of study population being 61.46 (± 13.47 S.D.) years. The ratio of male to female patients was 3:1 (male patients 73.1% and female patients 26.9%). 44.8% of patients were less than 60 years of age and more than half of the total study population (55.2%) was in geriatric age group. All age groups had male preponderance except the age group 71- \geq 80 years, and the finding was statistically significant. **Conclusion:** Maximum number of patients were in age group 61-70 years, males were marginally higher than their counterpart female patients. Age group 31-40 years too had preponderance of male patients than females. But female patients outnumbered their counterpart male patients in age group 71 \geq 80 yrs. In the present study, significant differences were observed in patients with coronary artery disease and age, gender, marital, family, occupation and income status.

Key words: Coronary artery disease, acute coronary syndrome, socio-demographic profile.

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INTRODUCTION

Coronary artery disease (CAD) is leading cause of mortality worldwide¹ and by the year 2020, will be first in the leading causes of disability.² While

the death rates have been declining for the past three decades in the west, these rates are rising in India. In the last three decades, the prevalence of CAD has increased from 1.1%

to about 7.5% in the urban population and from 2.1% to 3.7% in the rural population.³ India alone is burdened with approximately 25% of cardiovascular-related deaths and would serve as a home to more than 50% of the patients with heart ailments worldwide within next 15 years⁴ Acute coronary syndrome (ACS) is a commonest mode of presentation among patients of CAD and carrying high rate of morbidity and mortality.⁵ The Acute Coronary Syndrome (ACS) comprises a wide spectrum of conditions that include unstable angina (UA), non ST elevation myocardial infarction (NSTEMI) and ST elevation myocardial infarction (STEMI). ACS accounts for over 1.5 million hospitalizations and around 30% of all death in United States and many millions worldwide.⁶ The situation in developing countries and in our country, India, is more dismal. Between 1990 and 2020, Coronary Artery Diseases(CAD) are expected to increase by 120% for women and 137% for men in developing countries, compared with 30–60% in developed countries.⁷ CREATE registry, the largest data from Indian patients with ACS, has shown that the pattern of ACS among Indians is much different from that of the Western populations.⁸ CAD occurs in Indians 5–10 years earlier than in other populations around the world and the major effect of this peculiar phenomenon is on the productive workforce of the country aged 35–65 years.⁸ CAD tends to occur at a younger age in Indians, with more extensive angiographic involvement⁹ contributed genetic, metabolic, conventional and nonconventional risk factors^{10, 11} The present study was planned and commenced to know the socio-demographic profile in patients with acute coronary syndrome (ACS), as limited studies has been conducted so far in this region on this topic exclusively.

MATERIAL AND METHODS

The present hospital based prospective study was undertaken over a period of one year from 20th November 2016 to 19th November 2017 among 201 patients diagnosed of Acute Coronary Syndrome (ACS) who reported either to Emergency Room or to Cardiac / Medicine O.P.D. and were admitted either in

I.C.C.U. (intensive cardiac care unit) or in medical wards, at Dr R.P. Government Medical College, Kangra at Tanda, Himachal Pradesh (tertiary care teaching hospital). All the patients who were ready to give consent were interviewed and presented with features of acute coronary syndrome according to the diagnostic criteria of the present study were enrolled and studied in detail while in hospital.

The diagnostic criteria comprised of patients who were diagnosed as acute coronary syndrome (ACS) if presenting with acute chest pain suggestive of ACS within preceding one week, associated with any one of the following:

- i) ECG changes of ST segment deviation or T wave inversion or Q waves in two or more contiguous leads
- ii) Elevated markers of myocardial injury
- iii) History of established CAD in past

All the information was filled up in a specially prepared pre-designed and pre-tested questionnaire Performa. The total population of the district Kangra is 1,476,000 & is divided into 12 blocks. Majority (94.27%) of the total population resides in rural area as per census 2011. Patients with congestive heart failure, cardiomyopathy and severe co-morbidities, patient who were admitted due to known valvular disease were excluded from the study.

RESULTS

201 consecutive patients presenting with features of acute coronary syndrome were studied. These patients were predominately male (73.1%) with male to female ratio being 3:1.

Table 1 shows distribution of study population according to age and gender. Out of total study population of 201 ACS patients, maximum (33.8%) were in the age group 61–70 years followed by 22.9% in age group 51–60 years. More than half of the total study population (55.2%) was in the geriatric age group and 21.4% patients were from very old age group.

Table 1: Distribution of study population according to age and gender (n = 201)

Age (in years)	Age wise distribution			Gender wise distribution		
	Frequency (number of patients) (N)	Percent age (%)	Mean age (in yrs) (\pm Standard deviation)	Male N (%)	Female N (%)	Total N (%)
≤ 20	1	0.5	19.00 (\pm 0.00)	1 (0.7)	0 (0.0)	1(0.5)
21-30	3	1.5	27.67 (\pm 4.04)	3 (2.0)	0 (0.0)	3 (1.5)
31-40	13	6.5	39.92 (\pm 5.56)	12 (8.2)	1 (1.9)	13 (6.5)
41-50	27	13.4	46.19 (\pm 3.00)	21 (14.3)	6 (11.1)	27 (13.4)
51-60	46	22.9	56.28 (\pm 3.50)	35 (23.8)	11 (20.4)	46 (22.9)
61-70	68	33.8	66.63 (\pm 3.52)	50 (34.0)	18 (33.3)	68 (33.8)
71-80	32	15.9	75.53 (\pm 2.60)	22 (15.0)	10 (18.5)	32 (15.9)
> 80	11	5.5	86.18 (\pm 6.06)	3 (2.0)	8 (14.8)	11 (5.5)
Total	201	100	61.46 (\pm 13.47)	147 (100)	54 (100)	201 (100)
Significance	0.000*			0.021*		

* p-value = statistically significant

Mean age of total study population was 61.46 (\pm 13.47 S.D.) yrs. On statistical analysis, difference of mean age (\pm S.D.) in different age groups was highly significant. (df = 7; p-value = 0.000)

According to gender wise distribution, out of total study population 147 (73.1%) patients were male and 54 (26.9%) were female with male to female patient ratio of 3:1.

Maximum (33.8%) no. of patients were in age group 61-70 years, males (34.0%) were marginally higher than their counterpart female patients (33.3%). Age group 31-40 years too had preponderance of male patients (8.2%) than females (1.9%). But female patients (33.3%) outnumbered their counterpart male patients (17.0%) in age group 71 \geq 80 yrs. On statistical analysis, this gender wise difference of distribution according to age-groups was found to be statistically significant. (Chi-Square value = 16.496; df = 7; p value = 0.021)

Table 2: Gender wise distribution of study population according to Mean age \pm Standard deviation (n=201)

Mean age (\pm Standard deviation)	Male	Female	Total	df	p- value
In years (\pm 13.20)	59.42	67.00 (\pm 12.70)	61.46 (\pm 13.47)	1	0.000*

Table 2 shows study population distribution according to sex (male patients 73.1% & female patients 26.9%) & mean age (\pm standard deviation). Mean age (\pm Standard

deviation) of total study population was 67 (± 12.70) years, of male & female patients was 61.46 (± 13.47) years & 59.4 (± 13.20) years respectively.

Table 3: Distribution of study population according to area of residence and type of family

Variables		N	(%)
Area of residence	Urban	5	(2.5)
	Rural	196	(97.5)
Type of family	Nuclear	99	(49.3)
	Joint	23	(11.4)
Three generation/ Extended		79	(39.3)

Table 3 shows that out of total study population of 201 ACS patients, the area of residence of 196 (97.5%) patients was rural and of 5 (2.5%) patients was urban. This observation of majority of patients belonging to rural area of residence coincides with the fact that majority (94.27%) of the population of Himachal Pradesh resides in rural area as per census 2011. Distribution according to

type of family found that majority (49.3%) of patients were from nuclear family, followed by (39.3%) from three generation/extended family and least, (11.4%) from joint family. Table 4 shows that out of total study population of 201, 84.6% patients were married & 13.4 % were divorced or widowed. 93.9% of male patients were married in contrast to 59.3% of female patients, followed by 3.4% males divorced or widowed in contrast to 40.7% female patients. This

Table 4: Gender wise distribution of study population, according to marital status

Marital Status	Gender		Total N (%)	χ^2	df	p value
	Male N (%)	Female N (%)				
Single	4 (2.7)	0 (0.0)	4 (2.0)	48.056	2	0.000*
Married	138 (93.9)	32 (59.3)	170 (84.6)			
	5 (3.4)	22 (40.7)	27 (13.4)			
Divorced or Widowed						
Total	147 (100)	54 (100)	201 (100)			

difference of distribution of male & female patients of our study population according to their marital status was statistically highly significant. (Chi-Square value = 48.056; df = 2; p value = 0.000) Table 5 shows that majority, 141 (70.1%) of patients were having ≥ 3 children, followed by 51 (25.4%) patients having <3 children and 9 (4.5%) patients were not having children at all. Statistically significantly, majority (83.3%) of female patients in contrast to (65.3%) of male were having ≥ 3 children followed by 30% of male in comparison to 13% of female patients had <3 children and 4.8% of male & 3.7% of female patients had no children at all (Chi-Square = 6.410; df = 2; p value = 0.041). Gender wise distribution of study population according to economic-independence status shows that statistically highly significantly more than half of our study population 106 (52.7%) was independent with preponderance 98 (66.7%) of male patients in contrast to 8 (14.8%) of females. 40.3% of total study population was solely dependent with preponderance (85.2%) of female patients & least (7.0%) of the population was partially dependent with 9.5% of male in contrast to nil female patients. On analysis, these results were found to be statistically highly significant.

(Chi-Square value = 62.193, df = 2; p value = 0.000) Table 6 shows that majority (36.8%) of patients were having family income 5-10,000 Rs /month followed by (27.4%) having < 5000 Rs / month. Table 7 shows that statistically significantly, majority (40.3%) of our study population was educated up-to middle with preponderance of 51.7% of males in contrast to 9.3% females & of 26.9% of total study population never attended school with preponderance of 66.7% of female in contrast to 21.8% males. (Chi-Square value = 65.177, df = 6; p value = 0.000) Table 8 shows that out of the total study population, gender-wise statistically highly significantly according to occupation. majority (25.4%) of the patients were home-maker with exclusive preponderance of females (96.3%), 20.4% were retired with preponderance of 26.5% male patients in comparison to 1.9% females and least 1.0%, were professionals. Unemployment was 11.4% with exclusive preponderance of male patients (15.6%). (Chi-Square value = 181.242, df = 7; p value = 0.000)

Table 5: Gender wise distribution of study population according to family size and economic-independence

Variables	Gender			χ^2	df	p value
	Male N (%)	Female N (%)	Total N (%)			
Family size (number of children)	7 (4.8)	2 (3.7)	9 (4.5)	6.410	2	0.041*
	Nil					
	44 (30.0)	7 (13.0)	51 (25.4)			
	<3					
	96 (65.3)	45 (83.3)	141 (70.1)			
Economic independence	≥ 3			62.193	2	0.000*
	≥ 3					
	147 (100)	54 (100)	201 (100)			
	Total					
	Solely dependant	35 (23.8)	46 (85.2)	62.193	2	0.000*
	Partially dependent	14 (9.5)	0 (0.0)			
	Independent	98 (66.7)	8 (14.8)			
	Total	147 (100)	54 (100)			

Table 6: Gender wise distribution of study population according to monthly family income

(N = 201)

Monthly family income (Rs / month)	N	(%)
< 5000	55	(27.4)
5-10,000	74	(36.8)
10-20,000	47	(23.4)
20-50,000	23	(11.4)
≥ 50,000	2	(1.0)
Total	201	(100.0)

Table 7: Gender wise distribution of study population according to level of education (N = 201)

Level of Education	Gender		Total N (%)	X²	df	p value
	Male N (%)	Female N (%)				
Never attended school	18 (12.2)	36 (66.7)	54 (26.9)	65.177	6	0.000*
Primary	32 (21.8)	11 (20.4)	43 (21.4)			
Middle	76 (51.7)	5 (9.3)	81 (40.3)			
Secondary	9 (6.1)	1 (1.9)	10 (5.0)			
Graduate	10 (6.8)	1 (1.9)	11 (5.5)			
Post graduate	1 (0.7)	0 (0.0)	1 (0.5)			
Professional	1 (0.7)	0 (0.0)	1 (0.5)			
Total	147 (100)	54 (100)	201 (100)			

Table 8: Gender wise distribution of study population according to occupation

Current Occupation	Gender		Total N (%)
	Male N (%)	Female N (%)	
Professional	2 (1.4)	0 (0.0)	2 (1.0)
Clerical	20 (13.6)	0 (0.0)	20 (10.0)
Skilled	32 (21.8)	1 (1.9)	33 (16.4)
Semiskilled	13 (8.8)	0 (0.0)	13 (6.5)
Unskilled	18 (12.2)	0 (0.0)	18 (9.0)
Home-maker	0 (0.0)	51 (94.4)	51 (25.4)
Unemployed	23 (15.6)	0 (0.0)	23 (11.4)
Retired	40 (27.2)	1 (1.9)	41 (20.4)
Total	147 (100)	54 (100)	201 (100)
p value	0.000*		

DISCUSSION

Mean age for male patients in our study population was 61.46 (± 13.47 S.D) years, for

females the same was 59.4 (± 13.20 S.D) years and mean age of total number of study population was 67 (± 12.70) years. Maximum (56.7%) patients were between 50 to 70 years

of age group, more than half of the total study population (55.2%) was in the geriatric age group. 73.1% of study population was male and 26.9% was female with male to female patient ratio of 3:1. Maximum (33.8%) no. of patients were in age group 61-70 years, males (34.0%) were marginally higher than their counterpart female patients (33.3%). Age group 31-40 years too had preponderance of male patients (8.2%) than females (1.9%). But female patients (33.3%) outnumbered their counterpart male patients (17.0%) in age group 71 ≥ 80 years. The mean age for patients of our study was almost similar to people in EXTRACT registry¹² and COURAGE registry¹³ where they had mean age of 63±11 years and 62±5 years, respectively, signifying that people of our study area of Himachal Pradesh presenting at a higher age as compared to other Indian people. Geriatric aged constituted the predominant population in our study again emphasizing the same phenomenon. Majority (97.5%) of our study population was from rural background and only 2.5% was from urban background. This finding of majority of patients belonging to rural area of residence coincides with the fact that majority (94.27%) of the population of Himachal Pradesh resides in rural area as per census 2011. 84.6% patients were married (married males 93.9% and married females 59.3%), 13.4 % were divorced/widowed with preponderance of 40.7% female patients in contrast to 3.4% males. More than one-quarter (28.33%) of the patients in Mishra et al¹⁴ study, were living alone away from their spouse or family explaining the importance of stress and unhealthy diet behind the genesis of coronary artery disease. 52.7% patients of our study were economically independent, 40.3% were solely dependent and 17.0% were partially dependent on others. 36.8% patients were having family income 5-10,000 Rs /month followed by 27.4% were having < 5000 Rs / month explaining the high level of stress of bearing responsibilities of their family with limited means of earnings. In CREATE study most (52.5%) patients were from lower-middle socioeconomic status.⁸ In our study, 40.3% patients were educated up-to middle with preponderance of 51.7% of males in contrast to 9.3% females, 26.9% patients never attended school with preponderance of 66.7% of female in contrast to 21.8% males (Table 10) (Figure 6). In study by Kaplan et al.¹⁵ only

6.5% patients were well-educated (i.e. graduate or beyond) & in another study by Mishra et al¹⁴ 61.03% patients were having lower level of education. Unemployment was (11.4%) with exclusive preponderance (15.6%) of male patients. In study by Mishra et al¹⁴ unemployment was (56.47%) in contrast to our study.

CONCLUSION

Maximum number of patients were in age group 61-70 years, males were marginally higher than their counterpart female patients. Age group 31-40 years too had preponderance of male patients than females. But female patients outnumbered their counterpart male patients in age group 71 ≥ 80 yrs. In the present study, significant differences were observed in patients with coronary artery disease and age, gender, marital, family, occupation and income status.

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