

Sociodemographic and Clinical Profile of Coronary Artery Disease at a Tertiary Care Centre: A Prospective Study

Dr. Archana Gautam¹, Dr. Mukul Bhatnagar², Dr. Renu Chauhan³

¹Medical officer (Faculty), Regional Health and Family Welfare Training Centre at Chheeb, Kangra (H. P)

²Professor and Head, Department of Cardiology, Dr Rajendra Prasha Tanda at Kangra (H. P)
Corresponding Author Email: [archnagautam26\[at\]gmail.com](mailto:archnagautam26[at]gmail.com)

³Professor and Head, Department of Community Medicine, Dr Yashwant Singh Parmar Govt. Medical College, Nahan (H. P)

Abstract: ***Introduction:** By 2020, coronary artery disease (CAD) will rank #1 among the primary causes of disability and the world's leading cause of mortality. Death rates have been rising in India for the past three decades, while they have been declining in the west. Over the previous three decades, the prevalence of CAD has increased: in rural regions, it went from 2.1% to 3.7%, and in metropolitan areas, it went from 1.1% to around 7.5%. **Methods:** The study was conducted in the Department of Medicine at Dr RPGMC, Tanda. It was prospective, study. It included patients of either sex admitted in medicine department in between the period from April 2017 to August 2018 with diagnosis of acute coronary Syndromes. **Results:** The mean age of study participants was 45.72±12.02 years. 64% of participants were male and 36% of participants were female. Most of the patients was overweight (52%). Diabetes was the most common risk factor followed by hypertension and smoking. 78% of patients had family history. Chest pain (90%) was the most common symptoms followed by Breathlessness (70%), Sweating (74%), Palpitation (52%), Giddiness (34%), Vomiting (14%), and Abdominal pain (10%). 74% of patients had nuclear family and remaining 26% of patients had joint family. **Conclusion:** The most frequent presentation was STEMI. The vessel most frequently involved was LAD. The majority of our ACS population was male. Smoking and hypertension were the two most common risk factors. Compared to non - diabetics, diabetics experienced a more aggressive disease course with greater rates of morbidity and mortality.*

Keyword: ACS, CAD, TEMI

1. 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 In India, death rates are growing, despite a decline in the west over the previous three decades. The prevalence of CAD has risen over the past three decades, from 2.1% to 3.7% in rural areas and from 1.1% to around 7.5% in metropolitan areas.³ Approximately 25% of deaths globally are connected to cardiovascular diseases, and over 50% of patients with heart conditions will reside in India during the next 15 years.⁴ The most frequent way that individuals with CAD present is with acute coronary syndrome (ACS), which has a high risk of morbidity and mortality.⁵

Unstable angina (UA), non - ST elevation myocardial infarction (NSTEMI), and ST elevation myocardial infarction (STEMI) are among the many disorders that make up acute coronary syndrome (ACS). Over 1.5 million hospital admissions, almost 30% of all deaths in the US, and many millions more globally are related to ACS. The state of affairs in developing nations and in India itself is far more dire. Coronary artery diseases (CAD) are predicted to rise by 120% for women and 137% for men in developing nations between 1990 and 2020, compared to 30–60% in industrialized nations.⁶

The majority of evidence pertaining to ACS patients in India has demonstrated that the prevalence of ACS in this population differs significantly from that of Western populations.⁷ Indians experience CAD 5–10 years sooner

than other people worldwide, and the country's 35–65 year old productive workforce is primarily impacted by this unusual condition. Indians tend to have more extensive angiographic involvement and CAD at a younger age.⁸ risk variables that have contributed include genetic, metabolic, conventional, and nonconventional.^{9, 10} The purpose of the current study was to assess the clinical characteristics of coronary artery disease at a tertiary care facility.

2. Materials and methods

The study was conducted in the Department of Community Medicine, and Cardiology at Dr RPGMC, Tanda. It was prospective, study. It included patients of either sex admitted in medicine department in between the period from April 2017 to August 2018 with diagnosis of acute coronary Syndromes which include STEMI, NSTEMI and Unstable Angina. Detailed history, physical examination and relevant investigations were done. All cause 30 - day mortality was studied in all patients taken under study.

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.

3. Results

Baseline characteristics

In our study, the mean age of study participants was 45.72±12.02 years. 64% of participants were male and 36% of

Volume 13 Issue 8, August 2024

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

www.ijsr.net

participants were female. Most of the patients was overweight (52%). Diabetes was the most common risk factor followed by hypertension and smoking. 78% of patients had family history.

Symptoms

In our study, Chest pain (90%) was the most common symptoms followed by Breathlessness (70%), Sweating (74%), Palpitation (52%), Giddiness (34%), Vomiting (14%), and Abdominal pain (10%) (Table 2)

Socio - demographic profile

In our study, 74% of patients had nuclear family and remaining 26% of patients had joint family (Table 3).

Acute coronary syndrome

Table 4 shows that the, NSTEMI (52%) was the most common ACS followed by UA (8%) and STEMI (40%).

Coronary vessel

Table 5 shows that, single vessel (60%) was the most common coronary vessel followed by double vessel (30%) and triple vessel (10%).

4. Discussion

One of the few studies outlining the ACS profile in the Kashmiri population is this one. Our patients ranged in age from 32 to 90 years old, with a mean presentation age of 60.72 ± 12.02 years. While this is different from other Indian ACS registries where the age of presentation is higher, it is comparable to certain studies conducted in the West.^{7, 11, 12} Males outnumbered females (M: F 4: 10), which is explained by gender bias and atypical presentation, which was also noted in the INTERHEART study (with 76% of the South Asian cohort overall and 85% of the cohort being South Asian).¹³ Additionally, ACS had a higher percentage of STEMI cases, which is consistent with the CREATE registry. Seventy - five percent of our ACS patients had hypertension. This is greater than the 31% seen in the INTERHEART trial. Diabetes affected 44% of people. While it is closer to other Indian studies, it is higher than INTERHEART.^{7, 11}

The mean age of study participants was 45.72 ± 12.02 years. 64% of participants were male and 36% of participants were female. Most of the patients was overweight (52%). Diabetes was the most common risk factor followed by hypertension and smoking. 78% of patients had family history. In a study by **Gautam et al**, out of total study population of 201 ACS patients, maximum (33.8%) was 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.¹⁴

In our study, Chest pain (90%) was the most common symptoms followed by Breathlessness (70%), Sweating (74%), Palpitation (52%), Giddiness (34%), Vomiting (14%), and Abdominal pain (10%). In our study, 74% of patients had nuclear family and remaining 26% of patients had joint family, In a study by **Sharma et al**, chest pain was the most common symptoms.¹⁵

NSTEMI (52%) was the most common ACS followed by UA (8%) and STEMI (40%). Single vessel (60%) was the most common coronary vessel followed by double vessel (30%) and triple vessel (10%). In a study by Sharma et al, prevalence of multi - vessel disease (double vessel disease and triple vessel disease) was almost double in diabetic, newly detected diabetes (63.8%, 51%) as compared to normal glycemic status group in which double vessel disease plus triple vessel disease is 31.7%. Diabetic status had a significant impact on morbidity & mortality of the patients with ACS.¹⁵

5. Conclusion

STEMI was most common presentation. LAD was most commonly involved vessel. Males predominated in our ACS population. Hypertension and Smoking were most prevalent risk factors. Diabetics had more aggressive disease with higher morbidity and mortality as compared to nondiabetics.

References

- [1] Heart and Stroke Association Statistics | American Heart Association. Accessed June 12, 2024. <https://www.heart.org/en/about-us/heart-and-stroke-association-statistics>
- [2] Murray CJ, Lopez AD. Mortality by cause for eight regions of the world: Global Burden of Disease Study. *Lancet*.1997; 349 (9061): 1269 - 1276. doi: 10.1016/S0140 - 6736 (96) 07493 - 4
- [3] Chadha SL, Radhakrishnan S, Ramachandran K, Kaul U, Gopinath N. Epidemiological study of coronary heart disease in urban population of Delhi. *Indian J Med Res*.1990; 92: 424 - 430.
- [4] Gupta R, Joshi P, Mohan V, Reddy KS, Yusuf S. Epidemiology and causation of coronary heart disease and stroke in India. *Heart*.2008; 94 (1): 16 - 26. doi: 10.1136/hrt.2007.132951
- [5] O'Gara PT, Kushner FG, Ascheim DD, et al.2013 ACCF/AHA guideline for the management of ST - elevation myocardial infarction: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*.2013; 127 (4): e362 - 425. doi: 10.1161/CIR.0b013e3182742cf6
- [6] Sarkees ML, Bavry AA. Acute coronary syndrome (unstable angina and non - ST elevation MI). *Clin Evid (Online)*.2009; 2009.
- [7] Xavier D, Pais P, Devereaux PJ, et al. Treatment and outcomes of acute coronary syndromes in India (CREATE): a prospective analysis of registry data. *Lancet*.2008; 371 (9622): 1435 - 1442. doi: 10.1016/S0140 - 6736 (08) 60623 - 6
- [8] Enas EA, Yusuf S, Mehta JL. Prevalence of coronary artery disease in Asian Indians. *Am J Cardiol*.1992; 70 (9): 945 - 949.
- [9] Bedi US, Singh S, Syed A, Aryafar H, Arora R. Coronary artery disease in South Asians: an emerging risk group. *Cardiol Rev*.2006; 14 (2): 74 - 80. doi: 10.1097/01.crd.0000182411.88146.72

[10] Gupta R, Gupta VP. Meta - analysis of coronary heart disease prevalence in India. *Indian Heart J.*1996; 48 (3): 241 - 245.

[11] Jose VJ, Gupta SN. Mortality and morbidity of acute ST segment elevation myocardial infarction in the current era. *Indian Heart J.*2004; 56 (3): 210 - 214.

[12] Chang W - C, Kaul P, Westerhout CM, et al. Impact of sex on long - term mortality from acute myocardial infarction vs unstable angina. *Arch Intern Med.*2003; 163 (20): 2476 - 2484. doi: 10.1001/archinte.163.20.2476

[13] Yusuf S, Hawken S, Ounpuu S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case - control study. *Lancet.*2004; 364 (9438): 937 - 952. doi: 10.1016/S0140 - 6736 (04) 17018 - 9

[14] Chauhan R, Negi P. 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. July 25, 2019.

[15] Sharma S, Rashid A, Ashraf M, et al. Clinical profile of acute coronary syndromes (ACS) in north indian population: A prospective tertiary care based hospital study. *AIMDR.*2017; 2 (5). doi: 10.21276/aimdr.2017.3.5. ME11

Table 1: Baseline characteristics

Baseline characteristics	Frequency (n - 50)	Percentage (%)
Age (Years)	45.72±12.02	
Gender		
Male	32	64%
Female	18	36%
BMI (kg/m²)		
Underweight	6	12%
Normal	13	26%
Overweight	26	52%
Obesity	5	10%
Risk factors n (%)		
Diabetes	35	70%
Smoking	26	52%
Hypertension	28	56%
Family history		
Yes	39	78%
No	11	22%

Table 2: Symptoms

Symptoms	Frequency (n=50)	Percentage (%)
Chest pain	45	90%
Breathlessness	35	70%
Sweating	37	74%
Palpitation	26	52%
Giddiness	17	34%
Vomiting	7	14%
Abdominal pain	5	10%

Table 3: Socio - demographic profile

Socio - demographic profile	Frequency (n=50)	Percentage (%)
Family type		
Nuclear	37	74%
Joint	13	26%
Monthly oncome		
<5000	11	22%
5000 - 10000	15	30%
10001 - 20000	12	24%
20001 - 50000	8	16%
>5000000	4	8%
Socio economic status		
Lower	11	22%
Middle	27	54%
Upper	12	24%

Table 4: Acute coronary syndrome

Acute coronary syndrome	Frequency (n=50)	Percentage (%)
UA	4	8%
NSTEMI	26	52%
STEMI	20	40%

Table 5: Coronary vessel

Coronary vessel	Frequency (n=50)	Percentage (%)
Single vessel	30	60%
Double vessel	15	30%
Triple vessel	5	10%

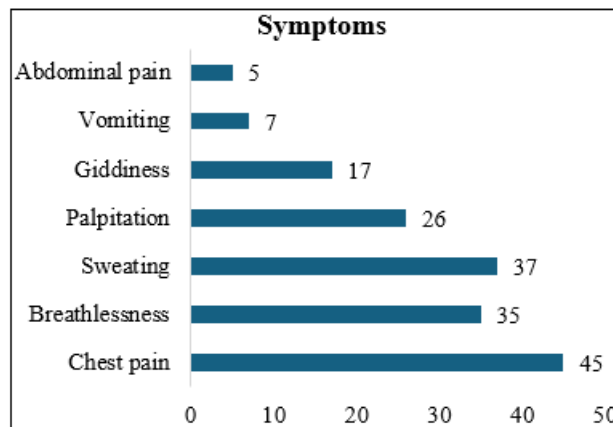


Figure 1: Symptoms

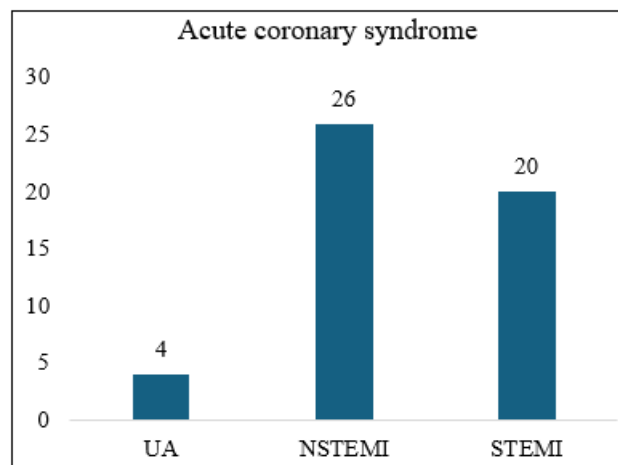


Figure 2: Acute coronary syndrome

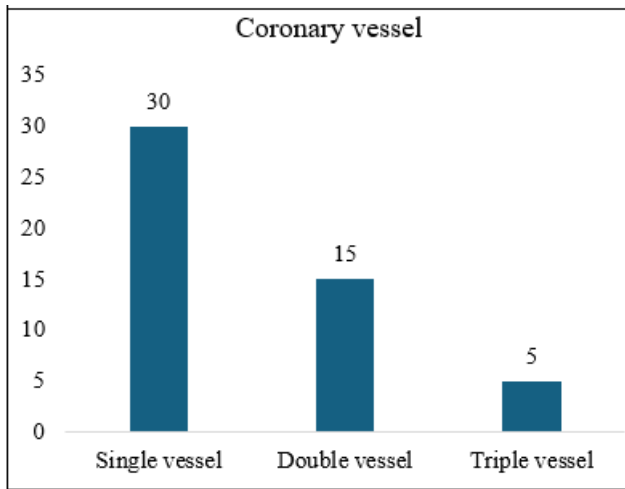


Figure 3: Coronary vessel