



ISSN : 2350-0743

www.ijramr.com



International Journal of Recent Advances in Multidisciplinary Research

Vol. 08, Issue 01, pp. 6566-6568, January, 2021

RESEARCH ARTICLE

CLINICAL PROFILE OF PATIENTS PRESENTING WITH ACUTE ST ELEVATED MYOCARDIAL INFARCTION PRESENTING AT TERTIARY HEALTH CARE INSTITUTE OF HIMACHAL PRADESH, INDIA

Bhagwan Dass Negi,¹ Katyayani^{2*} and Devender Kumar³

¹Physician, Regional Hospital, ReckongPeo, Kinnaur, Himachal Pradesh, India

²Physician, Zonal Hospital, Dharamshala, Kangra, Himachal Pradesh, India

³Assistant Professor, Dr RKGMC Hamirpur, Himachal Pradesh, India

ARTICLE INFO

Article History:

Received 20th October, 2020

Received in revised form

28th November, 2020

Accepted 14th December, 2020

Published online 30th January, 2021

Keywords:

Myocardial Infarction,
STEMI, Risk factor,
Acute Myocardial Infarction.

ABSTRACT

Background: Coronary artery disease is currently the most common, non-communicable disease in India. One of the gravest complications of CAD is ST-elevation myocardial infarction i.e. myocardial cell necrosis due to significant and sustained ischaemia. Despite advances in diagnosis and management, STEMI is still a major public health problem both in developed as well as in developing parts of the world. Current study documents common risk factors and clinical profile of patients with STEMI admitted in the internal medicine department of tertiary care institute present in rural area of Himachal Pradesh, India. **Methods:** A descriptive prospective study was conducted at, Dr. RPGMC Kangra at Tanda, from May 2017 through April 2018. Common cardiovascular risk factors, clinical presentation, Electrocardiogram findings, regions of infarction and rhythm disturbances were studied and documented. Descriptive statistics in the form of frequency and proportions were calculated using MS Excel software. **Results:** A total of 126 patients diagnosed with STEMI were studied. The patients were predominantly male (74.6%). Most common age group affected was of 51-60 years of age (33.3%). The most common presenting symptom was chest pain (78%) followed by shortness of breath (46%) and nausea/vomiting (21%). Tobacco smoking/chewing (70%) was the major risk factor followed by hypertension (54%) and diabetes (29.9%). Majority of infarction occurred on anterior wall (51%). **Conclusions:** STEMI was most common among middle aged adult male in current study. Tobacco use (Smoking) prevalence among patient is very high along with other risk factor like hypertension and diabetes.

INTRODUCTION

Cardiovascular diseases (CVDs) are the number 1 cause of death globally, taking an estimated 17.9 million lives each year. Approximately 80% of these deaths are due to Coronary artery diseases (CADs) and strokes, leading to premature death in people under 70 years of age. (1) One of the gravest complications of Coronary artery diseases (CADs) is ST-elevation myocardial infarction (STEMI). (2) Cardiovascular diseases have emerged as a major health burden in developing countries where premature deaths tend to occur 10 or more years earlier than they do in western countries. (2-4) Myocardial infarction (MI) is defined by the demonstration of myocardial cell necrosis due to significant and sustained ischemia. MI is one of the five main manifestations of coronary heart disease, namely stable angina pectoris, unstable angina pectoris, MI, heart failure and sudden death. (5) Despite advances in diagnosis and management, STEMI is still a major public health problem both in developed as well as in developing parts of the world. (6-8)

Though common risk factors and clinical profile documented throughout country coincide, still India being a very diverse country, it is important to collect and document information at regular interval to foresee any change in disease trend over the time. Current study documents common risk factors and clinical profile of patients with STEMI admitted in the internal medicine department of tertiary care institute present in rural area of Himachal Pradesh, India.

METHODS

This descriptive prospective study was conducted in DrRajender Prasad Government Medical College, Tanda at Kangra, a tertiary care institute situated in rural area of Himachal Pradesh. Study period was one year i.e. May 2017 through April 2018. The study was conducted after obtaining ethical clearance from institutional ethical committee. A pretested structured proforma was used for collecting information regarding demographic profile, risk factors, clinical profile of the patients. Information is collected from patients, their attendant and from the hospital records. Patients presented with acute coronary syndrome were diagnosed in accordance to criteria established by European Society of Cardiology/American College of Cardiology, but only patients showing conclusive evidence of ST-Elevation MI (STEMI) in

*Corresponding author: Katyayani,

Physician, Zonal Hospital, Dharamshala, Kangra, Himachal Pradesh, India.

the 12 Lead Electro-cardiogram were included for the study purpose. Data from defined categorical variables were entered, processed and further analyzed in Microsoft office Excel software for determining frequencies and proportions.

RESULTS

A total of 126 patients with STEMI were studied in current study with mean age of 59.9+/-11.5 Years. Majority (74.6%) of patients were male belonging to age group of 51-60 years (33.3%). (Table1)

Table 1. Age wise and gender wise distribution of STEMI patients

Age Groups (Years)	Male (%)	Female (%)	Total (%)
21-30	01	00	1 (0.8)
31-40	12	01	13 (10.3)
41-50	15	02	17 (13.5)
51-60	36	06	42 (33.3)
61-70	22	08	30 (23.8)
71-80	14	06	20 (15.9)
81-90	02	01	3 (2.4)
Total	94 (74.6)	32 (25.4)	126 (100)

Tobacco consumption in the form of smoking was the most common risk factor (70.6%) documented in current study followed by hypertension (54%) and diabetes (29.4%). Other than that 18.3% of the patients had dyslipidemia while 15.1% had the history of alcohol consumption. The most common presenting symptom was chest pain (77.8%) followed by shortness of breath (46%) and nausea/vomiting (20.6%). Dizziness/fainting (19.8%), sweating (15.1%) and palpitation (14.3%) were the other predominant patient complaints. Abdominal pain was presenting symptom in five (4%) of the patients. (Table 2)

Table 2. Common risk factors (RF) and presenting symptoms in STEMI patients

Risk factors	Frequency	Proportion* (%)
1.Tobacco consumption	89	70.6
2.Hypertension	68	54.0
3.Diabetes mellitus	37	29.4
4.Dyslipidemia	23	18.3
5.Alcohol intake	19	15.1
Presenting symptoms		
1.Chest pain /discomfort	98	77.8
2.Shortness of breath	58	46.0
3.Nausea /vomiting	26	20.6
4.Dizziness / fainting	25	19.8
5.Sweating	19	15.1
6.Palpitation	18	14.3
7.Abdominal pain	5	4.0
*multiple response		

The ECG findings on arrival to emergency department are shown in Table 4. Most common site of infarction was anterior wall (51.1%) followed by inferior wall (45.1%). Three patients had irregular rhythm while seven patients were found to have inverted T wave on ECG.

DISCUSSION

Cardiovascular disease (CVDs) is a global public health problem contributing to thirty percent of global mortality and ten percent of the global disease burden. Coronary artery diseases usually characterized as acute coronary syndrome contribute massively in CVDs disease burden. The burden is greater in low- and middleincome countries including India attributed to its large population.

Table 4. Electrocardiographic characteristics

ECG findings		Frequency	Proportion
1.Site of infarction	Anterior wall	55	43.7
	Anterior + lateral wall	05	4.0
	Anterior + Inferior	03	2.4
	Inferior wall	54	42.9
	Inferior wall + lateral wall	04	3.2
	Lateral wall	02	1.6
	Posterior wall	02	1.6
2.Sinus rhythm	Septal	01	0.8
	Sinus bradycardia	04	3.2
	Sinus tachycardia	03	2.4
	Irregular	03	2.4
3.Inverted T wave	Present	07	5.6

High prevalence of a number of risk factors like unhealthy diet, physical inactivity, obesity, tobacco use, diabetes, raised blood pressure and abnormal blood lipids has been cited as the reasons for such a steep rise in CVDs.4,5,7 Current study document some of these risk factors along with the clinical picture of these patients. A total of 126 patients with STEMI were studied in current study with mean age of 59.9+/-11.5 Years which is similar to 58.9±11.8 years (for acute MI) in a large South Asian study. (9) Although, the mean age for overall South Asian patients has been documented lower i.e. (Approximately 53 Years) years for South Asian population. (10) Higher mean age in our study may be due to the fact that only STEMI has been included while other variants of ACS has been excluded from the study. Similar to all form of MI, STEMI was higher in males than females (74.6%) which is consistent with findings in previous studies. (11-13) With advancing age the proportion of females with STEMI were increased which can be explained by wearing effect of protective estrogen in post-menopausal period.

Smoking tobacco products was the most common risk factor (70.6%) documented in current study followed by hypertension (54%) and diabetes (29.4%). Tobacco smoking has been establish as the leading risk factor for MI in various South Asian studies as well by WHO. (11-15) Smoking is thought to cause initiation and/or propagation of thrombus formation by disrupting homeostasis secondary to increased oxidative stress as explained in an update of the pathophysiology of cigarette smoking and cardiovascular disease.(16) Similarly accelerated atherosclerotic plaque formation and intraluminal thrombosis in hypertensives and diabetics is thought to increase the incidence of as well as mortality due to acute coronary syndrome. (17-18).

The most common presenting symptom was chest pain (77.8%) followed by shortness of breath (46%) Sweating (15.1%) and palpitation (14.3%) were the other predominant patient complaints. Abdominal pain was presenting symptom in five (4%) of the patients. (Table 4)Atypical symptoms like nausea/vomiting (20.6%). Dizziness/fainting (19.8%) and abdominal pain (4%) were observed which may be the only presentation in elderly or comorbid patients. Most common site of infarction was anterior wall (41.1%) followed by inferior wall (45.1%). Anterior wall has been documented as the most common site of infarction in other studies from Nepal and India. (6, 19). This study provide opportunity to disseminate useful baseline information of clinical profile of the STEMI patients from our rural area. Data regarding further management, follow up and outcome of the patients is being collected and will be analyzed to develop further knowledge of STEMI.

Conclusion

STEMI was found most common among middle aged adult male in current study. Tobacco use (Smoking) remains key risk factor along with hypertension and diabetes. Chest pain and discomfort need to be evaluated urgently as it is the most common presenting symptom among STEMI patients. Anterior wall was the most common site involved followed by inferior wall. Comprehensive preventive strategies are still required at mass level to reduce the burden of ACS/CVDs.

Conflict of interest:None

REFERENCES

- World Health Organization. Fact sheet: Cardiovascular diseases (CVDs). 2020. Available at <http://www.who.int/mediacentre/factsheets/fs317/en/> / Accessed 13 December 2020.
- Alexander T, Mehta S, Mullanari A, Nallamothu BK. Systems of care for ST-elevation myocardial infarction in India. *Heart*. 2012;98:15-17.
- Boersma E, Mercado N, Poldermans D, Gardien M, Vos J, Simoons ML. Acute myocardial infarction. *Lancet*. 2003;361:847-85.
- Yeh RW, Sidney S, Chandra M, Sorel M, Selby JM, Go AS. Population trends in the incidence and outcomes of acute myocardial infarction. *N Engl J Med*. 2010;362:2155-65.
- Sintek M, Barger P, editors. *The Washington Manual of Medical Therapeutics*, 35th ed. P.105.
- Adhikari G, Baral D. Clinical profile of patients presenting with acute myocardial infarction. *Int J Adv Med* 2018;5:228-33.
- Xavier D, Pais P, Devereaux PJ, Xie C, Prabhakaran D, Reddy KS, *et al*. Treatment and outcomes of acute coronary syndromes in India (CREATE): a prospective analysis of registry data. *Lancet*. 2008;371(9622):1435-42.
- Akbar H, Foth C, Kahloon RA, *et al*. Acute ST Elevation Myocardial Infarction. (Updated 2020 Aug 8). In: StatPearls (Internet). Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK532281/> Accessed 13 December 2020.
- Joshi P, Islam S, Pais P, Reddy S, Dorairaj P, Kazmi K, *et al*. Risk factors for early myocardial infarction in South Asians compared with individuals in other countries. *J Am Med Assoc*. 2007;297(3):286-94.
- Sharma M, Ganguly NK. Premature coronary artery disease in Indians and its associated risk factors. *Vasc Health Risk Manag*. 2005;1(3):217-225.
- Risk factors in acute coronary syndrome. *J Ind Acad Clin Med*. 2013;14(2):130-2.
- Hafeez S, Javed A, Kayani AM. Clinical profile of patients presenting with acute ST elevation myocardial infarction. *J Pak Med Assoc*. 2010;60(3):190-3.
- El-Menyar A, Zubaid M, Shehab A, Bulbanat B, Al-Motarreb A, Suwaidi JA. Prevalence and impact of cardiovascular risk factors among patients presenting with acute coronary syndrome in the Middle East. *Clin Cardiol*. 2011;34(1):51-8.
- Yusuf S, Hawken S, Öunpuu S, Dans T, Avezum A, Lanas F, *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):937-52.
- World Health Organization. Tobacco. Key Fact sheet: 2020. Available at <https://www.who.int/news-room/factsheets/detail/tobacco> Accessed 13 December 2020.
- Ambrose JA, Barua RS. The pathophysiology of cigarette smoking and cardiovascular disease: an update. *J Am Coll Cardiol*. 2004;43(10):1731-7.
- Woods KL, Samanta A, Burden AC. Diabetes mellitus as a risk factor for myocardial infarction in Asians and Europeans. *Heart*. 1989;62(2):118-22.
- Kannel WB, McGee DL. Diabetes and cardiovascular risk factors: the Framingham study. *Circ*. 1979;59(1):8-13.
- Singh PS, Singh G, Singh SK. Clinical profile and risk factors in acute coronary syndrome. *J Ind Acad Clin Med*. 2013;14(2):130-2.
