Valley International Journals
Open Access Journal
International Journal Of Medical Science And Clinical Inventions
Volume 2 issue 10 2015 page no. 1366-1369 e-ISSN: 2348-991X p-ISSN: 2454-9576
Available Online At: http://valleyinternational.net/index.php/our-jou/ijmsci

Charecteristics of Chest Pain in Patients Presenting As Acute Myocardial Infarction at a Tertiary Care Center in North India

Sheikh Jan M[1], Samiera Hassan[2], Mohd Tahir Ganaye[3], Bilal Ahmed[4], Nisar Ahmad shah [5] , Kadla Showket A[6]

1. Registrar Postgraduate Department of Medicine Government Medical college, Srinagar J&K India.
2. Medical Officer, Department of Social and Preventive Medicine Government Medical College, Srinagar J&K India.
3. Registrar Postgraduate Department of Medicine SKIMS, Srinagar J&K India.
4. Postgraduate Scholar Department of Medicine Government Medical College, Srinagar J&K India.
5. Consultant Postgraduate Department of Medicine Government Medical College, Srinagar J&K India.
6. Professor Postgraduate Department of Medicine Government Medical College, Srinagar J&K India.

Correspondence: Dr. Sheikh Jan Mohammad.
Registrar Postgraduate Department of Medicine,Government Medical College Srinagar, Jammu and Kashmir, India.

Postal address: Room no. A-1 doctors hostel Government medical college karanagar Srinagar J& K. PIN - 190010
E-mail: **sheikhm.jan@gmail.com**

ABSTRACT

Objective: To study various patterns of chest pain in acute myocardial infarction.

Methodology: A total of 993 patients of AMI admitted at Cardiology and Postgraduate Department of medicine in SMHS Hospital Jammu & Kashmir India were enrolled for study. Patients in age group from 18 to 80 years, who presented with acute onset chest pain with high clinical suspicion of AMI irrespective of the age and gender, were included in this study. The study duration was from May 2011 to June 2015. Patients were evaluated for detailed clinical history and examination. Diagnosis of AMI was confirmed on electrocardiographic findings, cardiac troponin assay, echocardiography and coronary angiography wherever needed. Informed consent to participate in this study was taken. Data were entered and analyzed using SPSS-11.Results: A total number of 993 patients with AMI were included in the study. Mean age was 54.99±11.25 years with minimum age 20 years and maximum age 80 years. It included 792(79.8%) male and 201(20.2%) female patients with male to female ratio of 3.9:1. Out of these 993 patients 924 (93.0%) patients reported chest pain as the presenting complaint. Remaining 69 (6.9 %) presented with clinical features other than chest pain. Majority of the patients i.e. 834 (83.98%) were between the age of 41-70 years. There were 66 (6.64%) patients between the age of 71-80 years. Only 15 (1.51%) were 30 years and below. Conclusion: There is considerable overlap in chest pain of cardiac as well as non cardiac causes. However, vigilant evaluation of characteristics of chest pain in history taking may help to overcome this dilemma. Severe and prolonged precordial chest pain in a male patient between the age of 41-70 years, with pain radiation to left shoulder, neck and jaw is highly suggestive of AMI.

Key Words: Acute Myocardial Infarction, chest pain, Epigastric pain.

Abbreviations: AMI-Acute myocardial infarction. ECG-Electrocardiograph

INTRODUCTION

Acute myocardial infarction (AMI) is a cardiac emergency. The clinical diagnosis of AMI requires an integrated assessment of the history especially with reference to chest pain along with some combination of indirect evidences of myocardial infarction using biochemical, electrocardiographic, and imaging modalities. In the United States, nearly one million patients suffer from AMI per year.[1]Chest pain is the most common presenting complaint of acute myocardial infarction. The classic manifestation of ischemia is usually described as a heavy chest pressure or squeezing, a "burning" feeling, or difficulty in breathing. The discomfort or pain often radiates to the left shoulder, neck, or arm. Chest pain may be atypical in few cases. It builds in intensity over a period of few minutes. The pain may begin with exercise or psychological stress, but acute myocardial infarction most commonly occurs without obvious precipitating events[2].

Each year five million patients come to emergency departments with chest pain.[3] However, diagnostic evaluation reveals that only 15 to 25 percent of patients with acute chest pain actually have acute coronary syndrome.[4,5] The difficulty is to discriminate patients with acute coronary syndrome from those with non-cardiac chest pain. Pope et al found that only 2.1 percent of patients with chest pain having acute myocardial infarction were discharged from the emergency department.[6] Patients with acute myocardial infarction who are mistakenly discharged

DOI: 10.18535/ijmsci/v2i10.03

from the emergency department have short-term mortality rates of about 25 percent, at least twice what would be expected if they were admitted.[7]It is therefore of utmost importance to emphasize the evaluation of chest pain and to discriminate chest pain of acute myocardial infarction from non-cardiac chest pain. By doing this, we can eliminate the chances of mistaken discharge of patients with acute myocardial infarction having initial normal ECG. We can also decrease undue burden on health personnel by avoiding mistaken admission of those patients who do not actually have myocardial infarction or acute coronary syndrome.

So the present study was conducted to find out the characteristic and peculiar features of chest pain which can ultimately help in diagnosis of AMI.

MATERIAL AND METHODS

It is a Hospital based prospective study conducted over a course of four years at a tertiary care Super Speciality Hospital in north India. A total of 993 patients of AMI admitted in Postgraduate Department of Medicine and Cardiology unit Government medical college (SMHS Hospital) Srinagar, Jammu and Kashmir India. The study duration was four years starting from May 2011 to June 2015.All patients with more than 18 years of age irrespective of gender, presenting with acute onset chest pain with high probability of acute myocardial infarction .Patients were evaluated for detailed clinical history , general physical examination and systemic examination. Patients with high probability AMI were further evaluated. Diagnosis of AMI was confirmed on ECG, Cardiac troponin assay, Echocardiography and Coronary angiographic findings. A pre-designed questionnaire was used to record the data. Data were entered and analyzed using SPSS-11.

INCLUSION CRITERIA:

Age more than 18 years.

Acute onset chest pain or symptoms consistent with AMI.

EXCLUSION CRITERIA:

Post CPR revived patients.

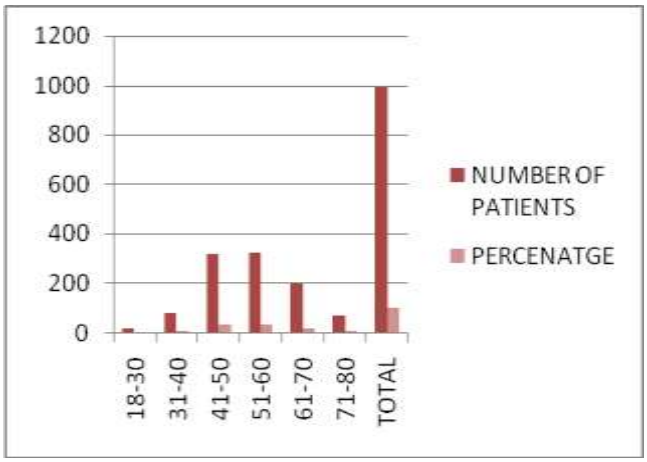
Patients with multiple co morbidities like renal failure, liver failure and stroke.

Lack of consent.

Age less than 18 years.

RESULTS

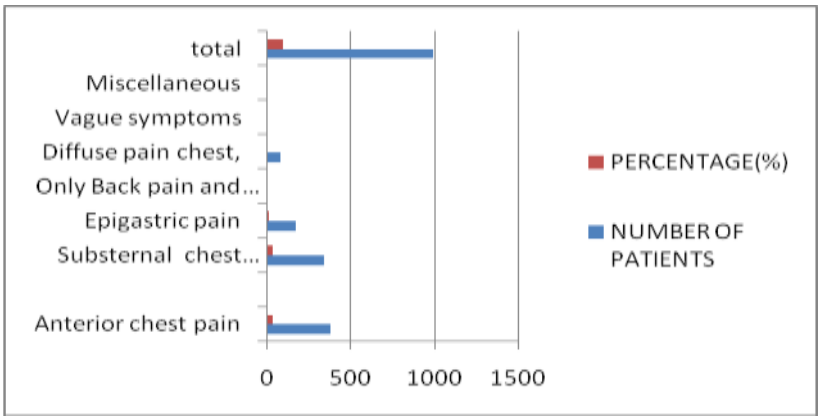
A total number of 993 patients with AMI were included in the study. Mean age was 54.99±11.25 years with minimum age 20 years and maximum age 80 years. It included 792(79.8%) male and 201(20.2%) female patients with male to female ratio of 3.9:1. Out of these 993 patients 924 (93.0%) patients reported chest pain as the presenting complaint. Remaining 69 (6.9 %) presented with clinical features other than chest pain. Majority of the patients i.e. 834 (83.98%) were between the age of 41-70 years. There were 66 (6.64%) patients between the age of 71-80 years. Only 15 (1.51%) were 30 years and below.



There were 381(38.6%) patients with anterior chest pain chest pain, 345(34.7%) had substernal chest discomfort, 174 (17.5%) were having epigastric pain and only 6 (0.6%) had pain in the back of chest and left arm as initial symptom. Only 9 (0.9%) patients had pain both in epigastrium and retrosternum. Severe chest pain was seen in 843 (84.8%) patients while 78 (7.8%) had only mild chest discomfort. Pain persisting for >20 minutes was reported by 984 (90%) patients while only 9 (2.2%) had pain persisting for <20 minutes. 276 (27.7%) patients had sensation of heavy weight over chest. Pain was constricting in 108 (10.8%), choking in 90 (9.6%), burning in 144 (14.5%) and stab like in 126 (12.6%) patients. Only 6 (0.6%) had reported both choking and constricting pain while, another 6 (0.6%) had choking as well as burning character chest pain.

NATURE OF CHEST PAIN	NUMBER OF PATIENTS	PERCENTAGE(%)
Anterior chest pain	381	38.6
Substernal chest discomfort	345	34.7
Epigastric pain	174	17.5
Only Back pain and left arm	6	0.6
Diffuse pain chest, Vague symptoms Miscellaneous	87	8.76
Total	993	100

DOI: 10.18535/ijmsci/v2i10.03



PATTERN OF CHEST PAIN IN ACUTE MYOCARDIAL INFARCTION

DISCUSSION

Despite of all advances in the management of cardiovascular diseases, yet discrimination between chest pain due to AMI and non- cardiac chest pain remains a dilemma.[8-10] Age is an important determinant of AMI in patients having chest pain. Incidence of AMI increases with increasing age. In females age of presentation is even higher by 5-10 years.[11] In our study, we found that majority of the patients were between the age of 41-70 years, while a study conducted by Malik et al, 85% of the patients were between 41-60 years of the age.[2] Age of presentation was slightly higher in our population as compared to that which was noticed by British Heart Foundation i.e. 30-69 years.[12] In Belgium Bartholomeeussen et al[13] found that incidence of AMI is high at the ages between 45–75 years. Our results are in accordance with the study conducted by Bartholomeeussen et al.[13] However the mean age for first MI among south Asian is lower compared to the individuals in other countries.[14] At any given age, prevalence of coronary heart disease is greater in men than in women.[15] Risk factors like hypertension and hyperlipidemia are more prominent for men than women in the late 40- to early 50-year range; then their prevalence is higher in women. Women have an extra protection during their early reproductive life due to the effect of sex hormones. In our study majority of the patients with AMI were male (79.8%). Studies conducted by Hafeez et al and Shabbir et al also showed male dominance.[16,17] Albarran et al[18] had also discovered that AMI is more common in males (68%) as compared to females (32%). Chirsten et al[19] found AMI prevalence was 62% in males. In a study conducted by Mujtaba et al[20] showed similar findings.Site of the chest pain gives important clue to the diagnosis of ACS/AMI. Pain which is located in the center of chest is more likely to be ischemic than a peripherally located chest pain. We found that precordial chest pain is the most common site for chest pain. There were 127(38.4%) patients with precordial chest pain in our setting. De Silva also noticed that precordial and retrosternal sites are most common sites for chest pain in CAD.[21] Bosner et al[22] analysed 1212 patients (534 men and 678 women) for the aetiology of their chest pain; of those 180 patients (92 men and 88 women) were diagnosed as having CHD. Pain was present on the left side of chest in 56 (63.6%) females and in 63 (68.5%) males. Bosner et al[22] noticed that chest pain was localized on the right side of the chest in 34.1% patients. However, in our settings none of the patient presented with right sided chest pain.

Most common site where AMI pain radiates is left shoulder and arm.[23,24] This is because of presence of heart on the left of chest, so pain radiates along left sided cervical nerve roots. In our study 55(16.6%) patients had pain radiation to left shoulder, left upper arm and ulnar side of left forearm. Solt et al[25] claimed a high prevalence of chest pain radiation to the jaw especially in females. However, we have noticed that only 4(1.2%) patients had pain radiation to the jaw alone but pain radiation to the jaw was present in combination with radiation to shoulder and neck in 22.7% patients.

Duration of chest pain more than 20 minutes can be taken as cut-off for AMI. In our study, it was found that 90% of patients had chest pain persisting for >20 minutes. Similar results have been proven in multiple other international studies.[26,27] However those attacks of chest pain that are not very severe or prolonged, but distressing enough for patients to contact a general practitioner, present a more difficult problem in diagnosis and management.[28]

Although chest pain is the most important symptom of AMI but it may be invariably absent in some patients. In our setting 6.9% patients had symptoms other than chest pain (painless AMI). In a study conducted by Hafeez et al pain less MI was seen in 6 % of the patients.[16] Abidov et al[29] also found that some patients may present with symptoms other than chest discomfort; such as “angina equivalent” symptoms include dyspnea (most common), nausea and vomiting, diaphoresis, and unexplained fatigue. Chest pain remains most important symptom of AMI but in few patients it may not be there. Further studies on large scale are required about the characteristics of chest pain favouring AMI.

CONCLUSION

Chest pain is most common and important symptom of myocardial ischemia. There are non cardiac causes of chest pain which need to be ruled out while evaluating a patient for acute coronary syndrome. Severe and prolonged precordial chest pain in a male patient between the age of

DOI: 10.18535/ijmsci/v2i10.03

41-70 years, with pain radiation to left shoulder, neck and jaw is highly suggestive of AMI.

References

1. American Heart Association. Heart Diseases and Stroke Statistics-2004 Update. American Heart Association; 2003.
2. Malik IA, Mahmood K, Raja MK. Acute Myocardial Infarction. Professional Med J. 2005;12(4):457–465.
3. Stussman BJ. National Center for Health Statistics, authors; National hospital ambulatory medical care survey, authors. emergency department summary. Advance data from vital and health statistics. No. 285. Hyattsville, Md: Public Health Service; 1997. (DHHS publication no. (PHS) 97-1250.)
4. Pope JH, Aufderheide TP, Ruthazer R, Woolard RH, Feldman JA, Beshansky JR, et al. Missed diagnoses of acute cardiac ischemia in the emergency department. N Engl J Med. 2000;342:1163–1170.
5. Pozen MW, D'Agostino RB, Selker HP, Sytkowski PA, Hood WB. A predictive instrument to improve coronary-care-unit admission practices in acute ischemic heart disease A prospective multicenter clinical trial. N Engl J Med. 1984;310(20):1273–1278.
6. Selker HP, Beshansky JR, Griffith JL, Aufderheide TP, Ballin DS, Bernard SA, et al. Use of the acute cardiac ischemia time-insensitive predictive instrument (ACI-TIPI) to assist with triage of patients with chest pain or other symptoms suggestive of acute cardiac ischemia. A multicenter, controlled clinical trial. Ann Intern Med.1998;129(11):845–855.
7. Lee TH, Rouan GW, Weisberg MC, Brand DA, Acampora D, Stasiulewicz C, et al. Clinical characteristics and natural history of patients with acute myocardial infarction sent home from the emergency room. Am J Cardiol.1987;60(4):219–224.
8. Short D. Diagnosis of slight and subacute coronary attacks in the British Journal of General Practice, February 2008 community. Br Heart J. 1981;45(3):299–310.
9. Lee T, Cook F, Weisberg M, Sargent RK, Wilson C, Goldman L. Acute chest pain in the emergency room. Identification and examination of low-risk patients. Arch Intern Med. 1985;145(1):65–69.
10. Hargarten KM, Aprahamian C, Stueven H, Olson DW, Aufderheide TP, Mateer JR. Limitations of prehospital predictors of acute myocardial infarction and unstable angina. Ann Emerg Med. 1987;16(12):1325–1329.
11. Berg J, Bjork L, Dudas K, Lappas G, Rosengren A. Symptoms of a first acute myocardial infarction in women and men. Gend Med. 2009;6(3):454–462.
12. British Heart Foundation. British Heart Foundation Statistics Database. [3 Jan 2008]. www.heartstats.org.
13. Bartholomeeussen S, Truyers C, Buntinx F. Ziekten in de huisartspraktijk in Vlaanderen. [Diseases in General Practices in Flanders. Leuven: Academisch Centrum voor Huisartsgeneeskunde; 2004.
14. Joshi P, Islam S, Pais P, Reddy S, Dorairaj P, Kazmi K, et al. Risk factors for early acute myocardial infarction in south Asians compared with individuals in other countries. JAMA. 2007;297(3):286–294.
15. Wenger NK, Speroff L, Packard B. Cardiovascular health and disease in women. N Engl J Med.1993;341:247–256.
16. Hafeez S, Javed A, Kayani AM. Clinical profile of patients presenting with acute ST elevation myocardial infarction. J Pak Med Assoc. 2010;60(3):190–193.
17. Shabbir M, Kayani AM, Qureshi O, Mughal MM. Predictors of fatal outcome in acute myocardial infarction. J Ayub Med Coll Abbottabad. 2008;20(3):14–16.
18. Albarran J, Durham B, Gowers J, Dwight J, Chappell G. Is the radiation of chest pain a useful indicator of myocardial infarction? A prospective study of 541 patients. Accid Emerg Nurs. 2002;10(1):2–9.
19. Christenson J, Innes G, McKnight D, Thompson CR, Wong H, Yu E, et al. A clinical rule for early discharge of patients with chest pain. Ann Emerg Med. 2006;47(1):1–10.
20. Mujtaba S, Rizvi SNH, Talpur A, Younis F, Minhas K, Farooqui Z. Gender based differences in the symptoms of acute coronary syndrome. J Coll Physicians Surg Pak. 2012;22(5):285–288.
21. De Silva RA, Bachman WR. Cardiac consultation in patient with neuropsychiatric problems. Cardol Clin.1995;13:225–239.
22. Bosner S, Haasenritter J, Hani MA, Keller H, Sonnichsen AC, Karatolios K, et al. Gender differences in presentation and diagnosis of chest pain in primary care. BMC Family Practice. 2009 10:79 doi: 10.1186/1471-2296-10-79.
23. Gaston-Johansson F, Hofgren C, Watson P, Herlitz J. Myocardial infarction pain: systematic description an analysis. Intensive Care Nurs. 1991;7(1):3–10.
24. Everts B, Karlson B, Wahrborg P, Hedner T, Herlitz J. Localization of pain in suspected acute myocardial infarction in relation to final diagnosis, age and sex, and site and type of infarction. Heart Lung. 1996;25(6):430–437.
25. Solt K, Johansson JS. Binding of the active metabolite of chloral hydrate, 2,2,2-trichloroethanol, to serum albumin demonstrated using tryptophan flourescence quenching. Pharmacology. 2002;64(3):805–807.
26. Svensson L, Isaksson L, Axelsson C, Nordlander R, Herlitz J. Predictors of myocardial damage prior to hospital admission among patients with acute chest pain or other symptoms raising a suspicion of acute coronary syndrome. Coron Artery Dis. 2003;14(3):225–231.
27. Sawe U. Early diagnosis of acute myocardial infarction with special reference to the diagnosis of the intermediate coronary syndrome A clinical study. Acta Med Scand .Suppl. 1972;545:1–76.
28. Erhardt L, Herlitz J, Bossaert L, Halinen M, Keltai M, Koster R, et al. Task force on the management of chest pain. Eur Heart J. 2002;23(15):1153–1176.
29. Abidov A, Rozanski A, Hachamovitch R, Hayes SW, Aboul-Enein F, Cohen I, et al. Prognostic significance of dyspnea in patients referred for cardiac stress testing. N Engl J Med. 2005;353(18):1889–1898.

DOI: 10.18535/ijmsci/v2i10.03