Atypical Presentation of Myocardial Infarctions: More common above 60 years and Females

Authors
Sonam Kaushika[1], Hemanshu K Warrier[2]
[1]MBBS MEM, Sr. Registrar, Emergency Medicine, HCG Multispeciality Hospital, Ahmedabad
[2]MBBS MEM MRCEM, Head, Emergency Department, Max Hospital, Gurgaon

Abstract
Atypical symptom was defined as the absence of chest pain before or during admission, and may have included gastrointestinal or respiratory symptoms such as dyspnea, nausea, vomiting, and abdominal discomfort. Patients who present without chest pain are frequently misdiagnosed, and less likely to receive optimal treatment for ACS. Consequently, greater in-hospital morbidity, and mortality are noted. Therefore, understanding the factor associated with atypical presentations may help in the earlier detection and treatments in patients with ACS.
Keywords: *Atypical MI, ACS, Atypical Symptoms, Age, Sex, Myocarial Infarction, MI.*

Introduction

The clinical manifestations of coronary heart disease vary considerably. Since it was first described by James B. Herrick in 1912, clinically unrecognized myocardial infarction[1,2] has been extensively researched and debated. Epidemiologic studies have shown that silent, atypical, or unrecognized myocardial infarctions constitute between 20% and 60% of all myocardial infarctions[3-8].

Unrecognized myocardial infarction is diagnosed objectively using thallium perfusion imaging, radionuclide angiography, or echocardiography; it is most often diagnosed from typical, unequivocal changes on the electro-cardiogram of a patient with symptoms so atypical that neither patient nor physician recognizes the problem as an infarction. Atypical and silent myocardial infarction has traditionally been grouped together as unrecognized myocardial infarction. Patients with silent myocardial infarction seemingly have no symptoms. Half of all patients with unrecognized myocardial infarction recall no symptoms and have therefore had silent myocardial infarctions; the remainder have had atypical myocardial infarctions[9,10].

Silent myocardial ischemia as an important manifestation in patients with coronary heart disease has been studied in recent decades and clearly affects prognosis unfavorably[11,12]. Because the prognosis for patients with unrecognized myocardial infarction seems to be as serious as that for patients with recognized myocardial infarction[13,14], practicing physicians face considerable diagnostic and therapeutic challenges when dealing with the many patients with this condition. Not only is it difficult to choose methods with which to identify these patients, it is also difficult to make decisions about secondary

prevention and medical treatment. Detailed knowledge about this disease entity is therefore important and must include a thorough understanding of which patient subgroups are especially vulnerable.

The atypical presentation of Acute Myocardial Infarction may be affected by various factors most common being Age, Gender and presence of risk factors including Diabetes, Hypertension, Hyperlipidemia, Smoking etc.

In our study, we have focused on these factors contributing to the atypical presentation of acute myocardial infarction & association of the presenting symptoms with the infarcted area. Presenting symptoms of acute myocardial infarction differ in elderly patients from young ones. Elderly patients have changes in pain perception and altered ischemic thresholds, but the exact explanation for atypical symptoms is yet unknown.

Symptoms may be described as dyspnea, syncope, epigastric pain, restlessness, weakness, fatigue, acute confusion, shoulder pain and back pain, and may be precipitated by concurrent illness. And in some cases, complications derived from myocardial infarction may be the only presenting sign. Cardiovascular heart disease still represents the leading cause of death in both males and females especially in patients with age group >60 years. Due to atypical symptoms, elderly patients stand at a higher risk thus delaying diagnosis & treatment, resulting in higher mortality rates.

Materials and Method

A retrospective data analysis was done on all patients with atypical symptoms who got admitted with a diagnosis of acute myocardial infarction from the emergency department in a period of 365 days i.e. from 1st October 2014 till 31st October 2015.

Data analysis was done with software SPSS 17.0 in which the P- value of ≤0.05 was taken as statistically significant.

In this study we excluded all patients who presented to emergency department with typical symptoms i.e. chest pain, age ≤18 years and those presenting with atypical symptoms having baseline ECG changes and normal cardiac enzymes.

The patients in this study were divided based on the age, gender, site of infarction, presenting symptoms & risk factors.

Inclusion Criteria: All patients with atypical symptoms of acute myocardial infarction which were divided based on the following:

- Age
- Gender
- Site of infarction
- Presenting symptoms
- Risk factors.

Exclusion Criteria: All patients with the following:

- Typical symptoms i.e. chest pain
- Age <18 years.
- Atypical symptoms having baseline ECG changes and normal cardiac enzymes.

Results

According to our data, of all the 638 patients, 150 patients (23.51%) presented with atypical symptoms of acute myocardial infarction and 488 patients (76.48%) had typical symptoms of chest pain.
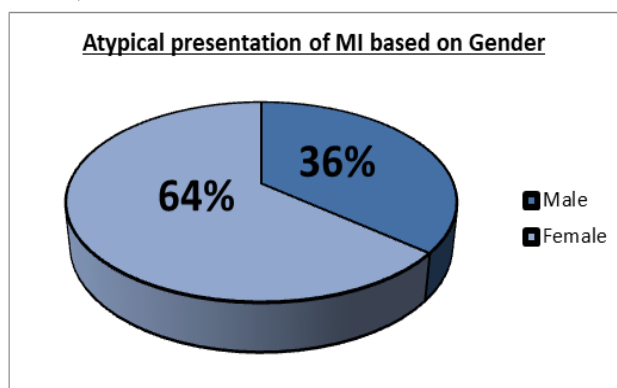
Out of those 150 patients, 68% (102 patients) were of age group greater than 60 years and 32% (48 patients) were of the age-group between 18-59.

Age-group	Male	Female	Total patients
18-59 years	18 (37.5%)	30 (62.5%)	**48 (32%)**
≥ 60 years	36 (35.3%)	66 (64.7%)	**102 (68%)**

18 – 59 years as shown in Table 1.
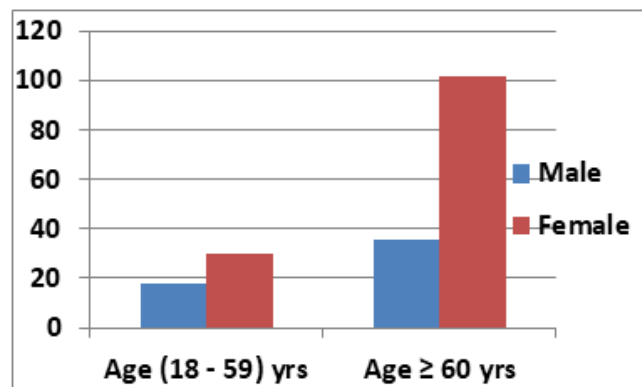
Out of 150 atypically presenting MI patients, 36% were males (55 patients) and 64% were females (95 patients).
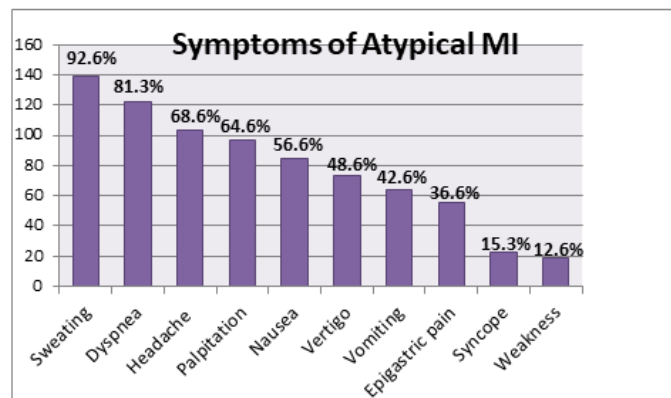

Among atypically presenting MI patients, the most common site of infarction was Inferior wall (46.6%) in 70 patients followed by Anterior wall (24%) in 36 patients, Antero-lateral wall (9.3%) in 14 patients, Lateral wall (6.6%) in 10 patients, Inferio-lateral wall (5.3%) in 8 patients, Antero-inferior wall (4.0%) in 6 patients and Antero-septal wall (4.0%) in 6 patients respectively, as shown in Table 2.

(Table 2) Different sites of Infarction in Atypical MI

Site of Infarction	Male	Female	Total Patients
Inferior wall	24	46	70 (46.6%)
Anterior wall	15	21	36 (24%)
Antero-lateral wall	5	9	14 (9.3%)
Lateral wall	4	6	10 (6.6%)
Infero-lateral wall	2	6	8 (5.3%)
Antero-inferior wall	2	4	6 (4.0%)
Antero-septal wall	2	4	6 (4.0%)

Among atypical MI patients, (92.6%) patients presented with profuse sweating (139 patients), followed by dyspnea (81.3%) in 122 patients, headache (68.6%) in 103 patients, palpitations (64.6%) in 97 patients, nausea (56.6%) in 85 patients, vertigo (48.6%) in 73 patients, vomiting (42.6%) in 64 patients, epigastric pain (36.6%) in 55 patients, syncope (15.3%) in 23 patients, and generalized weakness (12.6%) in 19 patients respectively as shown in Table 3.

(Table 3)

Looking into the risk factors present in atypically presenting MI patients, 37.3% have Diabetes Mellitus (56 patients), 42.6% have Hypertension (64 patients), and 44.6% gave history of Smoking (47 patients).

Statistical Analysis

Unpaired t-test was performed to calculate the value of P (Pearson coefficient) to establish any co-relations if present.

	18-59y	>60y
Sweating	39	100
Dyspnea	29	92
Headache	23	80
Nausea	23	62
Epigastric Pain	21	34
Syncope	3	20
Weakness	3	16
Palpitation	26	71
Vertigo	33	40
Vomiting	22	42

(Table 5) No. Of Patients according to age

The two-tailed P value equals 0.0037. By conventional criteria, this difference was considered to be very statistically significant.

Of all the 150 patients presented with the atypical symptoms of myocardial infarction, 68% of them were amongst the elderly age group and 64% were found to be females. Also the most common site affected in atypical myocardial infarction is inferior wall followed by anterior wall. Amongst atypical myocardial infarction patients, mostly presented with profuse sweating followed by dyspnea and headache and out of all the 150 patients, 37.3% were found to be diabetics, 42.6% were found to be hypertensive and 31.3% had history of smoking.

Conclusions

The result of our study suggests that the patients presenting without chest pain represents a substantial segment of myocardial infarction population. Age more than 60 years and female sex have more atypical presentation when compared to younger age group and male sex, respectively.

ACS patients with atypical symptoms like sweating, dyspnea, headache are warning symptoms and are often under-diagnosed and under-treated high risk group. Several clinical risk factors could be helpful in prediction of ACS in this group.

Health care providers should have more concerns about the presence of ACS in the patients who have these risk factors.

References

1. Journal of the American college of cardiology Volume 50, Issue 22, November 2007

2. Herrick JB. Clinical features of sudden obstruction of the coronary arteries. JAMA. 1912;59:2015-20

3. Rosenman RH, Friedman M, Straus R, Jenkins CD, Zyzanski SJ. Coronary heart disease in the Western Collaborative Group Study.A follow-up experience of 4 and one-half years. J Chronic Dis. 1970;23:173-90.

4. Kannel WB. Prevalence and clinical aspects of unrecognized myocardial infarction and sudden unexpected death. Circulation. 1987;75(3 pt 2):II4-5.

5. Medalie JH, Goldbourt U. Unrecognized myocardial infarction: five-year incidence, mortality, and risk factors. Ann Intern Med. 1976;84:526-31.

6. Yano K, MacLean CJ. The incidence and prognosis of unrecognized myocardial infarction in the Honolulu, Hawaii, Heart Program. Arch Intern Med. 1989;149:1528-32.

7. Sigurdsson E, Thorgeirsson G, Sigvaldason H, Sigfusson N. Prevalence of coronary heart disease in Icelandic men 1968-1986. The Reykjavik Study. Eur Heart J. 1993;14:584-91. Roseman MD. Painless myocardial infarction: a review of the literature and analysis of 220 cases. Ann Intern Med. 1954;41:1-

8. Margolis JR, Kannel WB, Feinleib M, Dawber TR, McNamara PM. Clinical features of unrecognized myocardial infarction-silent and symptomatic. Eighteen year follow-up: the Framingham study. Am J Cardiol. 1973;32:1-7.

9. Kannel WB, Abbott RD. Incidence and prognosis of unrecognized myocardial infarction. An update on the Framingham study. N Engl J Med. 1984;311:1144-7.

10. Cohn PF. Detection and prognosis of the asymptomatic patient with silent myocardial ischemia. Am J Cardiol. 1988;61:4B-6B.

11. Hedblad B, Juul-Moller S, Svensson K, Hanson BS, Isacsson SO, Janzon L, et al. Increased mortality in men with ST segment depression during 24 h ambulatory long-term ECG recording. Results from prospective population study "Men born in 1914," from Malmo, Sweden. Eur Heart J. 1989;10:149-58.

12. Kannel WB, Cupples LA, Gagnon DR. Incidence, precursors and prognosis of unrecognized myocardial infarction. AdvCardiol. 1990;37:202-14.

13. Bertolet BD, Hill JA. Unrecognized myocardial infarction. Cardiovasc Clin. 1989;20:173-82.