

INCIDENCE OF ATYPICAL PRESENTATION OF MYOCARDIAL INFARCTION

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ABSTRACT

Context: Chest pain is widely considered a key symptom in the diagnosis of myocardial infarction, although not all patients with MI present with chest pain.

Objectives: To determine the frequency with which MI patients present without chest pain and finding elements in the history of atypically presenting patients that may be helpful to the clinician in identifying atypical MI.

Design: Descriptive type of study.

Place and Duration of Study: The study was conducted for the duration of 3.5 months (16-07-07 to 30-10-07) in the CCU of a large Tertiary Care Hospital i.e. Holy Family Hospital of Rawalpindi District, attached with Rawalpindi Medical College.

Patients and Methods: We made a Proforma and filled it by direct interview, reading the remarks of the consultant about the patient written on the file, using the hospital lab results and by discussing the patient's file remarks with the medical officer on duty. We included the patients of MI admitted in the CCU that fulfilled our diagnostic criteria.

Results: Of all 125 patients diagnosed as having MI, 20.8% did not have chest pain on presentation to the hospital. Atypical presentation of MI was mostly among elderly and diabetic patients. Maximum number of MI patients presenting atypically were of age greater than 74 years (33.33%), with a higher proportion of men (69.23% vs 30.77%). Associated symptoms were more manifested in atypically presenting MI patients.

Conclusions: Our results suggest that patients without chest pain represent a substantial segment of the MI population. Patients with pain lasting for more than 1 hour, which is continuous, fullness sensation or pressure sensation or constricting in character located in epigastric, interscapular region or in jaw and neck should be 1st explored for an atypically presenting MI.

Key Words: Myocardial Infarction, Chest pain, Atypical Presentation.

INTRODUCTION

CHEST PAIN has been reported as the cardinal clinical feature among patients who present with MI.¹ WHO requires the presence of chest pain as one of the cornerstone features in its diagnosis of MI.² The Rapid Early Action for Coronary Treatment study, a randomized controlled clinical trial sponsored by the

National Institutes of Health, was designed in part to test the effect of educating the public about the symptoms of MI and the benefits of early MI treatment. This media campaign used as its hallmark feature the presence of chest pain.³ Although not all MI patients exhibit the classic symptoms of chest pain.⁴ MI patients without chest pain were significantly less likely to receive a timely ECG or reperfusion strategies. Patients who experienced MI without chest pain had more than a 2-fold increased risk of in-hospital death than MI patients who presented with chest pain, even after adjusting for differences in clinical presentation characteristics.⁵

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However, the natural history of atypically presenting MI patients has been poorly studied and the prognosis is not well established. Even mortality figures are difficult to find because such patients are usually excluded from standard mortality data as applied to ischaemic chest pain.⁶

Many cases of heart attack go undiagnosed even in the emergency department. This diagnostic error in the ER makes MI the single largest malpractice litigation-related medical condition.⁵ The lack of a definitive diagnosis can lead to inappropriate investigations and management with further anxiety and time lost from work.⁷

AIMS & OBJECTIVES

Identifying the signs and symptoms of acute MI is paramount for successful management and early treatment. Patients must realize that their symptoms may be consistent with cardiac disease and numerous reports have shown that patients may delay seeking care if they do not know that their symptoms may be consistent with MI. The problem is further compounded if patient believe that chest pain is necessary hallmark feature of MI.^{8,9} Earlier recognition of this fact may allow high-risk patient groups to consider presenting earlier to the medical establishment and medical professionals to identify such patients so that they may receive timely diagnostic and therapeutic interventions known to improve survival.¹⁰ So, basically our study is for keeping the community's and health professional's eyes open that MI patients may also present without chest pain(atypical presesntation). So, always be alert and don't exclude MI in patients on the basis of chest pain. Also there is a message for the health policy makers about importance of timely diagnostic and therapeutic interventions.

Objectives of study are

1. To estimate the frequency of atypical presentation of MI.
2. To determine if any association between atypical presentation of MI and variables like age and gender.
3. To determine if any association between atypical presentation of MI & site of infarction.

4. To identify the elements in the history of the atypically presenting MI patients that may be most helpful to the clinician in identifying MI in patients presenting without chest pain.

METHDOLOGY

Study Setting:

The study was conducted in the CCU of **Holy Family Hospital**, a teaching hospital of **Rawalpindi Medical College**.

Study Population:

The study was carried on MI patients admitted in CCU of Holy Family Hospital.

Duration of Study:

The study was conducted over a period of 3.5 months period [16-7-07 to 30-10-07].

Study Design:

Descriptive type of study.

Sample Size:

All the patient presenting with MI [filling our criteria] over the period of 3.5 months were taken as sample.

Sample Selection:

A-Inclusion Criteria:

We included all the patients that fulfilled our diagnostic criteria, given below

Diagnostic Criteria

- (a) MI was confirmed by ECG changes and/or cardiac enzymes
 - (i) Our criteria for ECG changes was as follow:
 1. ST-segment elevation of more than 2 mm.
 2. Pathological Q-Wave.
 3. Inverted or flattened T-Wave.
 - (ii) The CARDIAC ENZYMES included in the diagnostic criteria were CK-MB [value higher than 40 microns per milliliters]¹¹ and/or Troponin-T [+ve].
- (b) Our criteria for diagnosis of site of infarction was ECG leads.

B-Exclusion Criteria:

All patient with clinical symptom mimicking MI but having no ECG changes and no significantly raised CARDIAC ENZYMES were not included in the study.

Data collecting procedure:

Permission was taken from the concerning head of department before conducting study. Also consent was taken from the patients after ensuring them about the confidentiality of the data. We made a Performa and filled it by direct interview, reading the remarks of the consultant about the patient written on the file, using the hospital lab results and by discussing the patient's file remarks with the medical officer on duty.

Data Analysis Program:

We have not used complex biostatic calculations or softwares. We simply summed up our data and calculated the percentages of different modalities.

RESULTS

Of all the 125 patients diagnosed as having MI, in 26 (20.8%) patients chest pain was absent on presentation to the hospital. So, one fifth of MI patients presented without chest pain. According to our data, atypically presenting MI Patients are mostly elder. Maximum number of MI patients presenting atypically were of age greater than 74 years {33.33%}, followed by age group 45-54 years {25%}(Table 1).

AMI Presentation with respect to Age groups [Tab-1]

Age group	Typical patients	Atypical presentations
<34	5 {5.05%}	1{20%}
35-44	15 {15.15%}	2{13.3%}
45-54	36 {36.4%}	9{25%}
55-64	31 {31.3%}	6{19.35%}
65-74	26 {26.3%}	4{15.38%}
>74	12 {12.12%}	4{33.33%}

Out of 26 atypically presenting MI patients 69.23% were males and 30.77% were females. Among typical MI patients most common site of infarction was inferior wall 29.3% followed by anteroseptal wall 27.3% and extensive anterior 26.3%. Among atypically presenting MI patients the most common site of infarction was inferior wall 38.46%, followed by anteroseptal in 26.92% patients (Table 2).

Site of infarction [Tab-2]

Site of infarction	Among typical MI patients	Among patients presenting atypically
Anterior wall	6 {6.06%}	3 {11.54%}
Inferior wall	29 {29.3%}	10 {38.46%}
Lateral wall	1 {1%}	1 {3.84%}
Anteroseptal wall	27 {27.3%}	7 {26.92%}
Extensive anterior	26 {26.3%}	5 {19.23%}
High lateral	2 {2.02%}	
Anterolateral	3 {3%}	
Other combinations	5 {5.05%}	

Presenting symptoms [Tab-3]

Symptoms	Among typical MI patients	Among patients presenting atypically
Chest pain	99 {100%}	0
Dyspnea	73 {73.7%}	20 {76.92%}
Vomiting	42 {42.4%}	11 {42.31%}
Nausea	57 {57.6%}	15 {57.69%}
Syncope	24 {24.2%}	5 {19.23%}
Profuse Sweating	88 {88.8%}	24 {92.31%}
Palpitation	72 {72.7%}	16 {62.54%}
Vertigo	47 {47.5%}	12 {46.16%}

Character of pain [Tab-4]

Character	Among typical MI patients.	Among patients presenting atypically with pain
Constricting	58 {58.6%}	6 {35.30%}
Pressure sensation	14 {14.14%}	2 {11.76%}
Fullness	7 {7.07%}	5 {29.41%}
Any Others	20 {20.20%}	4 {23.53%}

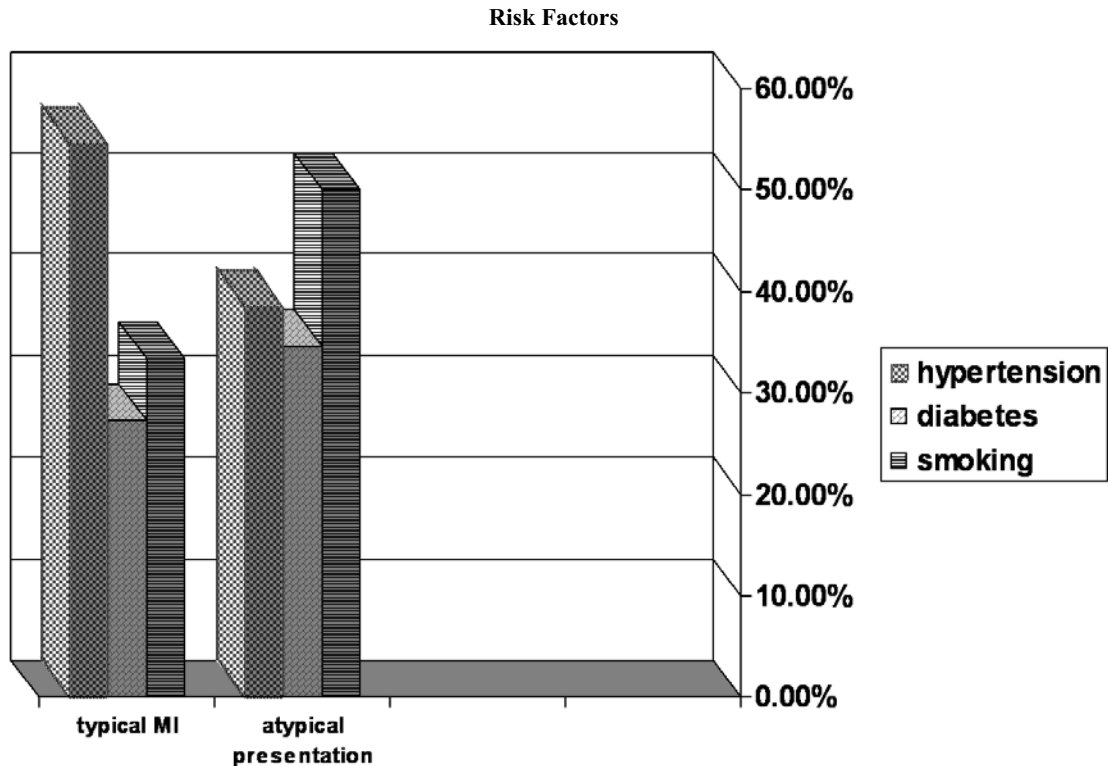
Risk Factors [Tab-5]

Risk factor	Among typically presenting patients	Among atypically presenting patients
Hypertension	54 {54.5%}	10 {38.5%}
Diabetes mellitus	27 {27.3%}	9 {34.62%}
Smoking	33 {33.3%}	13 {50%}

Among typical MI patients, 88.8% patients presented with diaphoresis followed by chest pain (100%), dyspnea (73.7%), palpitations (72.7%), nausea (57.6%), vertigo (47.5%), vomiting (42.4%) and syncope (23.2%) (Table 3). Among atypically presenting MI patients 92.31% patients presented with profuse sweating followed by dyspnea (76.92%), palpitation (62.54%), nausea (57.69%), vertigo (46.16%), vomiting (42.31%) and syncope (19.23%)(Table 3). 38.46% of atypically presenting MI patients presented with epigastric pain, 15.38% in interscapular region and 7.69% in jaw and neck.

15.38% patients presented only with the symptom of easy fatigability.

comparing it with atypically presenting MI patients, 38.5 % have Hypertension, 34.62% have Diabetes Mellitus and 50% gave history of Smoking.



Out of 26 atypically presenting MI patients, 65.38% have pain [other than chest] and 34.62% presented without pain. Also among these , course of pain in patients having pain is mostly continuous in 88.24% that percentage is almost equal to that of typical MI patients (88.79%). Character of pain in MI patients presenting atypically is most likely constricting type that is in 35.30% of patients followed by fullness in 29.41% and other types of pain {mostly pricking type} in 23.53% (Table 4).

In atypically presenting MI patients with pain, 94.12% of patients had the duration of pain more than one hour. The percentage was higher than the MI patients presenting typically (87.88%). Among atypically presenting MI patients with pain only 23.53% of patients gave the history of radiation where as in typical MI patients 84.48% of patients gave the history of radiation.

Looking into the risk factors (tab-5) present among typical MI patients, 54.5% have Hypertension, 27.3% have Diabetes Mellitus, 33.3% gave smoking history

DISCUSSION

K.N.Chowta has done study on somewhat similar topic by the name of “modes of presentation of acute myocardial infarction”.¹² He collected the data of 60 patients, out of 60 patients, 12(20%) presented with atypical symptoms. The maximum incidence of MI with atypical symptoms was in the age group of 65-74yr {30.7%}, followed by age group of 55-64yr {25%}. Patient experiencing MI without chest pain tended to be elder and were mostly women. Another research on somewhat similar topic has been done in United States. The topic was “prevalence, clinical characteristics & mortality among patients with MI presenting without chest pain”.¹³ In that they concluded that of all patients diagnosed as having MI, 33% did not have chest pain on presentation to the hospital. This group of atypical MI patients was, on average, 7 years older than those with chest pain (74.2 vs. 66.9 years), with a higher proportion of women (49.0% vs. 38.0%). But according to our study the incidence of atypical MI is 20.8%. We found atypical presentation of MI to be more

prevalent in age group above 74 years with higher proportion of males (69.23%) in contrast to females in above two studies. In context of age group, all of the above two studies & our study shows that atypical presentation of MI is more prevalent in elder age group. Research on the topic of "Acute myocardial infarction in elderly; differences compared with young patients" was done in Pakistan institute of medical sciences.¹⁴ A total of 150 consecutive patients presenting with MI in CCU were included in the study and found that Chest pain was the most common presentation. Atypical presentations were more likely in the elderly. Another similar topic published by the name of "prevalence of atypical chest pain description in a population from southern united states" by Summers R L.¹⁵ He concluded that in a total of 77 subjects (56% black; 44% white) meeting the study criteria, 43% were found to have atypical elements in the character of their CP descriptions. According to K.N.Chowta¹² most common site of infarction among atypically presenting MI patients is inferior wall (50%), we found similar results but according to us the percentage is 38.46% & according to us 2nd most common site is anteroseptal (26.92%) followed by extensive anterior (19.23%).

According to our study, out of 26 atypically presenting MI patients 17(65.38%) presented with pain (other than chest) and 9(34.62%) presented without pain. Most of the patients presenting without pain presented with easy fatigability. 10(38.46%) patients of atypical MI presentation, presented with epigastric pain, 4(15.38%) patient presented with pain in interscapular region and 2(7.69%) patients presented with pain in jaw and neck. The pain was mostly continuous (88.24%), duration was mostly more than 1 hour (94.12%), the character of pain was mostly constricting (35.30%) followed by fullness (29.41%) and pain was mostly non-radiating (23.53%). Among atypically presenting MI patients who presented with epigastric pain the character of pain was mostly fullness or pressure type and who presented with pain in interscapular or neck region was mostly constricting type. Smokers and Diabetic patients mostly presented atypically.

CONCLUSION

Atypical presentations were more likely to be in the

elder MI patients and males present atypically more than females. In atypical presentations most common site of infarction is inferior wall followed by anteroseptal wall. Associated features of MI were more common among atypically presenting MI patients. Patients with pain lasting for >1 hour, which is continuous, fullness sensation or pressure sensation or constricting in character located in epigastric, interscapular region or in jaw & neck should be 1st explored for MI. Also Smokers and Diabetics are more likely to present atypically. Additional studies are needed to prospectively and accurately identify MI patients without chest pain.

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