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PATIENTS WITH ACUTE MYOCARDIAL INFARCTION PRESENTING TO EMERGENCY ROOM WITH ATYPICAL SYMPTOMS

Cardiology

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ABSTRACT

Introduction: Chest pain is the most common presentation of acute coronary syndrome presenting to Emergency department. Few patients may present with atypical symptoms and pose a great challenge to the Emergency physicians. Diagnosis has to be made early since maximal mortality occurs within first few hours if treatment is not instituted early. A cross sectional study was conducted in our hospital to study the proportion of atypical symptoms in patients with acute coronary syndrome.

Methods: A cross sectional study was conducted in our hospital from August 2016 to September 2017. All patients aged >20 years presenting to Emergency department and fulfilling the following diagnostic criteria were included. The WHO diagnostic criteria were used for diagnosis of Acute coronary Syndrome(9). 1) Clinical history of Ischemic type of chest pain 2) Changes in serial ECG tracings a)ST-segment elevation of more than 1mm in 2 limb leads. b) ST-segment elevation of more than 2 mm in 2 or more contiguous chest leads. c) ST segment depression >0.5mm at J point in >2contiguous leads with positive troponin I. 3) Positive serum cardiac biomarkers (troponin I). The diagnosis was confirmed if 2 out of 3 above components were positive. ECG was done for all patients presenting to ER with symptoms suggestive of acute coronary syndrome. Cardiac enzymes were sent in patients with nonspecific ECG changes.

Results: 323 patients were included in our study. Out of which, 269 patients presented with typical chest pain symptoms and 54 (16.71%) patients presented with atypical chest pain symptoms . The incidence in male and female population was 44.4% and 55.5% respectively. The incidence of atypical symptoms increased with increasing age and was highest in the age group of 71-80 years.

Conclusion: It is crucial to consider acute coronary syndrome as a differential diagnosis in patients with atypical presentation and Emergency physicians should have a knowledge of various atypical presentations. As missed Myocardial infarction has dire consequences, continued efforts are required to reduce incidence, overall mortality and morbidity.

KEYWORDS

Atypical symptoms; Acute Coronary Syndrome; Atypical MI

INTRODUCTION:

Chest pain is the most common key presentation of acute coronary syndrome presenting to Emergency room(1). But few patients may present with atypical symptoms and pose a great challenge to Emergency physicians(2,3). Failing to consider acute coronary syndrome in patients with these atypical symptoms is a pitfall. Diagnosis has to be made early since maximal mortality occurs within first few hours if treatment is not instituted early(2,4,8). A cross-sectional study was conducted in our hospital to study the proportion of atypical symptoms in patients with acute coronary syndrome. Our objective was to emphasize the need for timely consideration of acute coronary syndrome as one of the differential diagnosis in patients presenting to Emergency department with atypical symptoms.

METHODS:

A cross-sectional study was conducted in our Institute on patients who presented to Emergency department with symptoms of acute coronary syndrome from August 2016 to September 2017. All patients aged >20 years presenting to Emergency department and fulfilling the following diagnostic criteria were included. Typical symptoms included substernal chest/pain discomfort with/ without radiation to left arm, neck or jaw. Any symptoms which fall short of typical features would constitute atypical chest pain. The WHO diagnostic criteria were used for diagnosis of Acute coronary syndrome(9).

1. Clinical history of ischemic type of chest pain
2. Changes in serial ECG tracings.

a) ST-segment elevation of more than 1mm in 2 limb leads.
b) ST-segment elevation of more than 2mm in 2 or more contiguous chest leads
c) ST segment depression >0.5mm at J point in >2 contiguous leads with positive troponin I.

3.Positive serum cardiac biomarkers (troponin I)

The diagnosis was confirmed if 2 out of 3 above component were positive. ECG was done for all patients presenting to ER with Symptoms suggestive of acute coronary syndrome. Cardiac enzymes were sent in patients with nonspecific ECG changes.

Statistical Methods Descriptive statistics of patient's characteristics and typical symptoms was analyzed and summarized in terms of percentage.

RESULTS:

323 patients were included in our study. Out of which, 269 patients presented with typical pain and 54(16.71%) patients presented with atypical symptoms. Twenty –four male patients and 30 female patients had atypical chest pain symptoms. The incidence in male and female population was 44.4% and 55.5% respectively. The incidence of atypical symptoms increased with increasing age and was highest in the age group of 71-80 years, with an incidence of 27.77%.

In patients with atypical symptoms, we found that 21 patients had diabetes. and 14 patients had hypertension. Various atypical symptoms included dyspnea, epigastric pain, palpitation, generalized weakness, nausea/vomiting, sweating. Jaw pain, syncope. Thirty-seven patients with STEMI and 17 patients with NSTEMI had atypical symptoms.

Table 1: Age distribution

Age in year's	Typical symptoms	Atypical symptoms
<30	3	---
31-40	8	---
41-50	34	5(9.2%)
51- 60	67	9(16.6%)
61-70	71	12 (22.2%)
71-80	47	15(27.77%)
>80	39	13(24%)
Total	**269(83.28%)**	**54(16.71%)**

Table2: Gender Distribution

Sex	Typical Symptoms	Atypical symptoms
Male	141	24 (44.4%)
Female	128	30(55.5%)
Total	269	54

Table 3: Distribution of risk factors

Risk factors	Typical Symptoms	Atypical symptoms
Hypertension	138(51%)	14(25.9%)

Diabetes	155(57.6%)	21(38.8%)
Total	269	54

Table 4: Various atypical symptoms

Atypical symptoms	No of patients	Percentage%
Dyspnea	21	38.8
Upper abdominal pain	11	20.37
Nausea/vomiting	4	7.4
Generalised weakness	4	7.4
Jaw pain	2	3.7
Syncope	3	5.5
Sweating	6	11.1
Palpitation	3	5.5

DISCUSSION:

Heberden was the first to describe typical symptoms of acute Myocardial infarction. Chest pain is the classic presenting feature of acute coronary syndromes. The World Health Organization requires the presence of chest pain as one of the main components for diagnosis of acute coronary syndrome(9). Acute coronary syndromes presenting with atypical symptoms are less likely to receive a timely ECG and further intervention. Despite diagnostic advances, missed acute Myocardial Infarction constitutes for 2-10% of all cases. These patients tend to have longer delays in diagnosis, treatment and therefore have an increased mortality rate(2,4,8). Atypical presentation of acute coronary syndromes is a significant independent predictor of in-hospital mortality(10). Myocardial infarction without chest pain had 23.3% in-hospital mortality rate as compared to 9.3% among patients with chest pain(2).

In our study the proportion of patients with atypical symptoms was 16.7%. Several studies have reported the incidence of a typical presentations between 4.7% to 33%(2,4-8,11,12). We found that the incidence is higher in women(55.5%) comparable with other studies(8,3,11). The incidence increased with age with highest incidence of 51.4% in patients aged >70years. According to Global registry of Acute coronary events (GRACE) and National Registry of Myocardial Infarction (NRMI)-2 incidence of atypical presentation was a high as 33% and 44% respectively in patients aged >75 years (2,4,13,17). According to Global Registry of Acute Coronary Events (GRACE) there was higher female proportion correlating to our study results.

We found dyspnea was the most common atypical presentation followed by epigastric pain. Various other atypical symptoms included Jaw pain, generalized weakness, syncope, sweating and palpitation. Several studies have shown that dyspnea is the most frequent symptom followed by gastrointestinal symptoms(4,11)

The incidence of atypical presentation was 38.8% in diabetics according to our study. In various other studies the incidence of diabetics presenting with atypical symptoms ranges from 35% to 47%(13-16). Various studies have concluded that diabetes is an independent predictor for the presence of silent MI (13-16).

The mechanism of atypical presentation is multifactorial. Diabetes may have a diminished awareness of ischemic pain which could result in atypical manifestation. This may be attributed to autonomic neuropathy and prolongation of the angina perpetual threshold. However, the importance of cardiac autonomic neuropathy in silent Myocardial infarction is still debated. Droste et al have described "defective warning system", an altered threshold to pain perception or other noxious stimuli to be related to silent infarcts(17).

Many studies have shown that the region of infarction is not associated with atypical manifestations, although patients with IWMI tend to often present with gastrointestinal symptoms than those with AWMI (3,18). In our study, 24 patients had inferior wall MI, 13 patients had anterior wall MI and 17 were diagnosed with NSTEMI. Epigastric pain was the common atypical symptom in IWMI and dyspnea was common in AWMI. NSTEMI patients presented with non-specific symptoms like generalized weakness, palpitation, syncope, sweating.

CONCLUSION:

The incidence of atypical presentation of acute coronary syndrome in Emergency department is high and accurate diagnosis remains a great challenge to the Emergency Physicians. Hence, it is crucial to consider acute coronary syndrome as a differential diagnosis in such patients and Emergency physicians should have knowledge of various atypical presentations. High index of suspicion especially in elderly with comorbidities helps in early detection and management. As missed Myocardial Infarction has dire consequences, continued efforts are required to reduce incidence, overall mortality and morbidity.

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