

MISPRESENTATION OF ACUTE MYOCARDIAL INFARCTION

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Summary

A total of 115 patients of acute myocardial infarction (AMI) seen personally over one year in 2 hospitals SBMCH Barisal and NICVD Dhaka were studied for mispresentation. Mean ages were more than 50 years in all groups except VII & VIII (Table-I I I). Sex distribution of misdiagnosis was not significant. 92 patients were referred from urban communities, of them only 14 patients (15.2%) were misdiagnosed but 10 patients (43.5%) out of 23 rural patients were misdiagnosed ($p < 0.01$). Out of 24 misdiagnosed patients 11 patients (45.8%) gave past history of initial provisional diagnosis & 13 patients (54.2%) had actual coincidence. Heavy smoking, diabetes and hypertension were the major risk factors among the misdiagnosed patients. 8 groups of patients were divided according to misdiagnosis. Of them peptic ulcer was the commonest and pneumonia and viral hepatitis were the rarest.

Introduction

In Bangladesh incidence of IHD is gradually increasing probably due to the fact that agriculture based socioeconomic structure is turning towards industry based setting. Most of the admitted patients of AMI in the hospitals are coming from urban communities. In the rural community IHD is rare due to their hardy life style, less rich diet, less competitive life and poorer socio-economic condition^{1,2} But exact statistics of our population suffering from IHD is not known. In our country primary health care is based on quack doctor (pally chikitshok) & due to lack of investigation facilities in the upazilla level a number of I. H. D patients are diagnosed even by qualified doctor as other common diseases.

The aim of this study is to increase awareness among general physicians regarding atypical presentations of AMI & help saving life of moribund patients of IHD.

Materials & Method

115 patients of AMI of this study were examined personally in SBMCH Barisal & NICVD Dhaka over a period of one year from February 1988 to January 1989.

For the selection of patient, patients' complaints, changes in serial ECG finding and elevation of AST level

were followed. But routine ECG diagnosis of AMI was considered essential as CK & LDH determination were not possible during the time of study. Misrepresentation of AMI means those atypical presentations of AMI which may lead a general physician to misdiagnose a case of AMI for other common diseases.

Every patient was interrogated thoroughly after proper diagnosis to know the initial provisional diagnosis of graduate general physician who attended initially. Diagnosis and treatment based on quacks were excluded from this study. Patients' all previous documents of treatment were scrutinized thoroughly. Patients symptoms and signs were analyzed thoroughly to understand the cause of misdiagnosis.

Diagnosis like heart attack, congestive heart failure, coronary thrombosis, I. H. D., A. M. I, cardiogenic shock, pulmonary oedema &/or relevant management of IHD were regarded as correct provisional diagnosis. Diagnosis &/or management Other than these were considered as misdiagnosis. Those patients admitted directly into the hospital without consultation with general physician and diagnosed correctly during admission were included within correct provisional diagnosis and those admitted as other disease &/or treated as other disease in hospital (SBMCH) were included in misdiagnosis group. Relationship between 'major risk factor'³ like heavy smoking, hypertension,

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diabetes mellitus and hypercholesterolemia with misrepresentation patient were studied to observe the importance of major risk factors for the diagnosis of confused presentation in the context of Bangladesh. Heavy smoking were defined as smoking more than 20 sticks/day over 10 years period. Barisal town, Dhaka city and Narayanganj town were considered as urban area. Patients referred from upazilla or village level were considered as rural area patients.

According to misdiagnosis and pattern of management by general physician, patients were divided into various groups. Age, sex, risk factor, past history, urban: rural (U:R) ratio of each group were compiled

in a tabulated form (Table-III). Groups were expressed in Roman letter.

Results

Of a total 115 patients interrogated for this study, 107 (93%) were male & 8 (7%) were female with age ranging from 28-78 years (mean 51.9 ± 11.32) & 40-80 years (54 ± 11.30) respectively. Initial provisional diagnosis and management of 85 (73.9%) males & 6 (5.3%) females were correct were as 22 males(19.1%) & 2 females (1.8%) were misdiagnosed.

In relation to total male and female patient, correct and misdiagnosis ratio between male & female did not differ significantly.

Table -I : Age, sex & diagnosis of the patient (n= 115)

Sex	No. of cases (%)	Age in years (mean \pm S.D) (%)	Correct diagnosis	Misdiagnosis (%)	P value
Male	107 (93%)	28-78 (51.9 ± 11.32)	85 (73.9)	22 (19.1)	
Female	8 (7%)	40-80 (54 ± 11.30)	6 (5.2)	2 (91.8)	

Out of 115 patients 92 (80%) were coming from urban communities and 23(20%) from rural communities. Out of 92 urban patients only 14 (15.2%) were misdiagnosed but out of 23 rural patients 10 (43.5%) were misdiagnosed (p <0.01) (Table-II) .

Table -II : Incidences of misdiagnosis in urban & rural communities.

	No. of cases refd (%)	No. of cases misdiagnosed (%)	P value
Urban	92/115 (80)	14/92 (15.2)	P<0.01
Rural	23/115/(20)	10/23 (43.5)	

Out of 24 misdiagnosed cases 5 (20.8%) cases were diagnosed as acute exacerbation of chronic peptic ulcer, another 5 (20.8%) cases were diagnosed as bronchial asthma, 4 (16.7%) cases as CVD, 3 (12.5%) cases as hiccough with chronic peptic ulcer, (12.5%) cases as cervical spondylitis, 2(8.3%) as low pressure, one (4.2%) case as pneumonia and another one (4.2%) case as chronic peptic ulcer with viral hepatitis with pre-coma (Fig-1). Out of 24 misdiagnosed patients

11(54.8%) patients gave past history of initial provisional diagnosis and 13 (54.2%) patients had actual coincidence (Fig-1) .

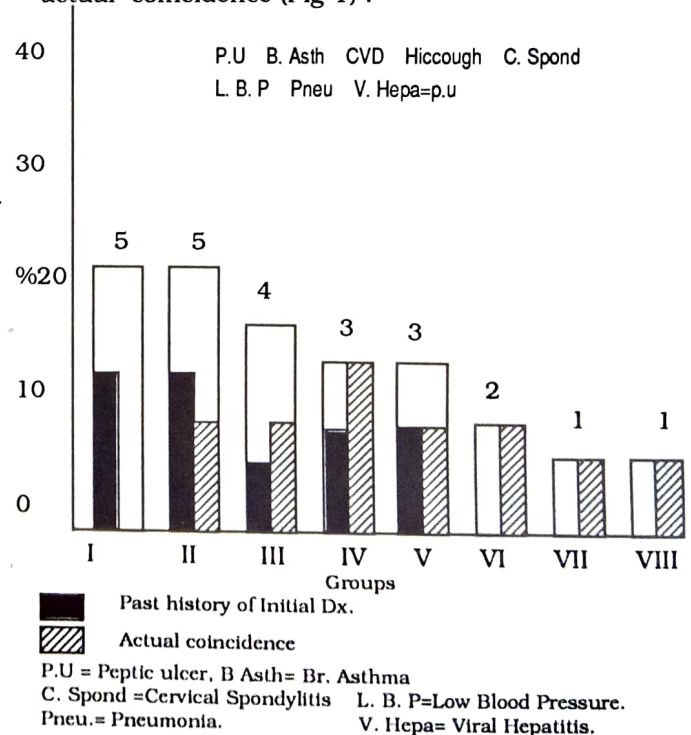
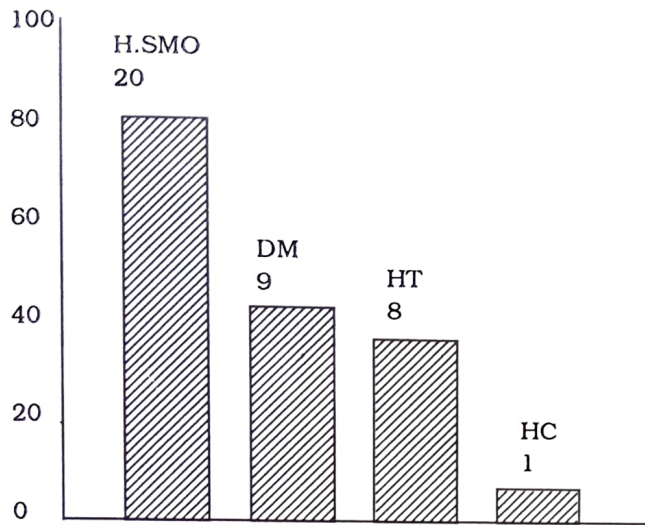


Fig-I : Distribution of Mispresented cases with past history and coincidence of initial diagnosis. n=24

Every patient had at least one major risk factor. Of them heavy smoking was the commonest and hypercholesterolemia was the rarest. Out of 24 patient 20 (83.3%) were heavy smokers, 9 (37.5%) were diabetic, 8 (33.3%) were hypertensive & 1 (4.2%) had hypercholesterolemia (Fig-2).



Risk Factors

H. SMO= Heavy Smoker. (83.3%)

DM= Diabetes Mellitus (37.5%)

HT= Hypertension (33.3%)

HC=Hypercholesterolaemia (4.2%)

Fig-2 : Distribution of major risk factors in misrepresented. (n=24).

In short incidence of initial diagnosis clarification point and actual diagnosis were described as group in (Table-III).

Discussion

It was observed that 23 AMI patients came from rural communities but of them 43.5% patients were misdiagnosed by upazilla level graduate physician (P<0.01) (Table-II) . This may be due to the fact that our rural people are less conscious about the importance of chest pain and they give more emphasis over other associated problems like abdominal pain, respiratory distress, vertigo, vomiting , hiccough etc and our rural physicians might become less oriented about atypical presentations of ischemic heart disease and still ECG is not available at upazilla level.

From mean ages of all groups of patient (Table-III except VII & VIII) it could be deduced that elderly groups of patients (more than 40 years) were more misrepresented and misdiagnosed than younger groups.

Radiation of pain is one of the important cause of misdiagnosis. 11 (45.8%) patients were misdiagnosed for radiating pain (Table -III Group-I, II, V & VIII). When pain is referred, it is usually to a structure that developed from same embryonic segment or dermatome. But sites of reference are not stereotyped and unusual reference sites occur with considerable frequency. Heart pain may be purely abdominal, the right arm or may be even referred to the back or neck⁴ (Fig-3). Theory of convergence explained that somatic and visceral afferents converge on the spinothalamic neurons (Fig-4).

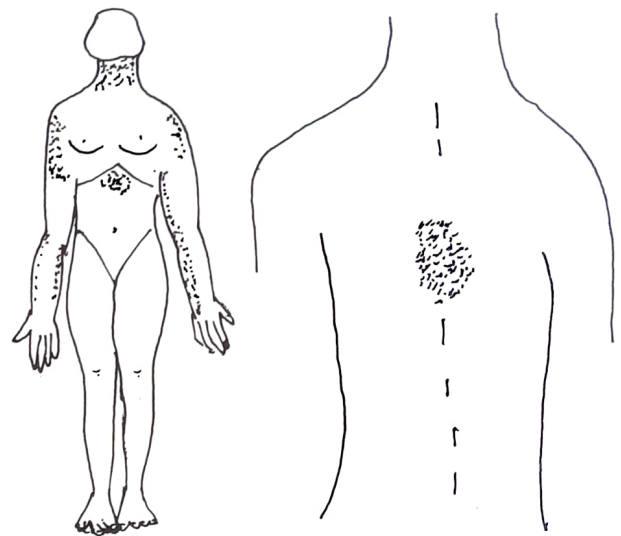


Fig- 3 : Dotted place indicates misrepresented site of Ischemic cardiac pain

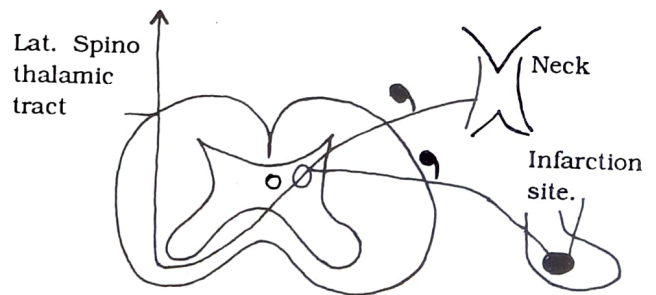


Fig-4 : Theory of convergence

Since somatic pain and dyspepsia are much more common than cardiac pain, the brain has learned that activity arriving in a given pathway is caused by a pain stimulus in a particular somatic area or past known common dyspeptic area. Past experience does play an important role in referred pain⁴. So, ECG is essential in

Table -III : Distribution of groups of misrepresented patient

Groups	No. of cases (%) (Mean age \pm SD) Sex.	Initial Provisional Dx	Clarification point	Actual Dx
I.	5(20.8%) (25.6 \pm 5.1) M:F= 4:1	Acute Exacerbation of chronic peptic ulcer	Upper abdominal pain was the main cause.	AMI (ANT) -1(4.2%) AMI (INF) -4 (16.7%)
II	5(20.8%) (54 \pm 133.9) M: F=5:0	Bronchial Asthma	Respiratory distress or the main cause.	AMI(ANT with LVF-3 (12.5%) With B.Asthma-2(8.3%) V.F-1(4.2%)
III	4(16.7%) (59.5 \pm 9.9) M: F \pm 3:1	CVD	Unconsciousness was the main cause	AMI (ANT) with S. Adams syndrome -2 (8.3%) AMI (ANT) with CVD - 2(8.3%) H.B -2(8.3%) VES -1(4.2%) SVT-1(4.2%)
IV	3(12.5%) (60.3 \pm 3.7) M:F=3:0	Hiccough with P.U.	Bl. Urea 22-33mg/ dl(27.3 \pm 4.5) Hiccough & Upper Ab. Pain radiation draws more attention.	AMI (INF) -3(12.5%) with Hiccough.
V.	3(12.5%) (53.3 \pm 4.7) M:F=3:0	Cervical Spondylitis	X-ray cervical Spine-showed C. Spondylitis -2 (8.3%) Radiation pain to neck misled	AMI (ANT) with C. Spond. -2 (8.3%) AMI (INF & Post wall) -1 (4.2%)
VI	2 (8.3%) (67.5 \pm 7.5) M:F \pm 2:0	"Low Blood Pressure" Hypotension	Fall of B. P. with weakness and vomiting diverted physicians eye from chest discomfort.	AMI (ANI) -1(4.2%) AMI (INF) -1(4.2%)
VII	1 (4.2%) 50+0) M:F=1:0	Pneumonia	Fever (39 $^{\circ}$ C-40 $^{\circ}$ C) Cough and chest pain might be explained as pneumonia.	AMI (ANT) with broncho pneumonia
VIII	1 (4.2%) 28+0) M:F \pm 1:0	Viral hepatitis with P.U. with precoma and admitted 1st in DMCH.	From DMCH to NICVD as VT. mf/dl HBsAg+Ve	AMI (ANT) (Subendo sustained VT Hepatitis Type-B

those patient who have at least one major risk factor with pain in the referred region, not responding to usual therapy or when the cause of pain is obscure.

Respiratory distress with ronchi misled the physician although all patients described chest pain. In left ventricular failure interstitial oedema leads to mucosal oedema that narrows airway lumina, the expiratory phase increases and is accompanied by high pitched expiratory ronchi called cardiac wheezes⁵. Therefore respiratory distress, rhonchi and wheezes are the early features of left ventricular failure. These are followed by alveolar oedema unilaterally appearing as fine to medium creps over the right base, then the left base becomes involved and creps ascend over the lung field⁶. As bronchial asthma is more common in day to day practice and 3 out of 5 had past history bronchial asthma & 2 had actual coincidence were our physicians.

Hiccough is a troublesome feature associated with inferior wall infarction. Two were treated as chronic peptic ulcer as they gave past history of peptic ulcer. Blood urea levels were normal in all the cases. Hiccough persisted with all efforts like sublingual GTN. Inj. atropine, hysomide, prochlorperazine, metochlopramide therapy, but disappeared gradually 7-10 days after when acute infarction subsided.

The incidence of stroke (CVD) complicating acute myocardial infarction in the hospital ranged from 1% to 8.6% with a median value 3% reported by Komrad et al⁷ in 1984 & in his study stroke occurred in 2.4% patients of AMI in the hospital. Clinical and pathological data suggested an embolic etiology for most stroke that complicated acute myocardial infarction, other important causes were hypotension and cerebral artery thrombosis. Unconscious patients failed to express their complaints of chest pain and thereby without routine ECG of unconscious patient a number of patients with acute myocardial infarction might be missed. In this series all the 4 patients had irregular pulses which gave a guide for ECG and subsequently it was proved that not all fainting attacks in AMI were due to CVD as 2 of them had Stokes-Adam syndrome. Both of them survived owing to temporary pace-making in NICVD, Dhaka. Other causes of fainting attack in AMI were severe chest pain, sudden fall of blood pressure and transient ventricular arrhythmia⁹. These conditions were not found as misrepresentation in this study. Painless or less painful infarction is higher in diabetic, elderly, hypertensive, psychiatric and aphasic patient. Unexplained sudden drop in arterial blood pressure and sensation of extreme weakness are important symptoms in these groups of patient¹⁰.

In this study 2 patients of hypotension were aged, smoker and hypertensive, one had diabetes. They were not truly painless but their chest discomfort might be ignored by their physician.

Pneumonia & viral hepatitis were two uncommon coincidence. Misdiagnosis may be usual when patients did not express the symptoms correctly.

Conclusion

1. It is essential to supply an ECG machine to each upazilla health complex.
2. It is essential to arrange cardiac care program for proper orientation of the physicians.
3. It is essential to create awareness among the general public by a nation wide program.
4. Diabetics, heavy smokers & or hypertensive patients with pain in 1) chest, 2) upper abdomen, 3) upper limb, 4) neck, or 5) back ; respiratory distress; fainting attacks; hiccough of unknown cause; hypotension with sweating; vertigo; vomiting or profound weakness in the elderly should lead many physician to consider the possibility of IHD.

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