Study of Clinical Profile of Patients With Acute Myocardial Infarction in A Tertiary Care Hospital Attached With A Medical College

Pharmacology

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ABSTRACT   *Acute Myocardial Infarction (AMI) is the most important form of CHD. AMI has rapidly emerged as leading cause of increasing morbidity and mortality despite of better detection and management. So this study was conducted to study whole clinical profile of 100 AMI patients admitted in ICCU for one year. AMI is most common in elderly (> 60 years) and in males (82%). Tobacco chewing was found as most common risk factor (41%) and positive family history was found in 22%. Chest pain (95%) followed by perspiration were presenting symptoms. Anterior wall MI was found in majority of patients (61%) followed by Inferior wall MI, Fully evolved MI and others. Arrythmias were most common complication found and mortality was found in 10% patients. So incidence of MI can be decreased by decreasing this risk factor by creating awareness about hazards of tobacco amongst general population and proper management.*

Introduction

Acute Myocardial Infarction (AMI) is the most important form of *CHD*. It continues to be the leading cause of death in developing countries like India, despite spectacular progress in their prevention, detection and treatment over the last three decades. *AMI* has rapidly emerged as the major contributor towards increasing morbidity and mortality[1].

Despite impressive strides in diagnosis and management over the past three decades, acute myocardial infarction (AMI) continues to be a major public health problem in the industrialized world and is becoming an increasingly important problem in developing countries [2] .

Therefore this study was designed to determine risk factors, the clinical demographic profile, patient characteristics, complications, management and outcome of 100 patients admitted in ICCU with an Acute myocardial infarction.

Aims and Objectives

Aim :
To study the clinical profile of acute MI patients

Objectives :
To study :
The symptoms, various modes of presentation in Acute Myocardial Infarction (MI) patients

Clinico-epidemiological profile of patients with Acute MI

ECG changes and myocardial wall involvement in patients with acute MI

Risk factors associated with MI

Complications and Outcome of patients with MI

Materials and Methods

The study was carried out by Department of Pharmacology in association with Department of Medicine in Guru gobindsing Govt. Hospital attached with Shri M.P. Shah Govt. Medical College on patients with Acute Myocardial Infarction.

Prior permission of the medical superintendent of Government Hospital, Institutional Ethical Committee and Head of Medicine Department was obtained for conducting the study.

This was a prospective, non interventional, single centre, observational study. Study was conducted on the patients of ST elevation myocardial infarction admitted in ICCU over a period of 12 months from September 2014 to August 2015.The study was carried out over total 100 patients. The data was collected from the case papers of patient and the details were noted down in the case record form and were analyzed further under various heads.

Patient selection

Inclusion criteria:
A. Patient with age group of $\geq$ 30 years & of either sex diagnosed as Acute Myocardial Infarction evidenced by History, ECG, Elevated cardiac specific markers, 2D Echocardiography.

Exclusion criteria

Patients with other major systemic disease.

Patients with the age of less than 30 years

Individuals with

Rheumatic disease, vasculitis syndrome, inflammatory bowel disease, chronic liver diseases, chronic renal disorders, cancer, sepsis

Observation and Results

1) Age wise distribution:
In present study there is linear increase in incidence of MI with increasing age. Only 1 % was below 40 years of age, while 45 % were above 60 years of age, 17 % were between 40 to 49 years of age and 37 % between 50 to 59 years of age (Figure 1).

The incidence rises with age but there is sharp rise after the age of 60 years.

**Figure : 1 Age wise distribution of 100 acute MI patients**
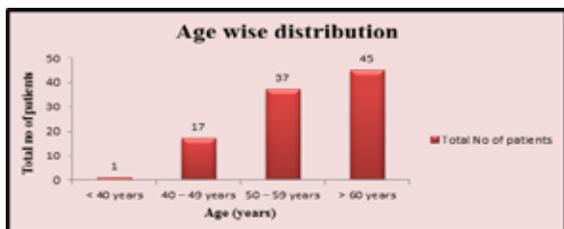
(2) Sex wise distribution:
In our study from total 100 acute MI patients 82 were males and only 18 were females. Our study results showed very high incidence of MI amongst male gender.

From 82 male patients of acute MI 1was <40 years of age, 15 were between 40 to 49 yrs of age, 34 were between 50 to 59 years and 32 patients were of > 60 years of age. From 18 females 2, 3 and 13 patients were in the age group of 40-49 years, 50-59 years and > 60 years respectively (Figure -2).

Figure : 2 Sex wise distribution (in age groups) of 100 acute MI patients
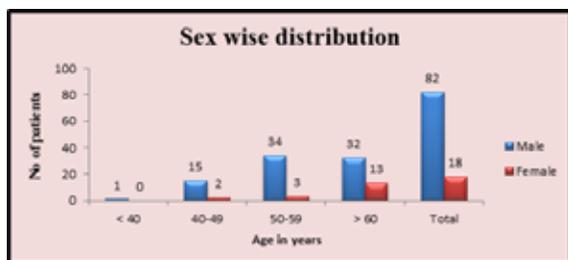

(3) Religion of patients in present study:
In the present study major proportion of patients were HINDU i.e. 83% while 15 % were MUSLIMS and OTHERS were only 2%.

(4) Incidence of symptoms in present study:
The above table shows that in present study majority of patients i.e 95% presented with typical chest pain of acute myocardial infarction, while 81% were having perspiration, 65% presented with palpitation, 45% presented with nausea/ vomiting, 36% presented with giddiness, 21% presented with breathlessness while 7% presented with other symptoms (drowsiness, unconsciousness, etc) (Figure -3).

Figure – 3: Incidence of symptoms in present study
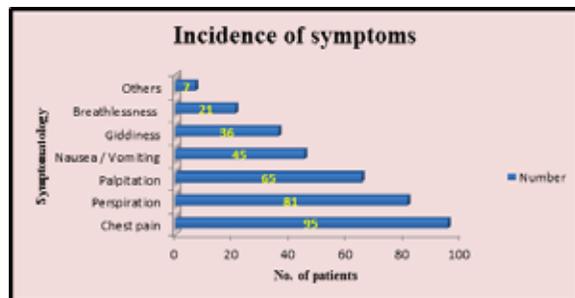
(5) Family history and its correlation with MI:
In our study from total 100 patients of acute MI 22 (22%) patients had positive family history for such disease (Figure – 4).
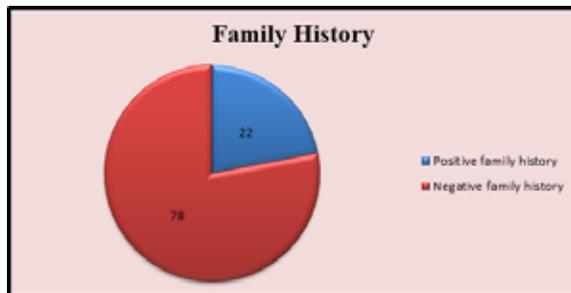

Figure – 4: Family history and its correlation with MI

(6) Incidence of risk factors:
In the present study major risk factor was tobacco chewing (41%) and smoking (38%) followed by hypertension (21%), DM (11%), IHD (4%), Alcohol consumption (4%) and others (3%) (Table - 1).

Table – 1 Risk factors

Risk factors	No.of patients	Percentage (%)
Tobacco	41	41 %
Smoking	38	38 %
Hypertension	21	21 %
Diabetes mellitus	11	11%
IHD	04	04%
Alcohol	04	04%
Others	03	03%

(7) Myocardial wall involvement in present study:
In present study majority of patients presented with anterior wall MI (61%), in which 05% patients were of extensive anterior wall, 04 % were of anteroseptal wall and 01% anterolateral wall. While 16 % presented with inferior wall MI, 09% patients were of fully evolved MI, 06 % presented with right ventricular wall MI. 05% patients presented with both Inferior and posterior wall MI while 03% had only posterior wall MI (Table - 2).

Table – 2 : Myocardial wall involvement

Myocardial wall	Number	Percentage
Anterior wall	61	61 %
a. Extensive Ant.wall	05	05 %
b. Anteroseptal wall	04	04 %
c. Anterolateral wall	01	01 %
Inferior wall	16	16 %
Fully evolved MI	09	09%
Right ventricular wall	06	06 %
Inferior& posterior wall	05	05 %
Posterior wall	03	03%

(8) Incidence of complications in present study:
In present study majority of patients i.e. 12% were having cardiac arrhythmia in form of VPCs, ventricular bigeminy and Accelerated idioventricular rhythm. While 08% had cardiogenic shock, 05% presented with left ventricular failure, and 04 % heart block (Figure - 5).

Figure – 5: Incidence of complications:
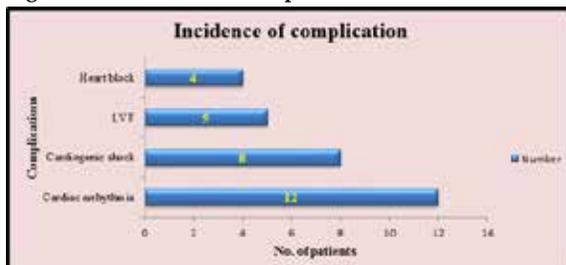
(9) Outcome of patients:
In present study 10 % patients expired. So incidence of mortality due to AMI found was 10%

(10)　　Incidence of complications leading to mortality:
In present study maximum mortality – 62.5% of complication leading to mortality is attributed to cardiac arrythmias. Other complications leading to mortality are cardiogenic shock and heart block i.e. 25% both (Table - 3).

Table – 3: Incidence of complications leading to mortality

Complications	Number	Mortality	Percentage
Cardiac arrhythmia	08	05	62.5 %
Cardiogenic shock	12	03	25 %
CHB	04	01	25%

Discussion
Acute Myocardial Infarction is a most common cardiovascular emergency seen in medical emergency ward and it has become the leading cause of death due to cardiovascular disease in India.

Age and Sex distribution :
In our study of 100 acute MI patients maximum number of patients were in the age group of >60 years. This result is similar to the result of study done by Greenland et al[3] in which the mean age obtained was > 60 years. This result shows that incidence of MI increases with increased age.

82% patients were male and 18% were female in present study. This results are very much comparable to the results of study done by Moterrab AL et al[4] and Panduranga P et al[5] in which the male : female ratio of MI patients was 83:17 and 89 : 11 respectively. 67% male patients and 33% female patients were studied in another study done by Leonardo AM et al[6].

In all these studies including our study total number of male patients were much more higher than female patients of MI. As evident from these observations it can be said that ischemic heart disease and especially MI is more prevalent in males than in females.

For sex distribution in various age groups results of our study is compared with that of the study done by Deshpande JD et al[7]. In another study done by Malacrida R et al[8] similar distribution was obtained for age and sex.

In all the above mentioned studies, incidence in females increased in the post-menopausal age group which is consistent with our present study. In males the coronary risk is more as compared to premenopausal females. After menopause the coronary risk accelerates in females. This apparent protection in premenopausal females seems to derive from their relatively higher HDLC and to some extent from the protective role of Estrogen[9].

Incidence of symptoms :
Chest pain (95%) remains the hallmark symptoms in all the studies of AMI. This is followed by other symptoms like perspiration, palpitation and nausea/vomiting. Incidence of others symptoms like giddiness, unconsciousness and other symptoms were less common.

Our study result for symptomatology matches with the study done by Sahni et al[10] in which chest pain was found in maximum patients i.e. 80%. This study was done in female patients. Another study done by Bhatia LC et al[11] showed that chest pain was most common presenting symptom in 78% of total patients.

Family history and its correlation :
We obtained total 22% patients with positive family history in present study which is comparable to studies done by Leonardo AM et al (19%)[6] and Deshpande JD et al (37%) [7].

Risk factors and its Association :
From risk factors for MI the risk factors which we evaluated for were tobacco chewing, smoking, diabetes mellitus, IHD, alcohol etc. From these all in present study we found maximum number of patients 41% were tobacco chewers followed by others like smoking and hypertension.

It was found to be the most common risk factor in our study because in this area tobacco chewing in the form of masala, mava, guthkha and pan is very common. Tobacco was found as risk factor in 39% patients in Panduranga P et al[5] and 19% patients in Deshpande et al[7] studies.

Smoking was second most common accounting for 38% patients in our study. In panduranga P et al[5] it was 50%. Other studies like Deshpande et al[7], Greenland et al[3], Motarreb AL et al[12] and Leonardo AM et al[6] smoking was found as risk factor in 48%, 19%, 50% and 56% respectively.

In our study hypertension was observed as a risk factor in 21% of total 100 patients. It was followed by Diabetes mellitus in 11% patients. In panduranga et at[5] HT and DM were 33% and 28% respectively. Previous history of IHD was found as in 4% patients in present study which is comparable to study done by Panduranga P et al[5] in which it was 7%

Myocardial wall involvement and location of infarction :.
In present study as well as in all other studies incidence of anterior wall MI was highest flowed by inferior wall MI. Incidence of anterior wall MI in our study is 61% which is comparable to study done by Moterrab AL et al[4] all in which it was found in 65% of total patients. In Panduranga P et al[5] and in Greenland et al[3] incidence of anterior wall MI was found maximum i.e. 54% and 44% respectively.

Incidence of Inferior wall MI was 16% in our study and it is comparable to study done by Panduranga P et al[5] in which it was 19%. Inferior wall and posterior wall MI together was found in 5% of patients in present study which is comparable to the incidence of Panduranga P et al study i.e. 7%.

Complications associated with MI:
In our study and all other studies the complications observed were cardiac arrhythmias, cardiogenic shock, left ventricular failure, heart block etc.

In present study maximum incidence was of Arrhythmias i.e.12% and minimum incidence was of Heart block i.e. 4%. It is in contrast to the study done by Leonardo et al[6] in which arrhythmias were found in 27% of patients and maximum incidence of complication found was heart block i.e 30%.

Outcome of patients :
In our study in hospital mortality rate fount was 10% which is similar to studies done by Motarrebet AL[4] in which mortality rate was 9.1% and Sahni et al[10] in which it was 11%. Mortality can be due to disease itself or due to complications like cardiac arrhythmias, heart block or cardiogenic shock.

Conclusion

So from our study we can conclude that acute myocardial infarction is most common in elderly and in males. Family history plays an important role in myocardial infarction. From the common risk factors for MI e.g. hypertension, smoking, diabetes mellitus, tobacco chewing, alcohol etc tobacco chewing was found as most common risk factor in present study, so incidence of MI can be decreased by decreasing this risk factor by creating awareness about hazards of tobacco amongst general population. With the study of ECG findings we conclude that anterior wall myocardial infarction was in majority of patients followed by Inferior wall MI, Fully evolved MI and others. Mortality was found 10% in our study which could be due to disease itself or due to complications i.e. cardiac arrythmias, Cardiogenic shock, LVF and heart block. Proper management with thrombolysis and appropriate drugs decreases the mortality rates of MI patients.

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