

Clinical Profile of Acute Myocardial Infraction in Elderly



Medical Science

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ABSTRACT

Clinical Profile of Acute Myocardial Infraction In Elderly [Case Control Study]

Introduction, Heart disease is leading cause of hospitalization and death in elderly patient. The manifestation of acute myocardial infraction is believed to be atypical in elderly.

Materials and methods, This is randomized prospective study carried out at ICCU department of medicine at our tertiary care hospital during January 2007 to august 2007.

Observation, There was a significant difference of Myocardial Infarction between elderly and other patients in terms of presenting features, complications and mortality.

Discussion, The mean age of presentation in less than 65 years of age is about 45 years while in case of more than 65 years is about 72.5 years. There is significant death rate increase in patient of elderly age group as compare to that of younger age.

Introduction

Heart disease is leading cause of hospitalization and death in elderly patient. The manifestation of acute myocardial infraction is believed to be atypical in elderly. Still mode of presentation with acute retro-sternal chest pain with other related typical symptoms are common in aged also but fair percentage of patient presents with confusional state with, atypical chest pain with unconsciousness¹. Impaired performance is not only the consequence of advanced age but also results from various combination of more or less apparent cardiovascular or non cardiovascular risk factors like diabetes, heart failure, and hypertension². Elderly are more refractory to medical therapy because of advanced atherosclerotic disease and ventricular dysfunction. Management in first 24 hrs is having great importance because it affects on improvement of survival in elderly patient. Since elderly patient with acute myocardial infraction is differ from that of young patient it requires great attention and perfect understanding. It will help to reduce mortality and morbidity.

Materials and methods

This is randomized prospective study carried out at ICCU department of medicine at our tertiary care hospital during January 2007 to August 2007. The aims and objective of the study was to know the clinical profile of AMI in elderly; compare incidence of atypical presentation of elderly patient in AMI with more than 65 years old patients (Case); to study and evaluate complication in medical management of AMI in elderly & to compare outcome of elderly patient with AMI with <65 years old patient (Control). Total of 200 patients included in this study, out of which 100 were under age of 65 and another 100 were more than 65 years of age.

Inclusion criteria

1. Typical symptoms
2. Typical pattern of ECG [ST segment elevation of more than or equal to 0.1 mv at least two consecutive leads or fresh left bundle branch block]
3. Elevated enzyme levels

Exclusion criteria

1. Subject with unstable or stable angina were excluded Patients were analyzed on basis of clinical history, mode of presentation, presenting symptoms, base line electrocardiogram. The patients were kept in two different groups according to their age one more than 65 years of age (Case Group) and another with less than 65 years of age (Control Group). They both were observed during their in hospital stay and their one month follow up.

Observations

Two main age groups were studied one more than 65 years of age (Case Group) another of less than 65 years of age (Control

Group). The mean age of the control was 45 yrs and of cases were 72.5 yrs. Male were 75 & 70; females were 25 & 30 respectively. The presenting symptoms and risk factors were noted. (Table 1, 2).

Table 1. Incidence of frequency of presenting symptoms of acute myocardial infarction

Sr no.	symptoms	Control	Case	P value
1	Typical chest pain	83	49	<0.01
2	Atypical chest pain	13	28	<0.01
3	No chest pain	4	24	<0.01
4	Sweating	46	46	>0.05
5	Nausea/vomiting	18	37	>0.05
6	dyspnoea	20	25	>0.05
7	Giddiness	10	25	<0.05
8	Syncope	5	12	>0.05
9	palpitation	5	6	>0.05
10	Altered sensorium	2	5	>0.05
11	Abdominal pain	0	4	>0.05
12	Focal neurological damage	1	3	>0.05

Table 2. Comparison of risk factor of myocardial infarction in both age groups

Risk factor	Control	Case
Hypertension	30	39
Diabetes mellitus	14	20
Smoking	46	48
Alcoholism	25	22
Obesity	26	35
Family history	21	20
Life style{sedentary}	20	50
History of previous MI	12	22
No risk factor	14	

All the parameters and treatment given was noted. The complications during the stay were noted.

Table 3. Complication of myocardial infarction during in hospital stay

Complication	Control	Case
Congestive cardiac failure	46	60
Cardiogenic shock	2	20
Reinfarction	2	4
Cardiac arrest	5	9
Arrhythmias	37	57
Post MI angina	10	12
Cerebrovascular episode	0	3
Bleeding complication	1	5
Death	10	31

Discussion

Two main age groups were studied one more than 65 years of age another of less than 65 years of age. This study suggestive there is definite increase in female patient as the age increase. Sex distribution is been main stay of concern in recent time it is because of life style , personal habit , stress , work load and many more things are being different in both of this groups as in case of female postmenopausal age is more important risk factor as well.

Sex distribution in my study in cases is about 70 male and 30 female and in control it is about 75 male and 25 female in case group. It is been shown that sex ration is decreasing with the increasing age which is correlating with other studies.³

Obesity, family history, life style , smoking, alcoholism, in both the age prime risk factor being smoking and alcoholism and in elderly significantly increasing risk factor being life style and obesity both of this risk factor are associated with each other .

It is being shown that only sedentary life style being more affecting in elderly age groups with other risk factor are comparatively affecting at same level to both the age groups. Significant value ($< .01$) is only in elderly. Study suggestive of Obesity (defined by a body mass index of more than 30 kg/m^2 , or alternatively by waist circumference or waist-hip ratio) being more affecting in elderly age groups with other risk factor are comparatively affecting at same level to both the age groups³. Many of these risk factors are modifiable; so many heart attacks can be prevented by maintaining a healthier lifestyle. Physical activity, for example, is associated with a lower risk profile. Non-modifiable risk factors include age, gender, and family history of an early heart attack (before the age of 60), which is reflecting a genetic predisposition.^{4,5}

Presenting symptoms of chest pain were classified typical and all other symptoms as atypical, while asymptomatic was classified as silent. Chest pain was the most common presenting symptom in both age groups, but more likely in the young than elderly patients atypical presenting symptoms were more likely in the elderly than young patients. In above mentioned study out of 100 controls 83 were presented with typical symptoms while in cases it is about 49 only & atypical chest pain as well as no chest pain having significant value of <0.01 is strongly suggestive of the fact that with increasing age there is decrease in typical chest pain and patient presents with atypical symptoms and either no chest pain. Jonathan Skinner et al³ conducted study with 1220 patient with both the age groups and it is suggestive of definite decline in typical presentation in elderly age group with acute myocardial infarction .

As in elderly age groups there are more chance of atypical presentation in myocardial infarction the presenting time would be differ in both the case in control presented with in 12 hours^{3,4,5}. Some of social factor like negligence of elderly age group people is also responsible for this late presentation of patient to medical emergency ward and this in turn increase the mortality as well as morbidity of patient presenting in elderly age groups².

There was no difference between the two age groups with regard to presentation within 12 hours from onset of symptoms (67.9% vs 59.4%; $p=0.13$). This was also true when only Q-wave MI patients were considered (30.6% vs 39.6%; $p=0.18$). The above mentioned study suggestive of there is no late presentation in patient of elderly age groups there is increase rate of arrhythmia in elderly age group of patients as in less than 65 year old patient total arrhythmia is about 37 and in elderly our of 100 it is around 57 patient presented with arrhythmia. Also various type of arrhythmia like ventricular premature contractions (VPC), atrial fibrillation, Ventricular tachycardias are more common with elderly age group⁶ In our study p value is significant for total arrhythmia, AV block, and atrial fibrillation. ($p < 0.05$). (Table 3)

There is increase chance of patient presenting with pulmonary edema and left ventricular failure as suggested that out of 100 in control 46 presented with failure and out of 100 , 60 were presented with pulmonary edema in cases. (Table 4). It is because of structural and physiological changes that occur in cases as well as refractoriness to the treatment given and also presenting time is also important to this complication as some patient with myocardial infarction present with Cardiogenic shock and also having Killips class IV failure. The same pattern seen with other studies also.^{7,8}

In control out of 100 patient 61 cases were thrombolysed and 23 were only heparinized and 16 were only got supportive treatment. Cases it is about 46 get thrombolysed; 34 were only heparinized and 20 get only supportive treatment. This data suggest that there is increasing trends for thrombolysis of elderly patient in medical emergency ward. As data suggest that there is decrease rate of death in cases who has been thrombolysed after presented with AMI. p value is significant for above mentioned data for only decrease in death rate of patient thrombolysed at emergency dept.

Data suggest that with increasing age it is strong correlation with complication of acute myocardial infarction as significant correlation seen in case of cardiogenic shock, arrhythmias, and death^{9,10} is depends upon under use of thrombolytic therapy, presented too late due to various atypical symptoms and various structural and functional heart changes which renders heart refractory to treatment⁴. Elderly AMI patients tend to give a history of previous cardiac failure. Complications of cardiac failure (65.3% vs 25%) and cardiogenic shock (8.9% vs 0.9%) were also more common in the elderly AMI patients than the young. It is known that cardiac failure is an important predictor of poor outcome after AMI⁵. It is also recognized that even with "best practice" interventions, the prognosis for established cardiac failure in the elderly patients remains poor⁶. Also, the management of cardiac failure in elderly patients is often complicated by multiple co morbid conditions, poly pharmacy and the difficulty in tolerating recommended target doses of drugs^{6,7}. Therefore, future research should be aimed at developing more effective strategies for prevention of cardiac failure in elderly patients.

Data suggestive of various time period when patient expired in either in hospital stay or at one month follow up noted as death within 24 hr of ICCU stay is 2 in control while 12 in case & death within 24 hr to 7 days of hospital stay is 8 in control and 19 in case. As at one month follow up it is about 2 in control and 10 in case. p value is significant in all three time period suggestive of there is strong correlation between mortality and increasing age in acute myocardial infarction.

Noting the complications of AMI in one month follow up overall death was noted in ten patients in case group as compared to two deaths in control group. Similarly post MI angina, Congestive cardiac failure, Cardiogenic shock, Fresh myocardial infarction, was noted more in the case group.

Summary

1. The mean age of presentation in "less than 65 years of age"- Control group; is about 45 years while in Case group of "more than 65 years" is about 72.5 years

2. The incidence of presenting symptoms particularly atypical is significantly higher in elderly age groups while in control typical presentation of myocardial infarction is usual presentation.
3. Atypical site of pain rather than typical substernal or retrosternal pain is more common with elderly patient.
4. Sedentary life style a risk factor is affecting most of the elderly group of patient and hyperlipidemia due to excessive smoking and alcoholism is also significantly increased in elderly group of patient.
5. The elderly group of patient are presenting late to emergency treatment in compare to less than 65 years of age patient. Because of social factor and atypical symptoms.
6. Various types of arrhythmias are more common in elderly patient during treatment of acute myocardial infarction. Particularly in case of VPC, atrial fibrillation & AV block which is less frequent complication in younger age groups.
7. Patient of elderly age groups are more commonly present with left ventricular failure and with pulmonary edema as their heart is weak physiologically and refractory to drugs.
8. This in summation increase mortality of patient.
9. Patient treated with thrombolytic therapy are having good survival rates than in case with not treated with thrombolytic therapy also there are more chance of post thrombolytic complication in elderly.
10. Most of the patient in elderly presenting too late to medical emergencies and when they present they usually present with acute complication of myocardial infarction.
11. Acute complication are more common with elderly group of patient as they are having more preponderance to complication because of structural changes in heart.
12. There is significant death rate increase in patient of elderly age group as compare to that of younger age. Death rate increase in various time like with admission than within hospital stay than with one month follow up and overall mortality rate is increased in elderly age groups.
13. There is significant increase in post myocardial infarction complication in terms of congestive cardiac failure, and death rate.

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