



Original Research Article

A Comparative Study on Acute Myocardial Infarction in Young Patients (< 45 Years) in Comparison of Old Age Patients (45 Yrs or More)

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Abstract

Background: Coronary heart disease is a major cause of mortality and morbidity worldwide. In this study we looked at the demographics, risk factors, presenting symptoms and in-hospital outcome in patient less than 45 years of age and compare with old age patients 45 years or more.

Objective: To evaluate the differential features of acute myocardial infarction in patients younger than 45 yrs old compared to older patients (45 yrs or more).

Methods: This was a Cross-sectional prospective study conducted on patient admitted in Intensive Care Unit, Department of Cardiology, J.A. Group of Hospitals, Gwalior (M.P.) between December 2016 to September 2018. Patients divided into two group by age those who were aged less than 45 years (Group-A) and those who 45 years or more (Group-B) each group includes 50 patient.

Results: In Group-A 8% patient were female and mean age was 36.98 years, in Group-B 20% were female and mean age was 60.82 years, in group-A 94% patients were presented with chest pain while 76% in group-B. In Group-A 92% had STEMI out of which 47.8% present with AWTMI and 26.08% with IWMI and 8% had NSTEMI, in group-B 76% had STEMI out of which 42.10% present with AWTMI and 31.57% with IWMI and 24% had NSTEMI. In group A 16% patients were hypertensive, 8% diabetic, 70% current smokers, 50% overweight and 64% dyslipidemic in group B 40% patients were hypertensive, 14% diabetic, 22% current smokers, 22% overweight and 32% dyslipidemic respectively. The overall mortality 2% in group A and 12% in group B

Conclusion: Myocardial infarction in male was more common and Most common symptoms were chest pain in both age groups Most common clinical presentation was in form of STEMI and Anterior MI was the commonest. In our study, current smoking, dyslipidemia and overweight found to be significant risk factor for Myocardial Infarction in young but in Group B HTN was the most common risk factor followed by dyslipidemia. This knowledge of the different profiles of risk factors and extent of CAD in two different age groups of IHD patients in Gwalior region will help us planning for both preventive and curative treatment strategy in future.

Keyword: Coronary heart disease, dyslipidemia, myocardial infarction.

Introduction

Coronary artery disease is a devastating disease precisely because an otherwise healthy person in the prime of life may die and become disabled without warning. When the afflicted individual is under the age of 45 yrs. This incidents are very frustrating for family, friends and occupation.

These young patients also have a different risk factor profile, clinical presentation and prognosis in comparison with older patient which has to be taken into consideration when treating these young patients presenting with myocardial infarction. Better prognosis among young adults is achieved when the appropriate investigation and treatment are offered.

In developing countries CHD are subject of concern. It is expected to be the single most important cause of death in India by the year 2015, CVDs have also been attributed to a maximum proportion of total medically certified deaths of around 30%. Further among CVDs, CHD has contributed to around one-third of mortality with more death in male (64%) and that too in the economic productive age group of 30-69 years

Material and Methods

Source of data: The present study will be conducted on patients admitted in Intensive Care Unit, Department of Cardiology, J.A. Group of Hospitals, Gwalior (M.P.)

Sample size: 50 patients from group A and 50 patients from group B.

Group A – Less than 45 years of age

Group B – 45 years of age or more

Study design: Cross-sectional prospective study

Duration of study: December 2016 to September 2018

Inclusion criteria:

- Patients with the diagnosis of acute myocardial infarction.
- Patients with the first episode of acute myocardial infarction.
- Study included both sex.

Exclusion criteria

- Patient with the subsequent acute myocardial infarction.
- Those patients who refused to give consent for the study.

Methodology

Patients with the diagnosis of acute myocardial infarction:

- 1) Young patients: Less than 45 years of age- Group A
- 2) Older patients: 45 years of more- Group B

Variables used in the study Demographic characteristics: age and sex, clinical spectrum, family history of heart disease, Coronary risk factors: Hypertension, smoking, dyslipidaemia, diabetes mellitus, life style, eating habits, family history

- 1) Diagnostic procedures-CBC, RFT, LFT, ECG, 2D Echo Lipid profile RBS Cardiac enzymes Chest X-ray
- 2) Therapeutic procedure -Pharmacological therapy
- 3) Developing complication and outcome

Statistical Methods

Chi square test has been used to analyse the data having ordinal variables. Significant figures are analysed, Suggestive significance (P value: $0.05 < P$)

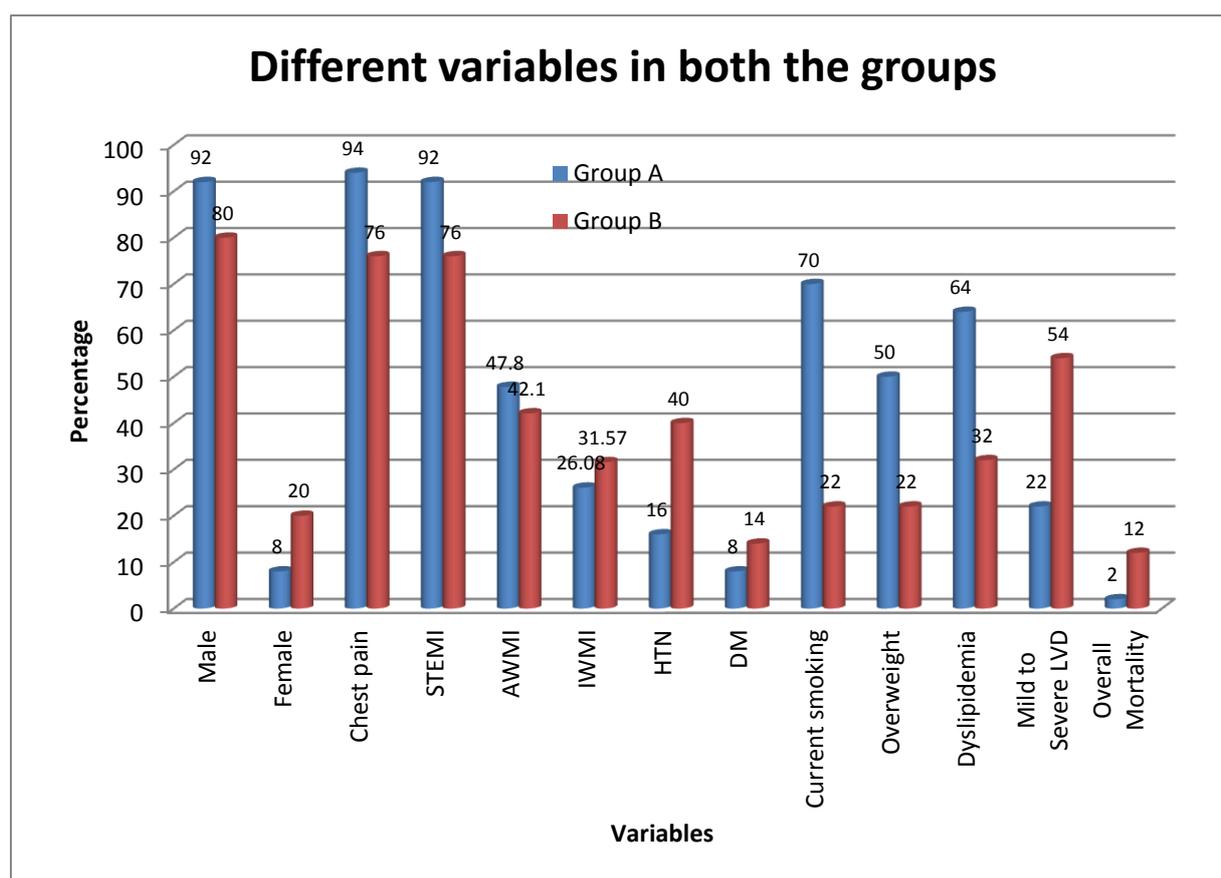
The social science statistics (www.socscistatistics.com) for the analysis of the data and Microsoft word and Excel were used to generate graphs, tables. A p value of <0.05 was considered as significant.

Results

In this cross-sectional prospective study, we have studied 50 patients of age less than 45 years (Group A) with diagnosis of acute myocardial infarction and compared with patients with same diagnosis of age 45 years or more (Group B). In this study, in group A mean age was found 36.98 years and in group B mean age was found 60.82 years.

Table 1: Different variables in both the groups

Variables	Group A	Group B
1.Male	92%	80%
2.Female	8%	20%
3.Chest pain	94%	76%
4.STEMI	92%	76%
5.AWMI	47.8%	42.10%
6.IWMI	26.08%	31.57%
7.HTN	16%	40%
8.DM	8%	14%
9.Current smoking	70%	22%
10.Overweight	50%	22%
11.Dyslipidemia	64%	32%
12.Mild to Severe LVD	22%	54%
13.Overall Mortality	2%	12%



Discussion

In this cross sectional prospective study we have studied the 50 patients of age less than 45 years (Group A) with diagnosis of acute myocardial infarction and compared with patient with same diagnosis of age 45 years or more (Group B) In our study the mean age in group A and group B was 36.98 and 60.82 years respectively.

Pedro J Morillas et al² found mean age 40.06±4.92 and 67.30±10.13 in young patient and patient

older than 45 years of age respectively. Nadim Shah et al³ found mean age 46.7±5.7 and 68.1±8.9 in young patient >55 years of age and patient older than 55 years of age respectively.

In study of A.W. Schoeneberger et. al⁶ (2011) 91.6% patients had chest pain in age group < 35 years (case) and 83.7% in age >35 years (control). Shricharan K.N. et. al⁸ (2012) found 90% patients had chest pain at admission. In our study chest pain is most common symptom in both the group,

but 24% patients in group B and 6% patients in group A had no chest pain, so group B patients had more atypical presentation. Other common symptoms were sweating, breathlessness, giddiness, shoulder pain and abdominal pain.

In present study current smoking was found to be the most common risk factor associated with myocardial infarction in young present in 70% patients in group A as compared to 22% patients of group B.

Kazi Nazrul Islam et al⁴ in his study found 63.3% Smoking in young patient. In study of Bhardwaj et. al (2014)¹ 58.8% were current smoker in young patients.

Hasan et. al (2013)⁵ found 72.5% patients had current smoking and Shricharan K.N. et al (2012)⁸ found 70% had current smoking in their studies.

Next common risk factor in young patients was dyslipidemia present in 64% patients in group A and 32% patients in group B.

Nadim Shah et al³ found 61.3% dyslipidemia in young age group and 51.8% in old age group. Other risk factor found to be important was overweight present in 50% patients in group A and 22% patients in group B.

In present study the distribution of STEMI and NSTEMI was significantly different ($p < .05$) between young and older patients In our study 92% patients had STEMI and 8% had NSTEMI in group A and 76% patients had STEMI and 24% had NSTEMI in group B.

Prajapati et.al (2014)⁷ found in his study that 82.6% patients had STEMI and 9.2% had NSTEMI. In study of Bhardwaj et. al (2014)¹ 95.16% had STEMI and 5.84% had NSTEMI.

In our study the patients who had STEMI, out of which 74 % patients had anterior MI and 26% had inferior MI in group A; while in group B, 63% had anterior MI and 37 % had inferior MI The proportion of anterior MI was also significantly high in young patients in other study.

In our study Echocardiography shows that 78% patients of group A had normal LV function as compared to 40 % patients in group B. In group B,

28% patients had moderate to severe LV dysfunction while in group A only 10% patients. Nadim Shah et al³ found preserved LV function in 54.2% patients in younger group and 43% in old age group. Severe LVD in 1.7% patients in younger group and 7.4% in old age group.

Pedro J Morillas et al² found 3.5% mortality in younger age group and 14% in older age group.

A study by A.W. Schoeneberger et. al (2011)⁶ shows that mortality was 2.1% in patients age ≤ 35 years as compared to 8% in aged > 35 years.

In our study group A had 2% mortality and group B had 12% mortality.

Conclusion

We have studied fifty patients of age < 45 years (group A -young) with the diagnosis of Acute Myocardial Infarction and compared with the patients of age 45 years or more with the same diagnosis (group B-elder). Myocardial infarction in male was more common in both age group but in elder patients (Group B) the number of female patient were increasing. Most common symptoms were chest pain in both age group followed by breathlessness and giddiness but in group B patients breathlessness present in about half of the patients. Most common clinical presentation was in form of STEMI and Anterior MI was the commonest. In our study, current smoking, dyslipidemia and overweight found to be significant risk factor for Myocardial Infarction in young but in Group B HTN was the most common risk factor followed by dyslipidemia. The screening of people for these risk factors and find out the people at high risk for early development of CAD, and more aggressive control of these factors can control the premature CAD. By increasing the awareness in the people to stop the smoking, took proper diet (low fat), maintaining the ideal body weight, control of blood pressure in elder age group and physical activity can be very helpful. Majority of patients had normal LV function or mild LV dysfunction, if timely intervention and proper management done,

Myocardial Infarction in young has very good prognosis.

This knowledge of the different profiles of risk factors and extent of CAD in two different age groups of IHD patients in Gwalior region will help us planning for both preventive and curative treatment strategy in future.

Ethical Clearance: Taken from Institutional Ethical Committee, Gajra Raja Medical College, Gwalior M.P. dated 06.04.2017.

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Conflict of Interest: Nil

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