

Original Article

Assessment of risk factors and patients demographic profile of acute myocardial infarction

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ABSTRACT:

Background: It is increasingly recognized that AMI also occurs among patients already hospitalized for other conditions. The present study was conducted to assess risk factors and demographic profile of acute myocardial infarction patients. **Materials & Methods:** 105 cases of acute myocardial infarction of both genders were assessed for cigarette smoking, hypertension, diabetes mellitus, dyslipidaemia, physical inactivity, obesity, psychosocial factor, diet and alcohol intake was recorded. **Results:** 60 were >45 years and 45 were <45 years, 55 were married and 50 were unmarried, wall involved was anterior in 45 and inferior in 70, area was urban in 48 and rural in 57, diabetes mellitus was present in 68, hypertension in 70, smoking in 64, alcoholism in 44, diet was vegetarian in 53 and mixed in 52, BMI was normal in 47 and obese/overweight in 58. The difference was significant (P< 0.05). **Conclusion:** Common risk factors for AMI were smoking, alcoholism, obesity, diabetes mellitus and hypertension.

Key words: Acute myocardial infarction, Alcoholism, Smoking

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INTRODUCTION

Most studies of acute myocardial infarction (AMI) epidemiology and treatment have focused on patients who experience the onset of AMI outside of the hospital.¹ Insights from these studies have informed risk factors and optimal treatment of AMI, which have led to subsequent reductions in AMI incidence and mortality. It is increasingly recognized that AMI also occurs among patients already hospitalized for other conditions. Insights on AMI occurring during hospitalization are limited.²

Cardiovascular diseases act as a burden over the economy and will supposedly lead to approximately \$47 trillion loss to the economy in the upcoming 20 years.³ In India, out of all deaths nearly 24.8% deaths are due to cardiovascular diseases as estimated by Global Burden of Disease study (2010).⁴ Average age-standardized death rate in India due to cardiovascular disease is 272 per 100000 population which is much higher than rate of global deaths i.e. 235 per 100000 population. A 111% rise in deaths due to cardiovascular diseases in India has been predicted, by 2024 While comparing rural and urban studies on cardiovascular diseases from India, coronary artery disease prevalence is higher in the urban population (11%) relative to rural population (7%).⁵

Patients with in-hospital ST-segment elevation myocardial infarction (STEMI) have been shown to

experience delays in revascularization and worse short-term outcomes when compared with patients experiencing STEMI onset in the outpatient setting.⁶ Although these comparisons have identified potential treatment gaps in the care of in-hospital STEMI, less is known about the patient characteristics and long-term outcomes associated with in-hospital AMI.⁷ The present study was conducted to assess risk factors and demographic profile of acute myocardial infarction patients among the patients attending SVS hospital.

MATERIALS & METHODS

This cross sectional prospective study was conducted collaboratively by department of general medicine & community medicine, SVS Medical college, Mahabubnagar, Andhra Pradesh from January 2013 to June 2013, consisted of 105 cases of acute myocardial infarction of both genders. All were enrolled after obtaining their written consent

The present study consisted of 105 cases of acute myocardial infarction of both genders. All were enrolled after obtaining their written consent.

Data such as name, age, etc. was recorded. A thorough clinical examination was performed. Risk factors such as cigarette smoking, hypertension, diabetes mellitus, dyslipidaemia, physical inactivity, obesity, psychosocial factor, diet and alcohol intake was recorded. All patients who presented in

emergency with history of acute onset chest pain, were screened for AMI by electrocardiogram (ECG). Patients with the clinical diagnosis of AMI as diagnosed by the clinician considering the clinical, ECG findings and biochemical profile as per the American Heart Association diagnostic criteria's were considered for the study. First hundred consecutive patients fulfilling the required inclusion and exclusion criterions, presenting in one unit were enrolled in the study. All patients enrolled in the study were assessed clinically and detailed history with special emphasis on risk factors like cigarette smoking, hypertension, diabetes mellitus, dyslipidaemia, physical inactivity, obesity, psychosocial factor, diet and alcohol intake was taken according to the performa by the investigator. All patients were subjected to detailed examination and data was entered in a Microsoft excel sheet. Patients were also subjected to investigations

like serial ECG, 2D ECHO, lipid profile, fasting and post prandial blood glucose levels, chest X-rays and complete haemogram. Apart from traditional risk factors we also tried to assess the role of stress as contributing factor using the pre-validated stress scoring system. Physical activity scoring was done with the help of physical activity index. Patient with previous history of myocardial infarction, hospitalization for cerebrovascular accident or on any lipid lowering medications during the past 6 months were excluded. Pregnant females with AMI, AMI in a hospitalized patient or AMI in patients with recent surgery were also excluded apart for unwilling patients or in whom complete clinical and biochemical data could not be obtained. Results thus obtained were subjected to statistical analysis using Mann Whitney U test. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 105		
Gender	Males	Females
Number	75	30

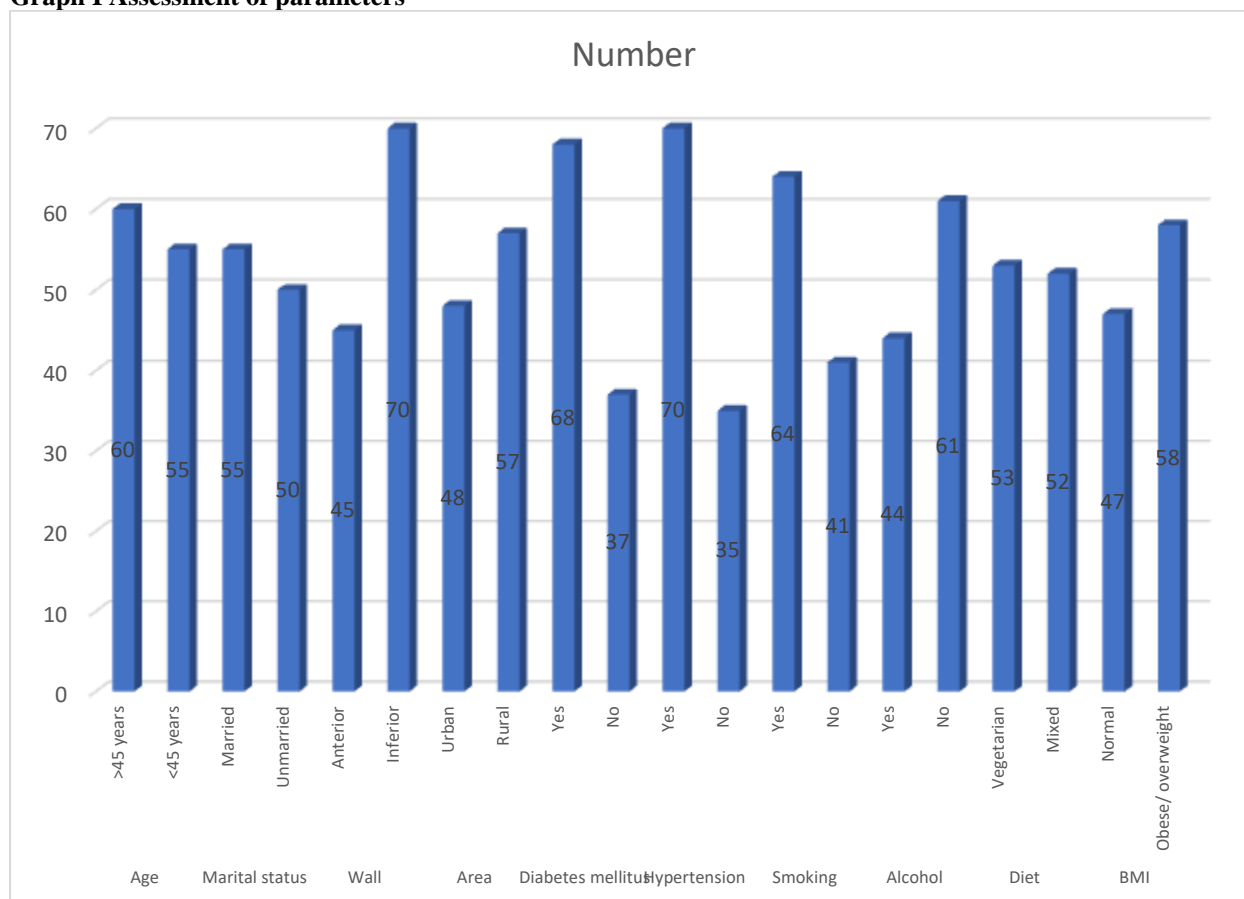
Table I shows that out of 105 patients, males were 75 and females were 30.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Age	>45 years	60	0.82
	<45 years	45	
Marital status	Married	55	0.94
	Unmarried	50	
Wall	Anterior	45	0.03
	Inferior	60	
Area	Urban	48	0.14
	Rural	57	
Diabetes mellitus	Yes	68	0.02
	No	37	
Hypertension	Yes	70	0.01
	No	35	
Smoking	Yes	64	0.05
	No	41	
Alcohol	Yes	44	0.04
	No	61	
Diet	Vegetarian	53	0.95
	Mixed	52	
BMI	Normal	47	0.16
	Obese/ overweight	58	

Table II, graph I shows that 60 were >45 years and 45 were <45 years, 55 were married and 50 were unmarried, wall involved was anterior in 45 and inferior in 70, area was urban in 48 and rural in 57, diabetes mellitus was present in 68, hypertension in 70, smoking in 64, alcoholism in 44, diet was vegetarian in 53 and mixed in 52, BMI was normal in 47 and obese/ overweight in 58. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Recent developments in the modern medicine have drastically reduced the mortality from acute myocardial infarction (AMI).⁸ At the same time the life expectancy of the population globally has increased in the developed world and is on rise in the developing countries.⁹ This condition has led to the more and more number of people who are living with AMI. This population of people is at risk of developing a second attack of AMI.¹⁰ Second attacks are relatively less in number but if it happens carries a very poor prognosis mostly ending in death and thus increasing the mortality due to AMI. New cases of AMI tell us about the prevalence of risk factors in the community which lead to increased incidence of AMI. On the other hand, the occurrence of repeated attacks of AMI tells us about the quality of care received by the patient during the attack of AMI and its subsequent treatment.¹¹ The present study was conducted to assess risk factors and demographic profile of acute myocardial infarction patients.

In present study, out of 105 patients, males were 75 and females were 30. Boyer et al¹² reviewed data collected from 138 122 patients with acute myocardial infarction admitted from 2003 to 2008 to hospitals participating in the American Heart Association Get With The Guidelines Coronary Artery Disease program. Clinical, demographic, and laboratory characteristics were analyzed for each year stratified

on the electrocardiogram at presentation. Patients with non-ST segment-elevation myocardial infarction were older, more likely to be women, and more likely to have hypertension, diabetes mellitus, and a history of past cardiovascular disease than were patients with ST elevation myocardial infarction. In the overall patient sample, significant trends were observed of an increase over time in the proportions of non-ST segment-elevation myocardial infarction, patient age of 45 to 65 years, obesity, and female sex. The prevalence of diabetes mellitus decreased over time, whereas the prevalences of hypertension and smoking were substantial and unchanging. The prevalence of “low” high density lipoprotein increased over time, whereas that of “high” low-density lipoprotein decreased. Stratum-specific univariate analysis revealed quantitative and qualitative differences between strata in time trends for numerous demographic, clinical, and biochemical measures. There was concordance between strata with regard to the increase in prevalence of patients 45 to 65 years of age, obesity, and “low” high density lipoprotein and the decrease in prevalence of “high” low density lipoprotein. However, changes in trends in age distribution, sex ratio, and prevalence of smokers and the magnitude of change in diabetes mellitus prevalence differed between strata.

Atherosclerosis is a multi-factorial disease involving the interplay of genetic and environmental factors.

The causation of atherosclerosis in humans is an active area of research that has culminated in the discovery of several new risk factors over the last two decades. These include biochemical factors like lipid peroxidation and socio-economic deprivation. Infectious agents like *Helicobacter pylori*, *Chlamydia pneumoniae* and Cytomegalovirus have also been implicated in the causation of coronary heart disease. The importance of the classical risk factors for heart disease was examined in the INTERHEART study, which is a large, international, standardized, case-control study from 262 centers in 52 countries from Asia, Europe, the Middle East, Africa, Australia, North America, and South America. All these classical and novel risk factors for cardiovascular disease would be expected to have varying relative contributions to the disease outcome in different populations.¹³

CONCLUSION

Authors found that common risk factors for AMI were smoking, alcoholism, obesity, diabetes mellitus and hypertension. age, sex and education cannot be modified but many are controllable such as hypertension, diabetes, cholesterol, and smoking and on time referring after pain onset. Having considered the results of this study health promotion for society and especially vulnerable people can be provided by omitting or reducing risk factors.

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