

ORIGINAL RESEARCH

Assessment of Risk factors of myocardial infarction in 82 patients**Pradeep Kumar¹, Surendra Kumar Ghintala², Ajeet Kumar Gadhwal³**

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ABSTRACT

Background: Acute myocardial infarction is one of the most common presentations of CAD. The present study was conducted to assess cases of myocardial infarction in both genders.

Materials & Methods: The present study was conducted among 82 patients diagnosed with severe MI. Factors such as duration, hypertension history, diabetes history, cholesterol, history of smoking, CABG history etc. were recorded.

Results: Out of 102 patients, males were 65 and females were 37. Common type was anterior in 16, inferior in 34, inferior-lateral in 12, anterior septal in 10 and other in 8 cases. The difference was significant ($P < 0.05$). Common risk factors were diabetes in 56, high cholesterol in 74, CAG in 13, hypertension in 59, smoking in 72 and history of CAD in 24 patients. The difference was non-significant ($P > 0.05$).

Conclusion: Diabetes, CAG, hypertension, cholesterol and smoking were common risk factors in both gender of myocardial infarction.

Key words: Coronary artery disease, Myocardial infarction, smoking

Introduction

Coronary artery disease (CAD) is the leading cause of mortality worldwide and by 2022, will be the leading cause of disability.¹ India is going through an epidemiologic transition whereby burden of communicable diseases has been declining slowly, but that of non-communicable diseases (NCD) has been rising rapidly, thus facing a dual burden.^{1,2}

Myocardial infarction may be “silent.” In the Framingham study, over 30 years 1 in 4 myocardial infarcts were detected because of routine biannual ECG examinations and several recent magnetic resonance trials have demonstrated a significant proportion of unrecognized myocardial infarction.³ Patients may also present atypically whilst undergoing myocardial infarction and in these cases imaging may play a significant role.⁴ Myocardial infarctions are usually classified by size: microscopic (focal necrosis), small (10% of the left ventricular myocardium), moderate (10–30% of the LV myocardium), and large (≥30% of the LV myocardium), and by location. The pathological identification of myocardial necrosis is made without reference to morphological changes in the coronary arterial tree or to the clinical history.⁵

The prevalence of coronary heart disease (CHD) is 7%-13% in urban and 2%-7% in rural populations. Acute myocardial infarction (AMI) is one of the most common

presentations of CAD.⁶ Although individuals younger than 40 years of age account for only 3% of all patients with coronary artery disease, they are not completely immune from CAD. Additionally, AMI in very young patients aged ≤ 35 years has been poorly described but is estimated to be less than 2%.⁷ The present study was conducted to assess cases of myocardial infarction in both genders.

Materials & Methods

The present study was conducted among 102 patients diagnosed with MI of both genders. All were informed regarding the study and their consent was obtained.

Data such as name, age, gender etc. was recorded. Factors such as lifestyle (smoking, physical activity, dietary patterns), psychosocial factors (depression, locus of control, perceived stress, and life events), personal and family history of CVD, and risk factors (hypertension, diabetes mellitus) was obtained through the use of a structured questionnaire. Height, weight, and waist and hip circumferences were measured. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I Distribution of patients

Total- 102		
Gender	Male	Female
Number	65	37

Table I shows that out of 102 patients, males were 65 and females were 37.

Table II Different type of MI

Type	Number	P value
Anterior	24	0.01
Inferior	56	
inferior- lateral	15	
anterior septal	7	

Table II, graph I shows that common type was anterior in 16, inferior in 34, inferior- lateral in 12, anterior septal in 10 and other in 8 cases. The difference was significant ($P < 0.05$).

Graph I Different type of MI

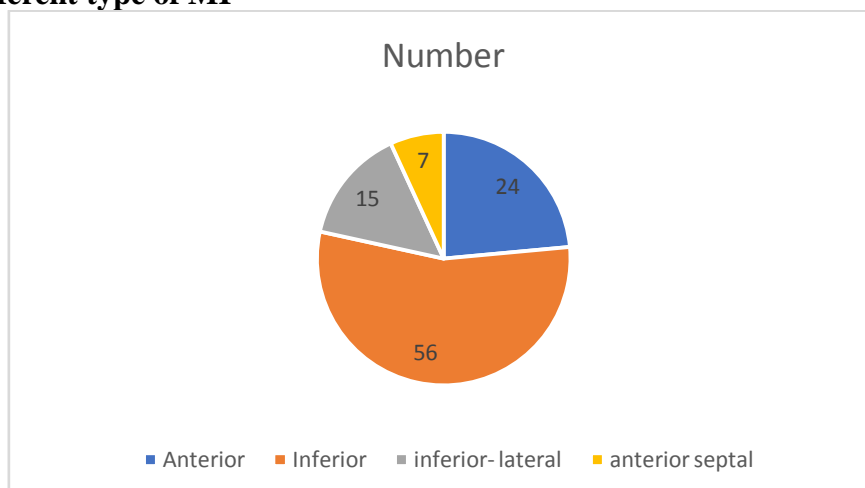
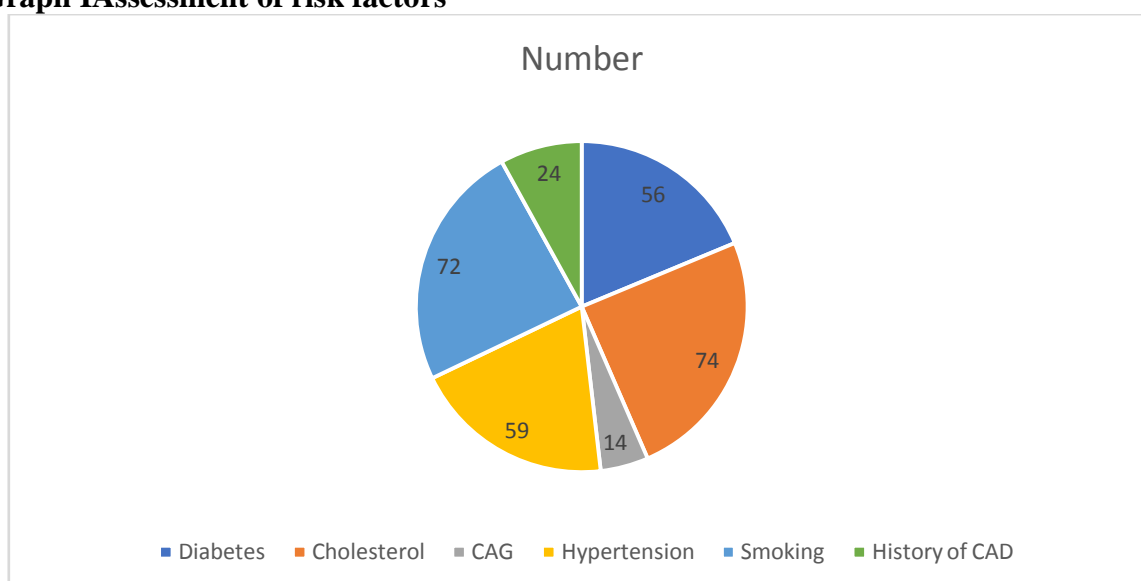


Table III Risk factors assessment

Risk factors	Number	P value
Diabetes	56	0.21
Cholesterol	74	
CAG	14	
Hypertension	59	
Smoking	72	
History of CAD	24	

Table III, graph II shows that common risk factors was diabetes in 56, high cholesterol in 74, CAG in 13, hypertension in 59, smoking in 72 and history of CAD in 24 patients. The difference was non-significant ($P > 0.05$).

Graph I Assessment of risk factors

Discussion

Ischemic heart disease is the leading cause of death worldwide. Additionally, in 1990, 26% of all deaths in Latin America (LA) were caused by cardiovascular disease (CVD), which is expected to remain the main cause of death in the region for several decades.⁸ LA has experienced a major demographic, epidemiological, and nutritional transition during the last 3 decades, marked by economic growth, urbanization, a decrease in mortality from infant and infectious diseases, and an increase in life expectancy. This transition has led to large increases in morbidity and mortality attributable to CVD.⁹ Although previous studies have described the prevalence of risk factors, knowledge of the impact on coronary heart disease in LA is limited.¹⁰ Some of the risk factors of coronary heart disease are uncontrollable like senility, being male and history of atherosclerosis that are considered uncontrollable as risk factors but many of them can be modified like hypertension, hyperlipidaemia, mellitus diabetes and smoking cigarette which are commutable risk factors of coronary artery disease.¹¹ The present study was conducted to assess cases of myocardial infarction in both genders.

In this study, out of 102 patients, males were 65 and females were 37. Lanis et al¹² in their study 1237 cases of first acute myocardial infarction and 1888 age-, sex-, and center-matched controls were enrolled. Persistent psychosocial stress, history of hypertension, diabetes mellitus, current smoking, increased waist-to-hip ratio (OR for first versus third tertile, and

increased ratio of apolipoprotein B to A-1 (OR for first versus third tertile associated with higher risk of acute myocardial infarction. Daily consumption of fruits or vegetables and regular exercise reduced the risk of acute myocardial infarction. Abdominal obesity, abnormal lipids, and smoking were associated with high population-attributable risks of 48.5%, 40.8%, and 38.4%, respectively. Collectively, these risk factors accounted for 88% of the population-attributable risk.

We found that common type was anterior in 16, inferior in 34, inferior-lateral in 12, anterior septal in 10 and other in 8 cases. Shah et al¹³ assessed the risk level & various risk factors of MI among the post-MI patients, and to find the association of risk level of MI with socio-demographic variables of post MI patients. Seventy post-myocardial infarction patients were selected as sample that was selected by purposive sampling technique from a tertiary care hospital in Dehradun. The data were collected by using self-reported risk assessment tool. Study results shows that the majority 69 (98.6%) of the study participants were with the diagnosis of CAD with MI. The majority 64 (91.4%) of the study participants had not attended any educational programme on CAD/Heart disease prevention. The study results shows that majority 58 (82.86%) of participants were having moderate risk of MI. As per this study the risk factors which were identified for MI were like male with 41 to 60 years, weight more than ideal weight, smoking habits, stress, eating sweet diets, personality type-A, no regular exercise and diabetes mellitus.

We found that common risk factors was diabetes in 56, high cholesterol in 74, CAG in 13, hypertension in 59, smoking in 72 and history of CAD in 24 patients. Kiani et al¹⁴ assessed the risk factors in patients with myocardial infarction (MI). Results showed that 70% of patients were women and only 30% were men. 48% of them were illiterate and patients mean age was 58.3. SD had been 12.6. The mean of pain onset time till referring to hospital was 11 hours with SD of 2.1. 17% of patients (coronary artery diseases history), 25.5% (hypertension history), 26% (diabetes history), 15.5% (cholesterol history), 13% (smoking) and 3% have reported CABG history. The majority of people who referred had inferior MI (40.4%). 67.1% normal rhythm, 2.8% atrial fibrillation and 16% had ventricular tachycardia. Statistical tests showed a significant correlation between sex and the mean of referring time ($p < 0.05$) but the relation between age and referring time was not significant.

Conclusion

Authors found that diabetes, CAG, hypertension, cholesterol and smoking were common risk factors in both gender of myocardial infarction.

References

1. Enas EA, Yusuf S, Mehta JL. Prevalence of coronary artery disease in Asian Indians. *Am J Cardiol.* 1992;70(9):945–9.
2. Kanitz MG, Giovannucci SJ, Jones JS, Mott M. Myocardial infarction in young adults: Risk factors and clinical features. *J Emerg Med.* 1996;14(2):139–45.
3. Glover MU, Kuber MT, Warren SE, Vieweg WV. Myocardial infarction before age 36: Risk factor and arteriographic analysis. *Am J Cardiol.* 1982;49(7):1600–3.
4. Tewari S, Kumar S, Kapoor A, Singh U, Agarwal A, Bharti BB, et al. Premature coronary artery disease in North India: an angiography study of 1971 patients. *Indian Heart J.* 2005;57(4):311–8.
5. Sinha SK, Krishna V, Thakur R, Kumar A, Mishra V, Jha MJ, Singh K, Sachan M, Sinha R, Asif M, Afdaali N. Acute myocardial infarction in very young adults: A clinical presentation, risk factors, hospital outcome index, and their angiographic characteristics in North India-AMIYA Study. *Arya Atherosclerosis.* 2017 Mar;13(2):79.

6. Anand S. S, Islam S, Rosengren A, Franzosi M. G, Steyn K, Yusufali A. H, Yusuf S. Risk factors for myocardial infarction in women and men: insights from the INTERHEART study. *European heart journal*. 2008;29(7):932–940.
7. BagherianSararoodi R, Saneei H, BahramiEhsan H. The Relationship of History of Hypertension and Illness Cognitive Representation in Post-Myocardial Infarction. 2010;27(101):710–716.
8. Banks A. D, Dracup K. Factors associated with prolonged prehospital delay of African Americans with acute myocardial infarction. *American Journal of Critical Care*. 2006;15(2):149–157.
9. Baxter A. J, Coyne T, McClintock C. Dietary patterns and metabolic syndrome-a review of epidemiologic evidence. *Asia Pacific journal of clinical nutrition*. 2006;15(2):134.
10. Chadha SL, Radhakrishnan S, Ramachandran K, Kaul U, Gopinath N. Epidemiological study of coronary heart disease in urban population of Delhi. *Indian J Med Res*. 1990;92:424–30.
11. Morillas P. J, Cabadés A, Bertomeu V, Echanove I, Colomina F, Cebrián J, Sanz J. C. Acute myocardial infarction in patients under 45 years. *Revista española de cardiología*. 2002;55(11):1124–1131.
12. Lanas F, Avezum A, Bautista LE, Diaz R, Luna M, Islam S, Yusuf S. Risk factors for acute myocardial infarction in Latin America: the INTERHEART Latin American study. *Circulation*. 2007 Mar 6;115(9):1067-74.
13. Shah ASV, Anand A, Sandoval Y, et al. High-sensitivity cardiac troponin I at presentation in patients with suspected acute coronary syndrome: a cohort study. *Lancet* 2015;386:2481–8.
14. Kiani F, Hesabi N, Arbabisarjou A. Assessment of risk factors in patients with myocardial infarction. *Global journal of health science*. 2016 Jan;8(1):255.

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