Evaluation of risk factors for occurrence of Myocardial Infarction among women in urban population of south India: cross sectional study

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Abstract

Cardiovascular disease is the leading cause of death among women, regardless of race or ethnicity, and causing the deaths of 1 in 3 women. Present study was carried out to analyze important risk factors of Myocardial Infarction (MI) in study population.This study is a cross sectional study at intensive cardiac care unit of Sundaram Arulrhaj Hospitals, Tuticorin, southern part of Tamilnadu, including mostly urban population, during November 2011 to November 2013.In the study hundred female patients admitted with clinical features and ECG changes suggestive of myocardial infarction, elevated CK-MB and Trop I taken as cases. Female patients with unstable angina were excluded.Statistical analysis of the data collected were done. Results showed the following: mean age for study group is 60.97years, 49 had at least one risk factor and 19 had two risk factors that can predispose to coronary artery disease. Irrespective of the other risk factors 12 women had an abnormal lipid profile. It may be concluded that in female Obesity, hypertension, Diabetes, and hypertension are linked with risk of myocardial infarction.

Key words: Female, Risk Factors, Myocardial Infarction

Introduction

Cardiovascular disease is the leading cause of death among women, regardless of race or ethnicity, causing deaths of 1 in 3 women; this amounts to more deaths from heart disease than from stroke, lung cancer, chronic obstructive lung disease, and breast cancer combined.[1] The evaluation of IHD in women presents a unique and sometimes difficult challenge for clinicians. The diagnosis and treatment of CHD have been primarily based on research conducted in men, either excluding women entirely or including limited number of women. [2]This study is to analyze important risk factors of Myocardial Infarction (MI) in study population.

Materials and Methods

Selection of Subjects :Cross sectional study at intensive cardiac care unit during November 2011 to November 2013.Hundred female patients admitted with clinical features and ECG changes suggestive of ST segment elevation myocardial infarction, elevated CK-MB and Trop I taken as cases.

Inclusion criteria: Female patients admitted with the clinical features and ECG changes suggestive of MI.

Exclusion criteria: Female patients with unstable angina, Female patients with ST elevation without both symptoms and enzyme elevation.

Results

Among the hundred women selected for the study, 21 were in the age group of 50 and below, 33 were in the 51 to 60 age group, 22 were in the 61 to 70 age group and 24 were in the age group of above 70. The mean age is 60.97, range is 35-85. Thirty two women had no risk factors at all, 49 had at least one risk factor and 19 had two risk factors that can predispose to coronary artery disease. Out of the total, 26 had family history of risk factors. Irrespective of the other risk factors, 88 women had a normal lipid profile and 12 women had an abnormal lipid profile.

Discussion and Conclusion

Evaluation of myocardial infarction in women presents a unique and sometimes difficult challenge for clinicians, owing to the difference in symptoms, clinical features and mortality as compared to men.

The interheart study which was a case control study with 15152cases of acute MI and 14820 controls from 262 centre's of 52 countries addressed the specific question of why women have their first MI 9 to 10 years after men and concluded that younger women have lower risk factors.[3] In our study also on comparing age of presentation to the outcome (table 3) on short term follow up, 15 deaths occurred in those above 60 years of age and 7 deaths occurred among aged 60 and below. This is statistically significant. (P value <0.05 at 95% CI) Maynard et al have also reported that women with acute myocardial infarction have high in hospital mortality. Women were older and had more co existing conditions.[4] after adjustment for such differences; many studies have concluded that sex is not an independent predictor of mortality after acute myocardial infarction.

When the mortality is compared with the presence of risk factors higher mortality i.e. 26.3% was noted when 2 risk factors or more are present. Whereas it is 15.63% when there is no risk factor and 24.5% in the presence of one risk factor. Anand et al state that higher mortality in women after acute myocardial infarction is significantly related to the presence of multiple coexisting conditions like diabetes, hypertension, measured waist / hip ratio, physical activity etc.[5]

It was concluded that Obesity, hypertension, Diabetes, and hypertension are clearly related to risk of myocardial infarction in female population.Women with advanced age have a poorer outcome.Most common age group affected was above 60 yrs and showing that risk of myocardial infarction increases proportionately with age.

References

1. WHO Global status report on non communicable diseases 2010.
2. Braunwald's Heart Disease, A Text Book of Cardiovascular Medicine, 9th Edition. 2012.
3. Yusuf salim, steven Hawkan, Stephante Ounpul, Tony Dans, Auro A, Fernando L, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (The interheart study) case-control study. Lancet 2004;364:937-952.
4. Maynard C, Paul E, Gitwin MS, Jenny S, Martin RN, Douglas W, et al. Gender difference in treatment and outcome of acute myocardial infarction: result from myocardial infarction triage and intervention registry. Jama internal medicine 1992;152:5.
5. Anand SS, Islam S, Franzosi M, Steyn K, Yusufali H, et al. risk factor for myocardial infarction in women and men: insight from interheart study. European heart journal 2008; 29(7): 932-940.

Tables:

Table 1: Characteristic features of study group

Variables	Frequency (n = 100)
Age in years	
50 and below	21
51-60	33
61-70	22
Above 70	24
Menstrual status	
Menstruating	12
Menopause	88
Family history of risk factors	
Absent	74
Present	26
Symptoms	
Typical	43
Atypical	57
Outcome	
Recovered	78
Death	22

Table 2: Risk Factors

Risk factor	Frequency (n=68)	%
Hypertension	13	19.11
Diabetes	08	11.76
Obesity	19	27.94
Hyperlipidemia	16	23.52
Sedentary lifestyle	07	10.29
Other	05	7.35

Table 3: Association between variables and outcome

Variables	Frequency	outcome		p value*
		Recovery (%)	Death (%)	
Age				
< 60 years	54	47(87.03)	7(12.97)	0.009
>60 years	46	31(67.39)	15(32.61)	
Family history				
Absent	74	57(77.02)	17(22.98)	0.346
Present	26	21(80.76)	5(19.24)	
Risk factors				
0	32	27(84.37)	5(15.63)	0.565
1	49	37(75.51)	12(24.49)	
2 or more	19	14(73.68)	5(26.3)	

*Test of significance: chi square test, p value <0.05 at 95% CI is significant