

A Study on Clinical Profile and Outcome of Myocardial Infarction in Women

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Abstract: **Background:** The present study was carried out to describe the clinical profile and outcome of myocardial infarction in women. **Methods:** After obtaining the consent, detailed investigation reports like cardiac troponin, electrocardiogram, 2D echocardiograph, lipid profile, chest Xray were collected from the study population. Purposive sampling method was used and sample size was 60. Data were analyzed using SPSS (version 19). Descriptive statistics, Chi - square test and independent sample t - test were done appropriately. P - value of <0.05 was considered statistically significant. **Conclusion:** All the deaths in this study were noted in age group of >70 years. 66.7% deaths were noted in Killip class IV and 33.3% deaths were noted in Killip class III. 100% of deaths were noted in patients with abnormal lipid profile. Among deaths, 66.7% had severe LV dysfunction and 33.3% had moderate LV dysfunction. Majority of mortality was noted in elderly age group, presence of risk factors, postmenopausal women in this study. Abnormal lipid profile showed strong association between atherosclerosis and CAD. Women presented with Killip class IV had higher mortality according to this study. Based on Echocardiography, mortality is seen in women with severe LV dysfunction. Mortality is seen in women who underwent PTCA along with anticoagulants.

Keywords: Acute myocardial infarction, PTCA, LV dysfunction, Dyslipidemia

1. Background

Acute myocardial infarction continues to be major public health problem world - wide despite of impressive studies in the diagnosis and management¹. Evaluation of ischemic heart disease in women is unique and challenging for clinicians, due to the variation in symptoms, clinical features and mortality as compared to men. In majority of studies diagnosis and treatment of CAD had been primarily based on research conducted in men, either excluding women entirely or including limited number of women.

Both genders with coronary artery disease demonstrate a striking difference in presentation, diagnosis, management, prevention, and prognosis². The societal problem of the disease is, in part, related to lack of comprehension about gender specific pathophysiologic and an atomical differences at presentation and prognosis of IHD and the delay in diagnostic and treatment guidelines altered to the phenotypic differences in women.

A study by Anand SS et al³ reported that Women experience their first acute MI on average 9 years later than men. The difference in age of first MI is largely explained by the higher risk factor levels at younger ages in men compared to women. Incidence of risk factors and higher mortality in postmenopausal group has been reported in the study conducted by Soman et al⁴ and Renuga et al⁵ respectively.

The incidence of CAD in women is growing recently. This might be due to social determinants, lack of physical activity, dietary habits, repeated child birth and anemia².

Hence the present study was undertaken to describe the clinical profile and outcome of myocardial infarction in women

2. Methods

Study design:

This study was conducted as an Observational study, to find out the clinical profile and outcome of myocardial infarction in women

Study setting:

This study was conducted in the department of General Medicine and cardiology, PES institute of medical sciences & research (PESIMSR), a tertiary care teaching hospital in Kuppam, Andhra Pradesh.

Study population:

Women admitted for acute myocardial infarction during the study period were included.

Study period:

This study was conducted for a period of 18months (Jan2020 - Jun2021).

Inclusion criteria:

All women admitted for acute myocardial infarction to coronary care unit aged more than 18 years were included.

Exclusion criteria:

Patients who refused to give consent for the study.

Sampling method: Purposive sampling

Sample size: 60

3. Results

On comparing age of presentation to the outcome, all 6 deaths occurred in those above 70 years of age. This is statistically significant

Table 1: Outcome and Age

Age	Death	Recovered
<70	0	50 (92.6%)
>70	6 (100%)	4 (7.4%)
Total	6 (100%)	54 (100%)

Chi square test=16.667, p=<0.001, statistically significant

When the mortality is compared with the presence of risk factors, mortality of 2 (33.3%) was noted in patients with risk factors. Whereas it is 4 (66.6%) when there was no risk factor. This is not statistically significant

Table 2: Co - morbidities and outcome

Co - morbidities	Death	Recovered
Present	2 (33.3%)	40 (29.6%)
Absent	4 (66.67%)	14 (25.9%)
Total	6 (100%)	54 (100%)

Chi square test=2.84, p=0.58, Not statistically significant

On comparing menstrual history with outcome, mortality is observed more in women who had attained menopause. This is not statistically significant.

Table 3: Menstrual history and outcome

Menstrual history	Death	Recovered
Pre-menopausal	2 (33.33%)	24 (34.45%)
Menopausal	4 (66.67%)	30 (55.56%)
Total	6 (100%)	54 (100%)

Chi square test=1.1329, p=0.568, Not statistically significant

When the outcome is compared with Killip classification 4 (66.7%) deaths occurred in those with class IV group, 2 (33.3%) deaths occurred in patients with class III group. This is statistically significant.

Table 4: Killip class and outcome

Killip class	Death	Recovered
I & II	0	40 (74.1%)
III	2 (33.3%)	14 (25.9%)
IV	4 (66.7%)	0
Total	6 (100%)	54 (100%)

P< 0.001, statistically significant

On comparing lipid profile with outcome all 6 (100%) deaths are noted in patients with abnormal lipid profile. This is statistically significant.

Table 5: Lipid profile and outcome

Lipid profile	Death	Recovered
Abnormal	6 (100%)	32 (59.2%)
Normal	0	22 (40.7%)
Total	6 (100%)	54 (100%)

Chi square test=13.333, p=<0.001, statistically significant

On comparing Echography evidence and outcome results showed out of 6 patients who died, 4 (66.7%) had severe LV dysfunction with regional wall motion abnormality and 2 (33.3%) had moderate LV dysfunction. This is statistically significant.

Table 6: ECHO and outcome

ECHO	Death	Recovered
Mild LV Dysfunction	0	26 (48.1%)
Moderate LV Dysfunction	2 (33.3%)	26 (48.1%)
Severe LV Dysfunction	4 (66.7%)	2 (3.7%)
Total	6 (100%)	54 (100%)

P value - 0.01, statistically significant

On comparing treatment given and outcome, 4 (66.7%) patients died after PTCA and treated with diuretics and heparin, 2 (33.3%) died after managing with PTCA, inotropes and heparin. This is statistically significant.

Table 7: Treatment given and outcome

Treatment given	Death	Recovered
Inotropes + PTCA+ Heparin	2 (33.3%)	24 (44.5%)
PTCA+ Diuretics+ Heparin	4 (66.7%)	30 (55.5%)
Total	6 (100%)	54 (100%)

Chi square test= 9.63p=0.04, Statistically significant

4. Discussion

On comparing age of presentation to the outcome, all the six deaths occurred in those above 70 years of age and it is statistically significant. However, literature states that CHD is more common in women beyond the age of 60, with one in every three women having signs of CHD after the age of 65, With increasing age, the ASCVD risk score rises 6. On assessing the association between presence of risk factors and outcome of myocardial infarction there were no significant association noted, in this study. No significant association was reported on assessing the association between menstrual history and outcome.

When the outcome is compared with Killip classification, 66.7% deaths occurred in those with class IV, 33.3% deaths occurred in patients with class III, and no deaths were reported in class II and class I. All the cases who were died had elevated levels of LDL and elevated levels of TGL showing significant association between abnormal lipid profile and outcome of myocardial infarction in this study. Among six patients who died, four cases had severe LV dysfunction and two cases had moderate LV dysfunction. On assessing the findings of ECHO and outcome of myocardial infarction, there were a statistically significant association noted in this study.

On comparing treatment given to the cases with myocardial infarction and the outcome of myocardial infarction, four patients died after the treatment with PTCA and treated with diuretics and heparin, two cases died after managing with PTCA and inotropes and heparin and there was a statistically significant association noted, in this study this is because they had severe LV dysfunction and was on inotrope support

5. Conclusion

On comparing age with outcome, majority of mortality was noted in elderly age group. On assessing the association between presence of risk factors and outcome of myocardial infarction there were no significant association noted, in this study. Many postmenopausal women were prone to poorer outcome in this study. In all deaths, abnormal lipid profile was noted which shows strong association between atherosclerosis and CAD. Women presented with Killip class IV had higher mortality according to this study. Based on Echocardiography, mortality is seen in women with severe LV dysfunction. Mortality is seen in women who underwent PTCA along with anticoagulants. This is because they had severe LV dysfunction and was on inotrope support

Age, dyslipidemia, Echo findings and treatment modalities were the factors found to be associated with mortality (poor outcome) among the women with MI.

We infer, that age, the non - modifiable risk factor and dyslipidemia, the modifiable risk factor were the strong risk factors noted in this study. However, it is essential to screen all the cases with symptoms suggestive of MI with Echo rather with ECG. Also, the treatment option plays an important role in the outcome, which is due to the fact that aggressive treatment will be helpful in reducing mortality. Thus, we suggest to concentrate more on the modifiable risk factors in order to prevent MI with periodic screening of elderly females (age>60years) since they have poorer outcome.

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