

TRENDS IN THE INCIDENCE OF ACUTE MYOCARDIAL INFARCTION IN YOUNG FEMALE

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Abstract

Background: Incidence of acute myocardial infarction among young females (Age group < 50 years) is increasing. In this study we evaluated the risk factors, clinical presentation, physical examination findings, ECG and echo Findings and ICU Course in the hospital. Traditional risk factors like age, family history of premature CAD, Hypertension, diabetes, dyslipidemia, metabolic syndrome, lack of physical activity, obesity, pregnancy induced hypertension and diabetes, polycystic ovary syndrome appears to be strongly associated with the incidence of Myocardial infarction in the female population². Awareness of these conditions among patients as well as care providers will definitely help in the prevention and management of myocardial infarction in female population.

Materials and Methods: Young females (<50 years of age) admitted with acute myocardial infarction were included in this study **Results:** More than 90% of women presented with typical chestpain and shortness of breath. Type 2 diabetes and systemic hypertension remained the leading cause of MI in this population. **Conclusion:** Incidence of acute myocardial infarction in young females (<50years of age) in the urban population is increasing. Better awareness and management of risk factors among the healthcare providers and patients will definitely helpful in the prevention of morbidity and mortality.

INTRODUCTION

Worldwide Cardiovascular disease remains the leading cause of death among women. Approximately 60 million women are living with some form of CVD and the life time risk of developing CVD for a 40-year-old female is estimated to be 1 in 2, with 1 in 3 at risk of developing coronary heart disease and 1 in 5 developing heart failure⁵. The mortality rate from CVD among young women (under the age of 55 years) has demonstrated no significant improvement in the last 2 decades, and these youngest women with CVD have the highest mortality rates. Our hospital is an annex hospital of Kilpauk Medical College and in this study, we evaluated the change in trends in the incidence of acute myocardial infarction among young women (less than 50 years of age).

MATERIALS AND METHODS

Young females (age less than 50 years) admitted with acute myocardial infarction in Govt Royapettah Hospital from January 2021 to August 2022 were

included in the study. It is a prospective study. Total of 147 patients' details were analyzed.

Inclusion Criteria

This Clinical Study is to systematically pool clinical, morphological and biological data of young Women under 50 years of age presenting with acute MI and to assess their short term (In hospital) and midterm (6 months) prognosis. The usual blood tests are performed at the time of patient's admission.

Exclusion Criteria

1. Women with Iatrogenic MI and those who died before hospitalization
2. Other Causes of Chest Pain Syndrome with elevated troponin, including myocarditis, takotsubo, sepsis is excluded.

Primary Outcome

The combined endpoint of major cardiovascular events occurring during the index hospitalization (ie) Death from any cause, cardiovascular death, recurrent MI, Stroke and major bleeding.

Secondary Outcome

Measures prevalence of classical cardiovascular risk factors, influence of gynecological and obstetrical, hormonal parameters, number of extracardiac events, prevalence of systemic diseases in the population,

prevalence of heredity, major cardiovascular events at 6months after index hospitalization.

RESULTS

Data on clinical presentation of female Myocardial Infarction patients, cardiovascular risk factors, course in the ICU and mortality were analyzed. The results were presented in tabular columns.

Table 1: Clinical presentation

Chest pain and Typical angina	135
Shortness of breath	75
Giddiness	15
Fatigue	35
Diaphoresis	130
Pain other than chest region (Arm, shoulder, middle back, jaw) and indigestion.	27

Table 2: Various risk factors for the development of Myocardial Infarction

Characteristics	Women (n=147)
Mean (SD) age (Years)	46
Blood Pressure (mmHg)	
Mean systolic	146
Mean diastolic	98
AHA Hypertension Categories	
Normal	60
Elevated	87
Stage 1 Hypertension	42
Stage 2 Hypertension	45
Body mass index(kg/m ²)	
Over weight	37
Obesity	24
Diabetes	43
Type2 diabetes treatment	
No drugs reported	10
Oral drugs only	23
Insulin only	1
Oral drugs and insulin	12
Mean duration of type 2 diabetes (Years)	6
Drug use	
Lipid lowering drugs	12
Antihypertensive drugs	52
Dyslipidemia - LDL > 100 mg /dl	78

DISCUSSION

As a consequence of contemporary life styles and increasing prevalence of obesity, the incidence of AMI continues to increase among young females. It is crucial both for physicians and young individuals to be aware of cardiovascular risk factors as well as cardiovascular signs and symptoms, in order to mitigate the symptoms to presentation times, toward optimizing patient care. In this study we analyzed temporal trends in the incidence of AMI, Evolving risk factors, course in the ICU and outcome after 6 months of index hospitalization.^[1-3]

In this study almost 90% of females were presented with chest pain as their primary complaint. This is in accordance with the VIRGO (variation in recovery: role of Gender on outcomes of young AMI patients) study. VIRGO study reported that presenting symptoms in women and men under the age of 55 years and found no differences in the report of chest pain by sex (87% women, 89.5% men).^[2]

40% of patients were presented with shortness of breath. 10% of females presented with nonspecific symptoms - pain or discomfort over in other body locations such as localized to arm, shoulder, middle

back. Indigestion, nausea, vomiting. 5% of patients were presented with fatigue. Of course, most women do report chest pain and discomfort along with these additional symptoms.

Time window of presentation

Median time interval between the onset of symptoms and presentation in this hospital is 8 hours. 47% of patients were presented within 6 hours of time interval. 10 % of patients presented after 24 to 36 hours of onset of symptoms

Risk factors

Traditional risk factors like hypertension and Diabetes were found in more than 50% young women with Acute myocardial infarction. Diabetes was found in 32 % women and hypertension was found in 40% of women. 62% of women had metabolic syndrome. Young women also had higher prevalence of anxiety, depression and stress. In the GENESIS PRAXY study young women had greater traditional risk factors than young men, young women also had a greater nontraditional risk factors like stress, depression, low household income.^[1]

Young women with adverse pregnancy outcomes are at higher risk of accelerated atherosclerosis and premature CAD.

Course in ICU

Young women with ACS had longer in hospital stay and greater in hospital mortality. Thirty-seven women with ACS were needed ICU care for more than 4 days. Ventilation care was needed in 29 patients. CVA (Intra cerebral hemorrhage-both major and minor) developed in 5 patients. 30 days mortality was noted in 3 patients. 5 patients were readmitted for cardiac failure within 6 months.^[4-6]

CONCLUSION

Incidence of Acute myocardial infarction is increasing because of the change in the life style and grater prevalence of diabetes, obesity and metabolic syndrome. In this study , we found incidence of acute myocardial infarction in young females is on the rising trend. Type 2 Diabetes, systemic hypertension, and dyslipidemia remained the leading cause of MI in the urban population. Non-traditional risk factors such as depression, anxiety and stress need special consideration and clinical assessment. In addition to the improvement in symptom awareness of young women for early presentation of ACS, we should focus on secondary prevention with guideline directed therapy for the improvements in outcomes.

Dedicated Post ACS rehabilitation is also necessary to optimize long term health related quality of life.

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