

CLINICAL STUDY OF CORONARY ARTERY DISEASE IN WOMEN WITH SPECIAL REFERENCE TO RISK FACTORS

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ABSTRACT

AIM

To study the clinical profile of coronary artery disease in women and to identify the influence of the risk factors.

METHODS

We conducted a prospective observational study in Vydehi Institute of Medical Science and Research Centre (VIMS & RC), Bengaluru during the period June 2012 to Dec 2013. Patients admitted with history suggestive of coronary artery disease were evaluated clinically and investigated for risk factors. Prognosis with regards to morbidity and mortality following the standard treatment protocol was documented.

RESULTS

Out of 100 cases of coronary artery disease (CAD), 32 had Acute Myocardial infarction (AMI), 23 with Unstable Angina and 45 patients had Stable Angina. Nearly half of the patients had the traditional risk factors, namely hypertension (HTN), diabetes mellitus (DM), hyperlipidaemia and obesity. Chest pain was the most common symptom. Mortality was 14% which was observed predominantly in post-menopausal women who presented after 24 hours of the onset of symptoms.

CONCLUSION

Coronary artery disease is no longer a disease of men. Men and women share the same traditional risk factors like HTN, DM, Obesity, and Hyperlipidaemia. Increased incidence of complications and mortality occurred in those who presented after 24 hours of the symptoms. Our study highlights the importance of early recognition of CAD and initiation of thrombolytic therapy, to reduce significant morbidity and mortality.

KEYWORDS

Coronary Artery Disease, Women, Diabetes Mellitus, Hypertension.

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INTRODUCTION: It has been recognised over the past years that women form a distinct subpopulation within the patients with coronary artery disease.¹ Though Coronary artery disease (CAD) has been widely considered a man's disease, it is one of the leading cause of death in adult women in the west. Women have different cardiac presentation than men and are more likely to be underdiagnosed and under treated for CAD. Risk factors carry a different predictive value in women than men, necessitating a gender specific approach for primary and secondary prevention. Women who have a history of irregular menstrual cycles, oestrogen deficiencies and polycystic ovary syndrome may have a higher risk of developing heart disease as they age.² Women tend to have less atherogenic lipoprotein subclass profiles than men. Elevated triglycerides are more common in women.

A triglyceride value more than 150 mg% (1.7 mmol/L) is considered to be a marker of increased risk of CAD in women.³ Of special concern is that women with CAD are more likely than men to receive suboptimal and less aggressive care. Women with CAD have higher mortality rate than men with CAD. It is estimated that 31% of women will die from CAD. CAD tends to occur early in life in Indians than ethnic groups. Hence, this study is undertaken to know the clinical profile of CAD in women of south Indian population.

MATERIAL AND METHODS: This was a clinical prospective and observational study conducted in the department of Medicine and Cardiology, VIMS and RC during the period June 2012 to December 2013. 100 adult female patients admitted with history suggestive of Ischaemic heart disease (IHD) were included in the study. Patients with valvular heart disease, cardiomyopathy, those on digoxin and patients with abnormal thyroid profile were excluded from the study. Inclusion criteria were: Patients with chest pain suggestive of IHD and or electrocardiographic (ECG) changes of IHD. After obtaining detailed history and clinical examination, patients were subjected to investigations to confirm CAD, namely serial ECG, CK-MB and troponins.

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Treadmill test was done when it was found necessary. Patients were also investigated for risk factors for CAD, namely blood sugar and lipid profile. Appropriate treatment was initiated as per the standard protocol. Inpatient followup with respect to morbidity and mortality was recorded meticulously. Results were analysed using descriptive statistics.

RESULTS: In this group of 100 female patients with IHD, age of presentation was between 40-89, with maximum patients in age group 40-69 (Fig. 1) with a mean of 58.9 years. 62% were from urban area.

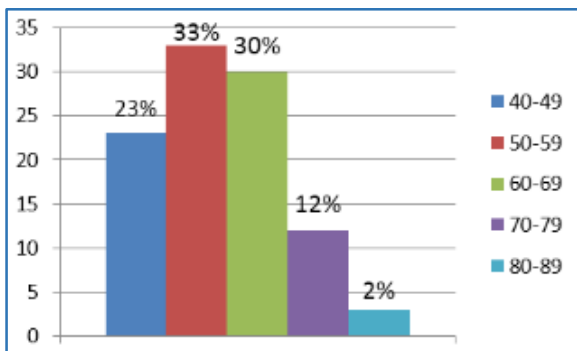


Fig. 1: Age of Distribution of Cases

Hypertension, dyslipidaemia, obesity and diabetes were the major risk factors, present in 59%, 56%, 50%, 47% respectively (Fig. 2).

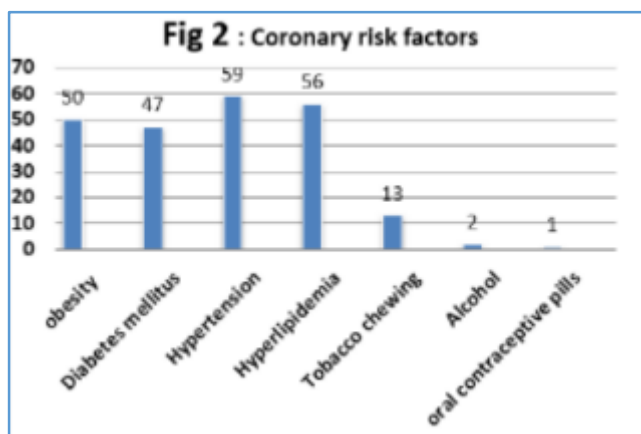


Fig 2 : Coronary risk factors

Majority of the patients had chest pain as the presenting symptom (83%). Breathlessness and sweating were present in 44% and 25 % of the patients (Fig. 3).

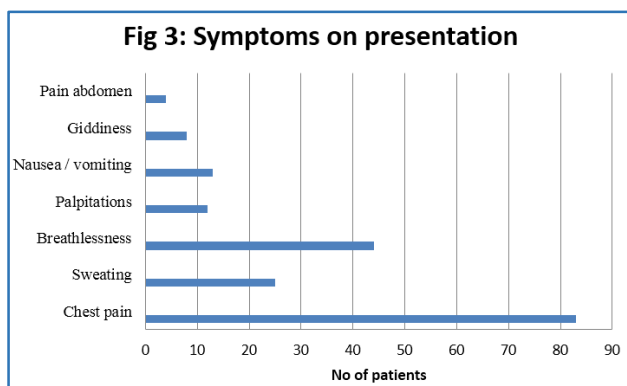


Fig 3: Symptoms on presentation

72% of patients were in Killip class 1 followed by 17% in class 2. More than half of the patients presented 24 hours after the onset of chest pain (Fig. 4).

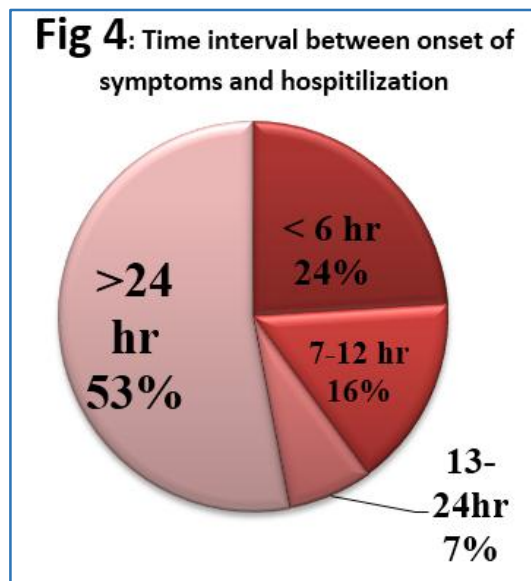


Fig 4: Time interval between onset of symptoms and hospitalization

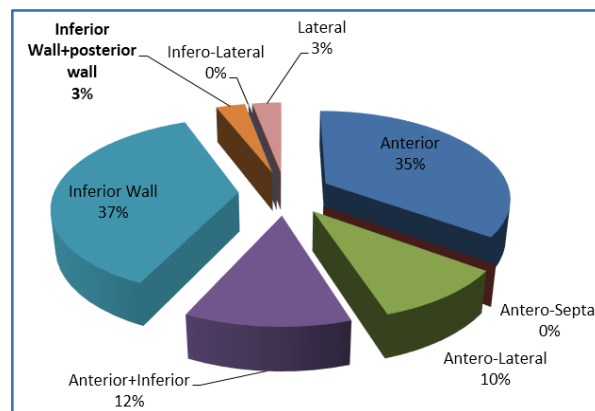


Fig. 5

45% had chronic stable angina, 23% unstable angina and 32% presented with acute MI. Of the 32 patients with acute MI, 57% had anterior wall MI and 40% inferior wall MI (Fig. 5). 28% of the patients had complications. Left ventricular failure (LVF) was found in 12%, Ventricular tachycardia in 8% and heart blocks in 6% of patients. Most deaths occurred during the first 24 hours after admission (71.4%). Mortality rate was high in patients with cardiogenic shock and those with LVF. Maximum mortality was in the elderly group between 70-79 (50%) and those in Killip class 3 & 4.

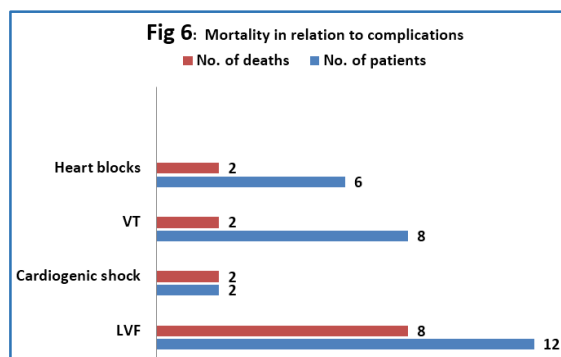


Fig 6: Mortality in relation to complications

DISCUSSION: Traditionally, coronary artery disease has been considered as a disease predominantly affecting men and for a long time women were not included in the cardiovascular research programs.¹ Our study clearly indicates the importance of CAD in women. It is a myth that coronary artery disease is less common and less severe in women. Women are older than men at the time of initial presentation.⁴ In our study, more number of patients were in postmenopausal period (70%). The syndrome of chest pain without CAD is distinctly more common in women than in men. They are more prone to have atypical symptoms. Almost half of the myocardial infarctions in women present with shortness of breath, nausea, indigestion, a burning sensation in chest/abdomen, dizziness, vague fullness or fatigue.⁵ We did not find such picture in the present study. Majority of our patients presented with chest pain (82%), breathlessness and sweating being next common symptoms.

Women report more angina symptoms despite lower rates of obstructive CAD. In a recent meta-analysis of 74 reports from 13,311 women and 11,511 men, angina prevalence was 11-27% greater for women <65 years of age.⁶ Framingham study found that IHD initially presented as chest angina in 65% of women, and in 35% of men, whereas infarction or sudden death was the first manifestation in 37% of women and 63% of men.⁷ Another meta-analysis of international variations across 31 countries has found that women have an "atypical" course of coronary artery disease i.e. without classical pain syndrome typical of angina nor frequent attacks at night.⁸

The pattern of risk factors, in our study did not show any significant difference between men and women. HTN, DM, dyslipidaemia and obesity were found in more than 50% of the patients. Our study showed strikingly higher incidence of hypertension (59%), whereas Cyril James in a study on 496 patients with CAD, admitted in a tertiary care hospital in Kerala found only 39% with hypertension and very high incidence of diabetes mellitus (79%), and Dyslipidaemia (71%).⁹ WHO global health statistics 2012 also found low prevalence of hypertension in India (23.10% in men and 22.6% in women) compared to world figures.¹⁰

High incidence of CAD in postmenopausal women is mostly because of clustering of these risk factors. Clinical profile of CAD in our study shows that majority of patients presented either as chronic stable angina (45%) or unstable angina (23%). 14 patients died, out of whom 6 patients had unstable angina and 8 patients myocardial infarction. Crude mortality rate following myocardial ischaemia in the present study is 25.45% (14/55 patients), which is quite significant. In a study of 850 patients conducted by Hanratty et al, crude mortality rate observed was 30% (260 patients).¹¹

Higher mortality in our study may be due to low socio-economic status of the patients and delayed hospitalisation which denied them thrombolytic therapy. Many studies confirm that women are either underdiagnosed or undertreated due to various reasons.^{12,13,14} In a report from the European Heart Survey on stable angina pectoris, it was found that women are less likely to be referred for functional testing for ischaemia and that a lower rate of diagnostic

angiograms and interventional procedures are performed compared with men.¹⁵

In our study, LVF was the major cause of mortality, followed by ventricular arrhythmias. Patients in Killip class IV had higher mortality. There is a conflicting report about whether short-term mortality after MI is higher among women than men. A meta-analysis of 3,84,837 patients with MI (1,55,565 women and 2,29,313 men), found younger women not older women have higher rates of death during hospitalisation than men of the same age.¹⁵ However, in our study, mortality was higher in elderly women. CAD in women continues to be a major public health problem with almost half million deaths per year attributed to IHD in women. It has claimed lives of more women than men and the gap continues to grow. Women tend to be older and sicker than men at presentation. High number of women patients with IHD, who have normal coronaries, pose an additional diagnostic problem, and these patients, in fact are at a relatively higher risk of future cardiac events and adverse outcome.¹⁶

CONCLUSION: Our study clearly shows that CAD is no longer a man's disease. Women with IHD suffer from the same traditional risk factors namely; HTN, DM, hyperlipidaemia and obesity. Our study showed higher incidence of hypertension in women. Women tend to present more with chest pain as a presenting symptom, are less investigated for presence of risk factors and receive treatment for CAD after a sufficient delay, which is the major cause of significant mortality and morbidity. Rural background of the patients and poor socioeconomic status also significantly contribute for the adverse outcome in Indian patients.

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