ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 04, pp.48887-48891, April, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A STUDY ON CLINICAL PROFILE OF CORONARY ARTERY DISEASE IN FEMALES

***Arulanandhan Ettiyan, Dr. Banugopanar Balaraman and Dr. Arjunan Senthil kumaran**

Assistant Professor of Medicine, Chengalpattu Medical College, Tamilnadu, India

ARTICLE INFO

Article History:
Received 23rd January, 2017
Received in revised form
18th February, 2017
Accepted 07th March, 2017
Published online 20th April, 2017

Key words:

Pathophysiologies,
Crepitations,
Dyslipidaemia.

ABSTRACT

Coronary heart disease has been defined as "impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart". Coronary artery disease is the leading cause of death among women, regardless of race or ethnicity and causing the deaths of 1 in 3 women. Women with coronary artery disease present differently than men, have different pathophysiologies and risks profiles and are often significantly older and thus often have poorer outcomes the study was concluded at Government Coimbatore Medical College hospital, Coimbatore during September 2010 to June 2011. This study was done as a descriptive study. Hundred female patients admitted with clinical features and ECG changes and associated disease and Biochemical marks taken as cases. The following are conclusion that could be inferred from this study on clinical spectrum and risk factors among female patients.

1. The most common presentation is chest pain.
2. The most common cardiovascular sign is basal lung Crepitations.
3. Increased waist hip ratio is associated with increased risk of Myocardial Infarction in female population
4. Most of the patients with Myocardial Infarction have dyslipidaemia.
5. Diabetes Mellitus clearly related to Myocardial Infarction.
6. Hypertension also associated with Increased risk and Myocardial Infarction.
7. Sedentary habits also associated with increased risk of coronary artery disease.
8. Most common presentation is ST elevation MI.
9. Among STEMI most common type of MI is Antero septal MI.
10. OCP intake accounts for risk of obesity and MI.

Citation: Arulanandhan Ettiyan, Arulanandhan Ettiyan, Dr. Banugopanar Balaraman and Dr. Arjunan Senthil kumaran, 2017. "A study on clinical profile of coronary artery disease in females", *International Journal of Current Research*, 9, (04), 48887-48891.

INTRODUCTION

Coronary heart disease has been defined as "impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart". Coronary artery disease is the leading cause of death among women, regardless of race or ethnicity and causing the 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. Women with coronary artery disease present differently than men, have different pathophysiologies and risks profiles and are often significantly older and thus often have poorer outcomes. Experts in industrialized societies have long recognized that the first presentation with coronary heart disease occurs approximately 10 years later among women than men, most commonly after menopause.

****Corresponding author: Arulanandhan Ettiyan,***
Assistant professor of Medicine, Chengalpattu Medical College, Tamilnadu, India.

Although coronary artery disease in general manifests earlier in less well-developed countries, the approximate 8 to 10 years age gap in time of onset between men and women universal. Despite this delay in onset, morality from coronary heart disease is increasing more rapidly among women than men are both developed and developing world.

Aim of the study

This study is to find the various modes of presentation and clinical profile of coronary artery disease in females. To study the associated risk factors, there is an need to recognize all these condition so as to reduce the burden associated with it in terms of increased morbidity and mortality.

MATERIALS AND METHODS

- The study was concluded at Government Coimbatore Medical College hospital, Coimbatore during September 2010 to June 2011.

- This study was done as a descriptive study.
- Hundred female patients admitted with clinical features and ECG changes and associated disease and Biochemical marks taken as cases.
- Inclusion criteria
  1. Patients above 40 years
  2. Hypertension
  3. Diabetes mellitus
  4. Dyslipidemia
- Exclusion criteria
  1. Congenital Heart disease.
  2. Rheumatic Heart disease.
  3. Structural Heart disease.
  4. Electrical abnormalities.
- Admitted 100 female patients were examined and detailed history was taken about the patients menstrual history, sedentary habits, Diet habits, Smoking habits, h/o Alcohol intake, Family h/o marital h/o and medications h/o and systemic hypertension and Type 2 DM and others risk factor analysis was made.
- Baseline investigations like complete blood count, urine RIE, renal function test, ECG, Chest X-ray, Blood pressure monitoring was done in all study subjects.
- Hypertension was considered by documentary history of hypertension on medication or BP >140/90 mmHg.
- Diabetes mellitus was considered by documentary history and Fasting blood Sugar and Postprandial Blood Sugar values considered.
  1. FBS- 126
  2. PPBS-160
- Clinical Symptoms like chest pain, Nausea, Vomiting, Dysponea, Syncope Radiation were all taken into account and percentage of each was studied.
- Signs like hypotension, hypertension, raised JVP, S3, S4, Crepts, where were all looked for.
- Total cholesterol, LDL, HDL, Triglycerides levels identified and taken into the study.
- Patients were grouped into four categorized according to their age as 40-50 yrs, 50-60 yrs, 60-70 yrs, above 70 yrs.
- Body mass Index was calculated by wt/ht(m^2) in all study groups waist/Hip ratio calculator in all study groups. Killip Score is calculated based on classification according to the clinical presentation.

Killip Classification

Class	Features
I	No heart failures
II	Mild to moderate heart failure (S3; rales no more than half way to the back)
III	Severe heart failure (Pulmonary edema)
IV	Cardiogenic shock

- Electrocardiogram was performed in all study subjects
- Echocardiogram was performed in all study subjects
- Troponin study was done in NSTEM1 and unstable angina patients.

RESULTS

Age wise distribution

100 patients were studied in our study grouped into four category.

- Between 40-50 yrs
- Between 50-60 yrs
- Between 60-70 yrs
- Above 70 yrs

Table 1. Age wise distribution

Age	Frequency (No of Patients)
Between 40-50 yrs	17
Between 50-60 yrs	24
Between 60-70 yrs	33
Above 70 yrs	26
Total	100 patients

1. BMI (H/M^2)

Observations
In our study

- Healthy – 26 patients
- Overweight – 51 patients
- Obese – 23 patients

Table 2. Age wise distribution of BMI

Age	Healthy	Overweight	Obese	Total
Between 40-50 yrs	5	9	3	17
Between 50-60 yrs	6	13	5	27
Between 60-70 yrs	10	14	9	33
Above 70 yrs	5	15	6	26
Total	26	51	23	100

2. Waist HIP ratio

- 0.85 considered as significant
- 81% (81 out of 100 patients presented with >0.85 WHR.
- 19% (19 out of 100 patients) presented with <0.85 WHR.

3. Menstruation

In our study 7% (7 out of 100) patients were menstruating women.

4. Sedentary habits

In our study 89% (89 out of 100) patients reported to have sedentary habits.

Table 3. BMI and Sedentary Habits

BMI	Sedentary Habits		Total
	No	Yes	
Healthy	6	20	26
Overweight	4	47	51
Obese	1	22	23
Total	11	89	100

Table 4. Chest pain and Sedentary Habits

Chest Pain	Sedentary Habits		Total
	No	Yes	
No	1	11	12
Yes	10	78	88
Total	11	89	100

5. No smoking habits patients were studied. 2% (2out of 100 patients) reported to have habits of alcohol intake.

6. History

Oral contraception intake was questioned and found that 40% of the patient gave the history in our study (40 out of 100 patients).

7. Clinical Symptoms

- Chest pain is the most common presenting symptom.
- 88% (88 out of the 100 patients) presented with chest pains.

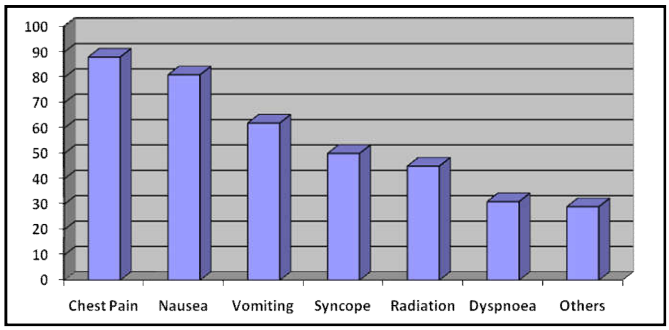

Figure 1. Bar diagram for Clinical Symptoms

Symptoms

- Chest pain – 88%
- Nausea – 81%
- Vomiting – 62%
- Syncope – 50%
- Radiation – 45%
- Dyspnoea – 31%
- Other (Palpitation, epigastric pain) – 29%

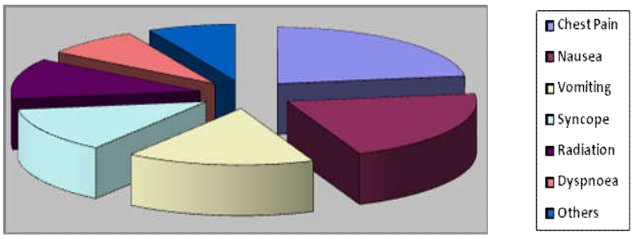

Figure 2. Pie chart for Symptoms

8. Clinical signs

- Crepitation is the most common presentation of clinical sign.
- 45% (45 out of the 100 patients presented with crepitations).

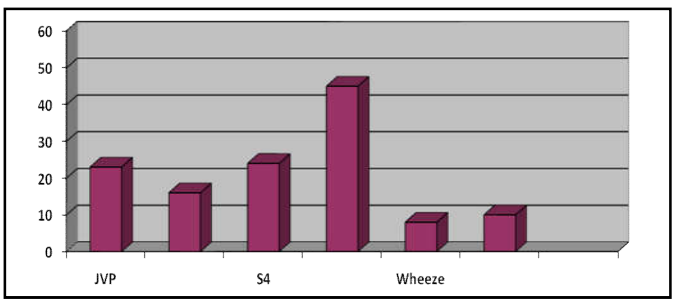

Figure 3. Bar diagram for clinical sign

Signs

- JVP – 23%
- S3 – 16%
- S4 – 24%
- Crepitation – 45%
- Wheeze – 8%
- Hypotension – 16%

9. Type 2DM

In our study

- 45% (45 out of 100 patients) presented with elevated fasting blood sugar level.
- 50% (50 out of 100 patients) presented with elevated post prandial glucose level.

Table 5. Age and Fasting Blood Sugar

Age	Fasting Blood Sugar		Total
	Normal	Abnormal	
Between 40-50 yrs	8	9	17
Between 50-60 yrs	17	7	24
Between 60-70 yrs	16	17	33
Above 70 yrs	14	12	26
Total	55	45	100

Table 6. Age and Postprandial Blood Sugar

Age	Postprandial Blood Sugar		Total
	Normal	Abnormal	
Between 40-50 yrs	6	11	17
Between 50-60 yrs	14	10	24
Between 60-70 yrs	18	15	33
Above 70 yrs	12	14	26
Total	50	50	100

Table 7. Chest pain and Fasting Blood Sugar

Chest (yes/no)	Fasting Blood Sugar		Total
	Normal	Abnormal	
No	6	6	12
Yes	49	39	88
Total	55	45	100

Table 8. Chest pain and Postprandial Blood Sugar

Chest (yes/no)	Postprandial Blood Sugar		Total
	Normal	Abnormal	
No	7	5	12
Yes	43	45	88
Total	50	50	100

10. Systemic Hypertension

In our study 25% (25 out of 100) patients presented with elevated blood sugar.

11. Lipid abnormalities

- 37% (37 out of 100 patients) found to have high levels of cholesterol.
- 57% (57 out of 100 patients) found to have HDL <50 m/dl.
- 40% (40 out of 100 patients) found to have high LDL cholesterol >130 mg/dl.

- 59% (59 out of 100 patients) found to have high levels of triglycerides.

12. ECG was performed in all patients

Types of Abnormalities

- ST Elevation MI – 80%
- Non ST Elevation MI – 10%
- Unstable Angina – 10%

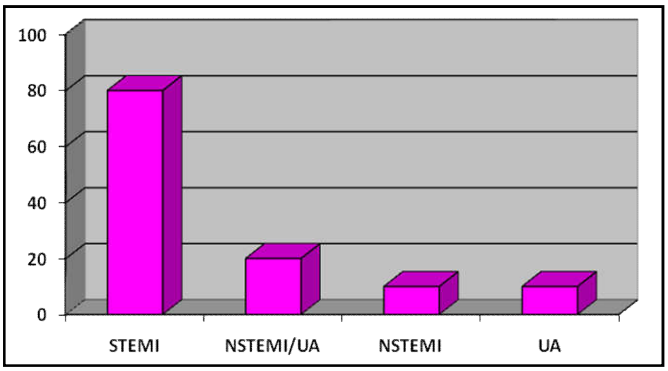

Figure 4. Bar Diagram for CAD

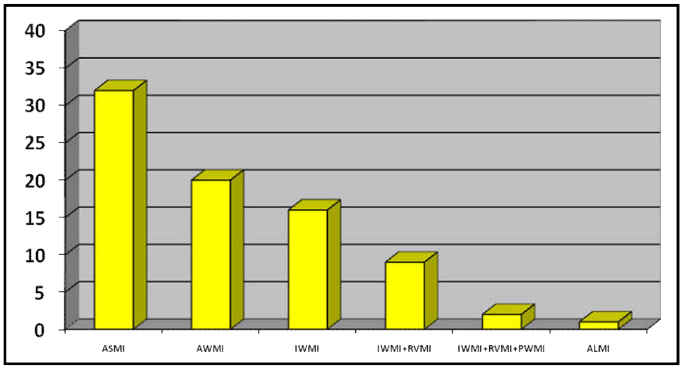

Figure 5. Bar diagram for STEMI

13. Troponin

Cardiac markers study done in 20 patients 50% (10 out of 20 patients) found to have specific cardiac markers.

14. Echo was performed in all study groups.

15. CRP was performed in all study groups and 71% found to have positive (Elevated) CRP (71 out of 100 patients).

DISCUSSION

Coronary artery diseases are major causes of mortality and disease in the Indian subcontinent more than 25% of deaths. It has been predicted that these diseases will increases rapidly in India and this country will host more than half the cases of heart diseases in the world within the next 15 yrs. Women constitute 48% of the total population in India, however due to inadequate perception and attention, coronary heart disease remains a formidable health problem in women.

- In our study 88 out of (88%) 100 patients presented with chest pain. Other symptoms
  1. Nausea – 81%
  2. Vomiting – 61%
- In a study by MARRUGAT *et al*., showed that women are more likely to have symptoms such nausea.
  1. In our study 33% (33 out of 100 patients were among age group between 60-70 yrs. Coronary artery disease mortality among women gradually increases with age and increase in the risk of coronary artery disease is related to a higher incidence of hypertension, diabetes, obesity and dyslipidemia.
- In our study 51% (51 patients out of 100) found to have over weight
- In our study 23% (23 patients out of 100) found to have obesity
- In our study 51% (51 patients out of 100) presented with >0.85 WHR.
- The JAIPUR HEART WATCH (JHW)[2] studies reported significantly escalating trends in obesity and high WHR in an Indian urban population.Obesity is linked to multiple cardiac risk factors like DM, SHT, Dyslipidemia.
  1. In our study 45% (45 patients out of 100) presented with elevated Blood sugar Level.
  2. In our study 50% (50 patients out of 100) presented with elevated Postprandial glucose level.
  3. Cardiovascular disease is the most common complication of diabetes in women, and diabetes is the only condition that causes women to have rates of coronary artery disease similar to those of men.
  4. HUXLEY AND COLLEAGUES[3] found women with diabetes has 3.5 fold increase in cardiovascular mortality compared with non-diabetic women as well as their male counterpart.
  5. Diabetes confers substantial increase relative risk of first, incident, and admission for MI for women with age-to-sex matched controls younger than age 65 yrs over 20 yrs follow up in COPENHAGEN CITY HEART STUDY.
- The risk of CAD among diabetic subjects is remarkably higher compare to non diabetic subjects. The risk of death due to CAD in diabetic subjects with one prior myocardial infarction MI is similar to that sex in a non diabetic subjects with an earlier MI, while the risk is tri-placed in diabetic subjects with known MI. the life expectancy of diabetic patient is reduced by 30% compare to non diabetic subjects which translates to 8 year of loss of life in diabetic subjects. Further the protective female gender in pre-menopausal women is abolished diabetic females.
  1. In our study 89% (89 out of 100 patient) reported to have sedentary habits major risk factors for CAD dependent on the demographic and societal transition are physical inactivity, excess dietary calories and fat intake, being overweight, obesity, high blood pressure, diabetes, cholesterol levels, the metabolic syndrome and psychosocial stress.
  2. GUPTA *et al*[4] reported in Jaipur hypertension in females are high and JOSEPH *et al*[5] reported in trivandrum reported SHT in females are high compared to male and increase the risk of CAD.

In our study

- 37% found to have elevated cholesterol levels
- 57% found to have decreased HDL levels
- 37% found to have high LDL levels
- 37% found to have high triglycerides levels

- The INTERHEART study reported that the ratio of apolipoprotien (apo B to apo A-1) was an important risk marker for acute myocardial infarction. Higher levels were seen in south asian cases.
- The JAIPUR HEART WATCH (JHW) studies reported that there is a significant increase in total cholesterol, LDL cholesterol and triglycerides and a decline in HDL cholesterol is women ane men at all age groups.
  1. In our study prevalence of smoking was zero percent.
  2. A study by LIAQUAT ALI CHEEMA *et al*[6], (Gender comparison of coronary risk factors and clinical presentation in paskistani patients with coronary artery lesion) showed that smoking was not a risk factor is females in the study population and diabetes mellitus and obesity were more common in females.
- In a study by V.CHIAMVIMONSAT and L.STERNBERG (University of Toronto)[7]Coronary artery disease is the leading cause of mortality in women, with incidence after menopause equal to that of men.
- Diabetes and post menopausal status without HRT are the strongest risk factors.

Conclusion

The following are conclusion that could be inferred from this study on clinical spectrum and risk factors among female patients.

- The most common presentation is chest pain.
- The most common cardiovascular sign is Crepitations.
- WHR associated with obesity and overweight increase risk of Myocardial Infarction in female population
- Most of the patients with Myocardial Infarction have dyslipidaemia.
- Diabetes Mellitus clearly related to Myocardial Infarction.
- Hypertension also associated with Increased risk and Myocardial Infarction.
- Sedentary habits also associated with increased risk of coronary artery disease.
- Most common presentation is STEMI.
- Among STEMI most common type of MI is ASMMI.
- OCP intake accounts for risk of obesity and MI.

REFERENCES

Chiamvimonvat, V, Sternberg, L. 1998. Coronary artery disease in women. *Can Fam Physician,* Dec; 44:2709-17.

Gupta, R. 2004. Trends in hypertension epidemiology in India. *J Hum Hypertens,* 18:73–78 [PubMed].

Gupta, R., Gupta, V.P., Bhagat, N., Rastogi, P., Sarna, M., Prakash, H., Deedwania, P.C. 2008. Obesity is major determinant of coronary risk factors in India: Jaipur Heart Watch studies. *Indian Heart J.,* Jan-Feb;60(1):26-33.

Huxley, R, S. Mendis, E. Zheleznyakov, S. Reddy and J. Chan, 2010. Body mass index, waist circumference and waist:hip ratio as predictors of cardiovascular risk—a review of the literature. *European Journal of Clinical Nutrition*, 64, 16–22; doi:10.1038/ejcn.2009.68; published online 5 August 2009

Joseph, A., Kutty, V.R., Soman, C.R. 2000. High risk for coronary heart disease in Thiruvananthapuram city: a study of serum lipids and other risk factors. *Indian Heart J*., 52:29–35 [PubMed]

Liaquat Ali Cheema, Tariq Ashraf, Ishtiaq Rasool, Hamid ALI Tirmizey, 2007. Gender distribution of coronary Arterylesions in patients aged 50 years and below. *Pakistan Heart Journal,* Vol. 40 No. 1-2.

Marrugat, J. *et al*. *Eur J Epidemiol.,* 19 (9), 831-839. 2004.

****