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An Observational Study on the Clinical profile of Female patients with Coronary Artery Disease

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Abstract
Objectives: *objectives of our study was to evaluate the clinical profile and angiographic studyof female patients with coronary artery disease.*
Methodology: *A complete assessment, physical examination and relevant investigations like routine investigations, EKG, echocardiogram, lipid profile, CRP, specific cardiac bio-markers (Troponin T/I, CK-MB), coronary angiogram was performed to patients with coronary artery disease.*
Results: *Data was analyzed by using simple statistical methods with the help of MS-Office software.*
Conclusions: *Post menopausal women was more prone to coronary artery disease. Chest pain was the common symptoms, vomiting, palpitation, sweating and shortness of breathing were the second common symptoms followed to each other. Dyslipidemia and hypertension was the greater risk factors of ischemic heart disease. Hypercholesterolemia was the common type of dyslipidemia in IHD patients with CAD. ST – elevated myocardial infarction (STEMI) was commonly seen in IHD patients. Majority of patients with STEMI presented delayed fibrinolysis. Streptokinase was commonly used as fibrinolytic agent. Clopidogrel was commonly used as antiplatelets. Single vessel disease (SVD) lesion was commonly seen in patients with CAD. Left anterior descending (LAD) artery was commonly involved in single vessel disease (SVD) of patients with CAD.*
Keywords: *Female patients, risk factors, coronary angiography, ischemic heart disease, coronary artery disease.*

Introduction

Cardiovascular disease has become a dominant cause of morbidity and mortality in most countries. Developing countries, have been facing CAD epidemic for the last 2-3 decades. Mortality from cardiovascular disease accounted for 16.9% of all CVD deaths worldwide in 19981. Even

Indians living in other countries have the highest rates of CAD amongst any ethnic group.[1]
It is also the leading cause of mortality and morbidity in middle aged women in developed and developing countries. Women constitute about 48% of the total population in India; however due to inadequate perception and

attention, CHD also remains a formidable health problem of women in India and it is rightly said that CHD is under diagnosed, undertreated and under researched disease in women for various reasons.[2] Although majority of studies reported that only about 3% of all CAD cases occur in <40 y of age, it should be considered as the 'tip of the iceberg' as young, asymptomatic patients usually do not undergo medical investigations. The incidence of CAD is reported to be12–16% among young Indian patients, with more than half of death related to cardiovascular disease occurring in patients below the age of 50 y and one-fourth of acute myocardial infarction cases being reported in patients under the age of 40 yrs.[3]Several risk factors have been recognized over the years trying to explain the aetiology and mechanisms leading to CAD. These include hypertension, dyslipidaemia, diabetes, smoking, and other tobacco products, age, family history, etc[3]. High rates of CAD in Indians despite lack of conventional risk factors led to recognition of new risk factors, like lipoprotein(a) (Lp-a).[4] Aim of our study was to evaluate the clinical profile and angiographic characteristics of female patients with coronary artery disease (CAD).

Materials and Methods

A total of 110 female patients with coronary artery disease were enrolled in this study. Age group ranges 30 to >60 years were included. Attendants of entire subject signed an inform consent approved by institutional ethical committee of Katihar Medical College, Katihar, Bihar, India was sought. Data was collected in department of Cardiology, Katihar Medical College, Katihar, Bihar, during period from January 2017 to February 2018.

Methods

A complete assessment and physical examination was taken to all female patients of age equal to or greater than 30 yrs With or without Family history or personal history of Ischemic heart disease, With or without conventional or non-conventional CAD risk factors and along with EKG,

biomarkers and/ or imaging evidence of CAD. All female patients diagnosed as coronary artery disease by electrocardiogram and/ or cardiac bio-markers and/ or invasive or non-invasive coronary angiogram were enrolled.

Females with normal EKG, normal bio-markers and normal invasive and/or non-invasive coronary angiogram and patients with chronic kidney disease were excluded from this study.

Procedure

Relevant investigations such as all routine investigations, EKG, echocardiogram, lipid profile, CRP, specific cardiac bio-markers (Troponin T/I, CK-MB), coronary angiogram was performed. Study Population

Coronary Artery Disease was defined as presence of stable angina, unstable angina or myocardial infarction. Patients with stable angina were recruited from outpatient department while those of unstable angina and myocardial infarction were recruited from both ward and ICCU department department of Cardiology. Baseline demographics, clinical and risk factor profile were collected. Elective coronary angiography was performed through standard femoral or radial artery approach. Angiographic data were collected by analysing the angiograms by cardiologists. Patients were grouped as having single vessels disease (SVD), double vessel disease (DVD) and triple vessel disease (TVD) according to the number of vessel involvement.CAD was defined as ≥1 epicardial coronary segment with diameter stenosis > 50% and was diagnosed visually and using quantitative coronary angiography (QCA) software.

Statistical Analysis

Data was analyzed by using simple statistical methods with the help of MS-Office software.

Observation

We were studied a total of 110 cases of female patients with chronic artery disease (CAD).
In this studied, age group of female patients 30 to > 60 years were enrolled.

Table.1 Distribution of age and incidence of coronary artery disease (CAD) in female

Age (years)	No. of female patients	Percentage
30-40	16	14.54%
41-50	28	25.45%
51-60	30	27.27%
>60	36	32.72%
Total	110	100%

In this study, 16(14.54%) female patients was in age group of 30 to 40 years. 28 (25.45%) patients was in age group of 41-50 years. 30(27.27%) patients was in age group of 51-60 years. And majority of female patients 36 (32.72%) was in age group of greater than 60 years.

Table 2 Symptoms of female patients with CAD.

Symptoms	No. of female patients	Percentage
Chest pain	110	100%
Shortness of breath (SOB)	34	30.91%
Sweating	44	40%
Vomiting	67	60.91%
Palpitation	38	34.54%

This study found that chest pain was common symptom to all cases (100%) with CAD. Vomiting 67(60.91%) was second more common symptoms seen in cases with CAD.

Table 3 Showing the risk factors of IHD in female patients with CAD.

Risk factors	No. of female patients	Percentage
Hypertension(HTN)	50	45.45%
Diabetes mellitus (DM)	41	37.27%
Dyslipidemia	70	63.63%
Smoking	00	00%
Hypothyroidism	12	10.91%
Hormone replacement therapy (HRT)	00	00%
Chemotherapy	03	02.72%
Family history CAD	28	25.45%

In this study, dyslipidemia 70(63.63%) was more common risk factors for CAD. Hypertension (HTN) 50(45.45%) and diabetes mellitus 41(37.27%) was second and third common risk factors for CAD in female patients respectively.

Table 4 Showing the dyslipidemia in female with IHD.

Type of dyslipidemia	No. of patients	Percentage
Hypercholesterolemia (>200 mg/dl)	69	62.72%
Hypertriglyceridemia (>150 mg/dl)	41	37.27%
High density lipoprotein cholesterol (<35 mg/dl)	33	30%
Low density lipoprotein cholesterol (> 130mg/dl)	48	43.63%

In this study, we seen that majority of female cases 69(62.72%) had hypercholesterolemia with ischemic heart disease (IHD). Low density lipoprotein cholesterol 48(43.63%) and hypertriglyceridemia 41(37.27%) was second and third type of dyslipidemia were seen in CAD patients with IHD respectively.

Table 5 Showing menstural status with patients with CAD.

Menstural status	No. of patients	Percentage
Pre menopause	32	29.09%
Menopause	78	70.91%

Majority 78(70.91%) of female patients with CAD was seen in post menopausal stage.

Table 6 Showing the Menstural status with diabetes mellitus and hypertension of patients with CAD.

	DM	No DM	HTN	No HTN
Premenopause (n=32)	08 (25%	24 (75%)	15 (46.87%)	17 (53.12%)
Menopause (n=78)	32 (41.02%)	46 (58.97%)	34 (43.58%)	44 (56.41%)

This study shown that out of 78 menopause women 32 (41.02%) women with CAD were diabetes mellitus and majority of post menopausal women 46(58.97%) were no history of diabetes mellitus. And 44(56.41%) cases of post menopausal women were no history of hypertension and 17(53.12%) of premenopausal women with CAD were also no history hypertension and 15(46.87%) premenopausal women were history of hypertension.

Table 7 Menstural status and dyslipidemia of patients with CAD.

	Dyslipidemia	No dyslipidemia
Menopause(n=78)	58(74.35%)	20(25.64%)
Premenopause(n=32)	12(37.5%)	20(62.5%)

In this study, we were observed that majority of menopause women 58(74.35%) were suffered with dyslipidemia and only 12(37.5%) cases of premenopause women were suffered with dyslipidemia.

Table 8 Showing the spectrum of ischemic heart disease (IHD) of female patients with CAD.

Type of IHD	No of patients	Percentage
St elevated myocardial infarction (STEMI)	65	59.1%
Non st elevated-unstable angina(NSTE-UA)	32	29.09%
Stable ischemic heart disease (SIHD)	13	11.81%

This study shown that majority of cases 65(59.1%) of CAD were STEMI type of IHD. SIHD was less common type of IHD seen female patients13 (11.81%) with CAD.

Table 9 Showing the Fibrinolysis in patients with STEMI (n=65).

Fibrinolysis	No. of female patients	Percentage
Yes	21	32.31%
Delayed presentation	44	67.69%

In STEMI type of IHD, majority of cases 44(67.69%) were fibrinolysis had delayed presentation.

Table 10 Showing the fibrinolytic agent used in STEMI type of IHD.

Agents	No. of patients	Percentage
Streptokinase	13	61.90%
Reteplase	6	28.57%
Tenecteplase	2	9.52%

In cases of fibrinolysis, streptokinase 13(61.90%) was mostly used as fibrinolytic agent.

Table 11 Anteplatelets used in cases with CAD.

Anteplatelets	No of patients	Percentage
Clopidogrel	76	69.09%
Ticagrelor	34	29.91

In this study, clopidogrel was used in majority of cases 76(69.09%) and ticagrelor was used in 34 (29.91%) cases of CAD as a anteplatelets.

Table 12 Showing the angiographic profile of study population.

Parameters	Young women (age ≤ 50 years, n=46)	Elderly women (age> 50 years, n=64)
Normal coronaries (n=14, 12.72%))	09(19.56%)	05(07.81%)
Single vessel disease (SVD) (n=51, 46.36%)	29(63.04%)	22(34.37%)
Double vessel disease (DVD) (n=20, 18.18%)	07(15.21%)	13(20.31%)
Triple vessel disease (TVD) (n=25, 22.72%)	01(2.17%)	24(37.5%)

When angiographic study was done to all 110 female cases, we were seen that SVD lesion 51(46.36%) was more common. Majority of 29(63.04%) female cases were SVD lesion in age ≤ 50 years and 22 (34.37%) cases were SVD lesion in age > 50 years.

Table 13 Showing the SVD lesion of patients with CAD (n=51).

Cases with SVD	No. of patients	Percentage
Left main coronary artery (LMCA)	0	0%
Left anterior descending (LAD)	25	49.02%
Left circumflex (LCX)	13	25.49%
Right coronary artery (RCA)	13	25.49%

Out of 51 cases of single vessel disease (SVD), majority of cases 25(49.02%) were left anterior descending (LAD). Left main coronary artery was not involved in any cases of SVD lesion.

Discussion

Coronary artery disease remains one of the principal causes of disability worldwide. It is

widely realized that at present developing countries contribute a greater share to the global burden of cardiovascular disease than developed countries.[5] V. Parameshwara et. Al[6] observed increased incidence of ischemic heart disease among women in the 5th and 6th decade. Kannel et al[7] has found a sharp increase in IHD among men during the 5th and 6th decade of life. In present study, majority of cases suffered with CAD were in age group of < 40 years. Lokesh S, Sashidhar G, (2015) concluded that common age group of female patients suffered with CAD was 45 – 70 years.[8]

In this present study, chest pain was the most common presenting symptoms followed by with or without sweating and breathlessness. Older patients less frequently have typical signs and symptoms such as chest pain with classical radiation pattern. Vomiting was the second common symptoms of patients with coronary artery disease. Similar findings was concluded by Lokesh S, Sashidhar G, (2015).[8]

In our present study, common risk factors of IHD was dyslipidemia and hypertension.

Hypercholesterolemia, and Low density lipoprotein cholesterol, type of dyslipidemia were commonly present in ischemic heart disease patient with coronary artery disease.

Lokesh S, Sashidhar G (2015) found that low HDL and high Triglycerides level which are important risk factors in female patients with CAD.[8] In the Framingham study, total plasma cholesterol level was found to be a major predictor of IHD risk for both men and women.[8]

In this study, post menopause women were commonly prone to CAD. Dyslipidemia was greatly seen in post menopausal women with CAD.

Gordon et al[9] compared pre and post-menopausal women of same age group. A 2 fold increase in IHD incidence among post-menopausal women was observed. Rosenberg et al[10] found increasing risk of IHD as the age of menopause decreases. An increased risk of IHD has been observed among women who undergo premature menopause with bilateral oopherectomy and hysterectomy.

In this study, majority of female cases had ST elevated myocardial infarction (STEMI). Non st elevated-unstable angina (NSTE-UA) was second common finding in Ischemic heart disease patients with CAD.

Out of the 59.1% of patients with STEMI, only 21(19.09%) patients were presented themselves within the window period for thrombolysis and were subsequently thrombolysed with different agents of intravenous. thrombolytics.

Streptokinase, Reteplase, Tenecteplase, being used 61.90%, 28.57% and 9.52% of times respectively. Around 67.69% patients with STEMI presented delayed fibrinolysis. Streptokinase was commonly used as fibrinolytic agent in this study.

We found in our study that delayed referral from primary and secondary health centre, increased transportation time, lack of awareness being the frequent cause of delayed presentation. All patients were treated according to latest scientific guidelines. The patients with acute coronary syndrome (ACS) were treated with antiplatelets, aspirin, statin. Patients having no contraindication were used ACEI and beta blockers.

When angiographic study was performed to all female cases with coronary artery disease. We were found that majority of young women (age< 50 years) had single vessel disease lesion (63.04%), double vessel disease was seen in 15.21% cases with CAD. Triple vessel disease lesion was greatly seen in elderly women (age > 50 years). Here single vessel disease (34.37%) was second common findings.

In this study, aspirin was used to all patients with CAD. Clopidogrel and ticagrelor were used as antiplatelets. Majority of patients 76(69.09%) were received Clopidogrel. And 34(30.91%) cases were used ticagrelor as antiplatelets.

The dose of clopidogrel was 300 mg loading followed by 75 mg once daily. The dose of ticagrelor was 180 mg loading followed by 90 mg twice daily. The reason for less frequent use of

ticagrelor in our study was the cost and stringent condition of its use as practised in our institution. The dose of aspirin was 300 mg loading followed by 75 mg once daily in patients with clopidogrel as antiplatelet, whereas it was 75 mg once daily with ticagrelor. Findings of angiographic study was showed that majority of cases 25(49.02%) had Left anterior descending (LAD) was mostly involved in SVD lesion in out of 51 cases of (SVD) single vessel disease patients. Left circumflex (LCX) 13(25.49%) and Right coronary artery (RCA) 13(25.49%) were followed with left anterior descending (LAD) artery involved in CAD patients with SVD.

Findings of our study was supported the study of G. D. Khadkikar, et al(2016).[11] In their study (LAD) left anterior descending artery was mostly affected in single vessel disease (SVD) of patients with coronary artery disease.

Conclusion

Our study concluded that the female with age greater than 40 years and post menopausal women was more prone to coronary artery disease. Chest pain was the common symptoms, vomiting, palpitation, sweating and shortness of breathing were the second common symptoms followed to each other. Dyslipidemia and hypertension was the greater risk factors of ischemic heart disease. Hypercholesterolemia was the common type of dyslipidemia found in IHD patients.ST – elevated myocardial infarction (STEMI) was commonly seen in IHD patients with CAD. Majority of patients with STEMI presented delayed fibrinolysis. Streptokinase was commonly used as fibrinolytic agent. Clopidogrel was commonly used as antiplatelets. Single vessel disease (SVD) lesion was commonly seen in patients with CAD. Left anterior descending (LAD) artery was commonly involved in single vessel disease (SVD) of patients with CAD.

Acknowledgment

References

1. Enas EA, Jacob S. Decline of CAD in developed countries: Lessons for India. In : Sethi KK (ed). Coronary Artery Disease in Indians - A Global Perspective. Mumbai: Cardiological Society of India 1998; 98-113.

2. Thom T, Hasse N, Rosamond W, et al. Heart disease and stroke statistics--2006 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation 2006;113(6):e85-e151.

3. Haque AFMS, Siddiqui AR, Rahman SMM, Iqbal SA, Fatema NN, Khan Z. Acute coronary syndrome in the young – risk factors and angiographic pattern. Cardiovascular Journal. 2010;2(2):175-78.

4. Enas EA, Mehta JL. Lipoproten (a): an important risk factor in coronary artery disease. *J Am Coll Cardiol* 1998; 32 (4): 1132-4.

5. Gaziano MJ, Manson JE, Ridker PM. Primary and secondary prevention of coronary heart disease. In : Libby P, Bonow RO. Mann DL , Zipes DP, editors. Braunwalds Heart disease. A text book of cardiovascular medicine. 8th ed. Saunders: Philadelphia; 2008. P. 1119-48.

6. V.Parameshwara: Ischemic heart disease an overview, JAPI, 1988, 36.

7. Kannel W.B., et al: Menopause and the risk of cardiovascular disease. The framingham study, Ann. Intern, Med. 1976; 85; 447-452.

8. Lokesh. S, Shashidhar, G. "A Study of Clinical Profile of Ischemic Heart Disease among South Indian Women in a Tertiary Care Centre. Journal of Evolution of

Medical and Dental Sciences 2015; 44(4): 7587-7596.

9. Gordon T, Kannel W.B., Hjortland M.C. McNamara P.M., Menopause and coronary heart disease. The Framingham study.Ann. Intern. Med. 1978; 89: 157-61.

10. Rosenberg L, Hennekens C.H., Roser B, Belanger C, Rothman K. J., Speizer. F. E., Early menopause and the risk of myocardial infarction Am.J.Obstet Gynecol. 1981; 139; 47-51.

11. Gajanan D. Khadkikar, Sangram S. Mangudkar, Jyoti A. Landge. Comparison of conventional risk factors, clinical and angiographic profile between younger and older coronary heart disease patients. Int J Res Med Sci. 2016 Feb;4(2):567-570.