Original Article

Ischemic heart disease In Women In A Tertiary Healthcare Centre: An Observational Study

Dharminder Kumar, Syed Maqbool, Sanjeev Bhat, Pankaj Sharma

Abstract:

Introduction: In present era ischemic heart diseases are one of the common causes of mortality and morbidity in men and women both but remains underdiagnosed in women. The presentation of ischemic heart disease in women is comparatively
atypical like dyspnea, nausea/vomiting, abdominal pain, back pain etc instead of typical chest pain. So various studies/research is still required for the prevalence of ischemic heart disease in women for better approach to diagnosis and treatment**.**

Material and methods: This was a retrospective, observational study of patients who were admitted in cardiology department in tertiary care centre. A consistent protocol was followed for studying the files of patients during study period. Data about clinical profile including demographics, clinical, lab investigations and treatment profile was extracted and analysed.

Results: A total of 200 patients were studied who were admitted in hospital with different heart diseases, out of which 56% (112) came out to be ischemic heart disease. Out of these 112 patients 82.14% presented with acute myocardial infarction. Proportion of patients with IHD was high in 40-50 years followed by 51-60 years**.**

Conclusion: The present study revealed that ischemic heart disease constitute a significant proportion of cardiovascular morbidity among women. A significant number of unstable angina are missed because of atypical symptoms and presentation, so we should have a higher degree of suspicion of IHD in females so as not to miss them.

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INTRODUCTION

Cardiovascular disease is the most common cause of mortality worldwide [1]. Traditionally, coronary artery disease has been described primarily as a disease affecting the male population. Contrary to common perception, coronary artery disease accounts for one-third of the total deaths amongst women [2,3].

Women often present with 'atypical' symptoms like shortness of breath, fainting and weakness [4]. Additionally, angina in women is precipitated by rest, sleep and mental stress besides physical exertion [5,6]. This often leads to delayed diagnosis and treatment of women afflicted with coronary artery disease and their under- representation in various studies. The INTERHEART Study reported that the mean age of onset of symptoms of coronary artery disease amongst women is a decade later than in men [6]. The incidence of coronary artery disease rises sharply after menopause in women, particularly amongst women having an earlier age at menopause and surgical menopause [7]. These factors contribute to general neglect of women as regards to diagnosis and management of coronary artery disease.There are several risk factors that are specific to women that predispose to the development of coronary artery disease. These include Polycystic ovarian syndrome, Functional hypothalamic amenorrhea, Autoimmune disease, Pregnancy- related disorders like Pregnancy-associated hypertension and Eclampsia, Gestational diabetes mellitus and Hormone therapy [8-11]. Moreover, traditional risk factors like dyslipidemia, smoking, diabetes mellitus and hypertension seem to have a more detrimental impact in women [12-14].

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Keywords: Ischemic heart disease, Atypical presentation, Unstable angina, Morbidity,Mortality, Late presentation

In general, it has been observed that coronary artery disease in women is under- reported, under-diagnosed, undertreated and under-prevented globally and locally. Therefore, there is an urgent need to define the particular epidemiological characteristics of women suffering from ischemic heart disease and to establish specific risk factors pertaining to women. Moreover, in taking medical advise, female come to the hospital with MI and maximum cases of unstable angina are missed because of atypical symptoms and presentation. Hence, there is an urgent need to emphasize on various diagnostic algorithms, management guidelines and prevention strategies that are better suited to the women population suffering from coronaryarterydisease.Weconductedthisstudytodeter minetheprevalenceand review risk factors involved with ischemic heart disease in women admitted in our hospital.

MATERIALS AND METHODS

This was a single-canter, retrospective, observational study including patients with heart diseases, admitted to the department of cardiology, Govt superspeciality hospital GMC JAMMU, a tertiary healthcare center from 2017-2019. Institutional Ethical Committee clearance was obtained. The data regarding social, economical, educational status and type of heart disease were retrieved from database maintained in hospital record. Relevant patient data was recorded for use as independent variables in a password protected Microsoft Excel spreadsheet. Necessary steps were taken to maintain absolute confidentiality of the patients. After the data screening, all the identifying details of the patients were removed from the final master chart which was used for further analysis.

Allthepatientswhowereagedover18yearsadmit tedincardiology department were included in present analysis.

A detailed clinical evaluation of the patients was performed to know the status of the patients. A detailed history incorporating details about occupational history, personal history, addictions, economic and education status of the patients was recorded. Various investigations done on the study subjects included:-

1. CBC,RFT,LFT
2. Lipidprofile
3. Thyroidprofile

The clinical findings and lab investigations were further supplemented with appropriate radiological imaging like Chest X-ray, ECG, ECHOand angiography. The statistical analysis was performed using SPSS software (version 21.0). All the categorical variables were represented as number and percentage (%). Continuous variables were represented as mean ± SD and median values. Qualitative variables were evaluated for statistical significance using the Chi-square test/ Fisher's exact test. A p-value of <0.05 was considered as significant.

RESULTS

A total of 200 patients were included in the present study. Out of 200 patients admitted in cardiology department with different heart disease, 56% were having the Ischemic heart disease

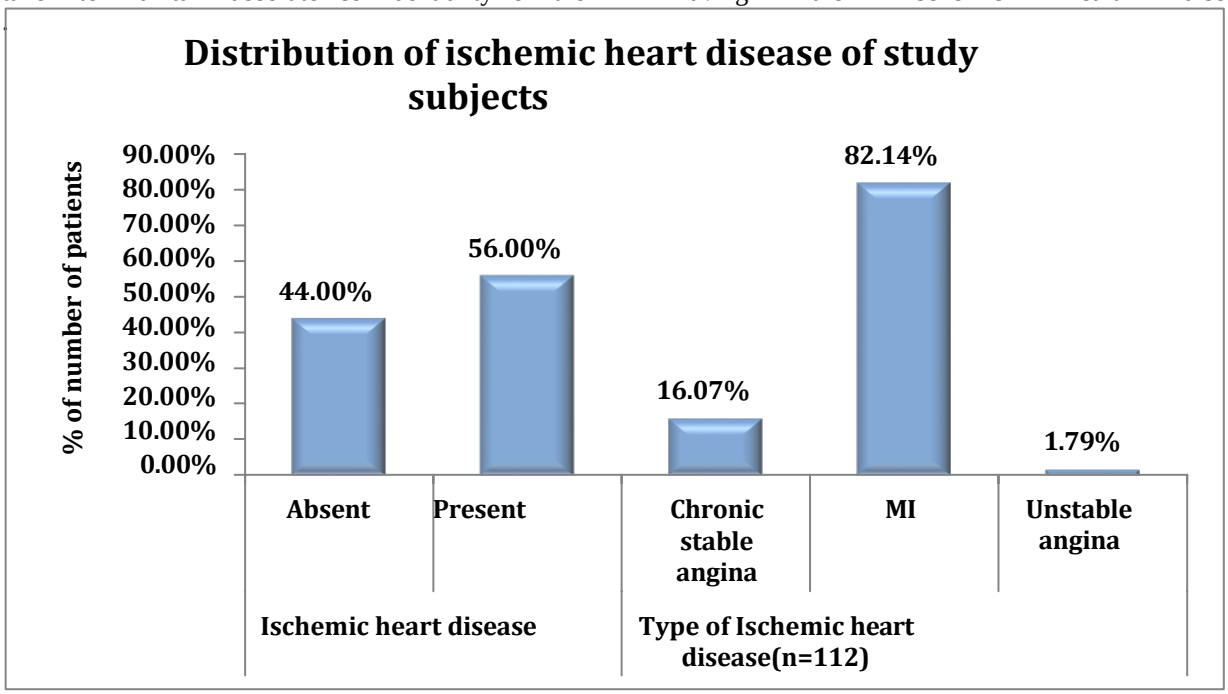

Figure1:-Distribution of ischemic heart disease of study subjects.

In present study, in majority (56.00%) of patients, ischemic heart disease was present. Ischemic heart disease was absent inonly88 out of 200 patients (44.00%).

In majority (82.14%) of patients, type of Ischemic heart disease was MI followed by chronic stable angina (16.07%). Type of Ischemic heart disease was unstable angina in only 2 out of 112 ischemic heart disease patients (1.79%).

Table1:-Association of risk factors with ischemic heart disease.

Risk factors	Noischemic disease (n=88)	Ischemic disease (n=112)	Total	p-value
Age(years)				
18-30	8(80%)	2(20%)	10 (100%)	0.001
31-40	8(40%)	12 (60%)	20 (100%)	
41-50	10 (27.78%)	26 (72.22%)	36 (100%)	
51-60	16 (30.77%)	36 (69.23%)	52 (100%)	
61-70	30 (62.50%)	18(37.50%)	48 (100%)	
>70	16 (47.06%)	18 (52.94%)	34 (100%)	
Mean±SD	58.43±16.41	57.29±12.28	57.79±14.22	
Median(25th-75th percentile)	61(48-70)	58(50-65)	60(50-70)	0.585
Range	18-85	30-85	18-85	
Smoker				
No	84 (47.19%)	94 (52.81%)	178(100%)	0.011
Yes	4(18.18%)	18 (81.82%)	22 (100%)	
Diabetes mellitus				
No	78 (49.37%)	80 (50.63%)	158(100%)	0.003
Yes	10 (23.81%)	32 (76.19%)	42 (100%)	
Hypertension				
No	50 (56.82%)	38 (43.18%)	88 (100%)	0.001
Yes	38 (33.93%)	74 (66.07%)	112(100%)	
Anemia				
Noanaemia	50 (40.32%)	74 (59.68%)	124(100%)	0.365
Moderate anaemia	14 (46.67%)	16 (53.33%)	30 (100%)	
Severe anaemia	24 (52.17%)	22 (47.83%)	46 (100%)	
Lipids				
Abnormal	2(3.13%)	62 (96.88%)	64 (100%)	<.0001
Normal	86(63.24%)	50 (36.76%)	136(100%)	
Hypothyroid				
No	80 (44.44%)	100(55.56%)	180(100%)	0.704
Yes	8(40%)	12 (60%)	20 (100%)	

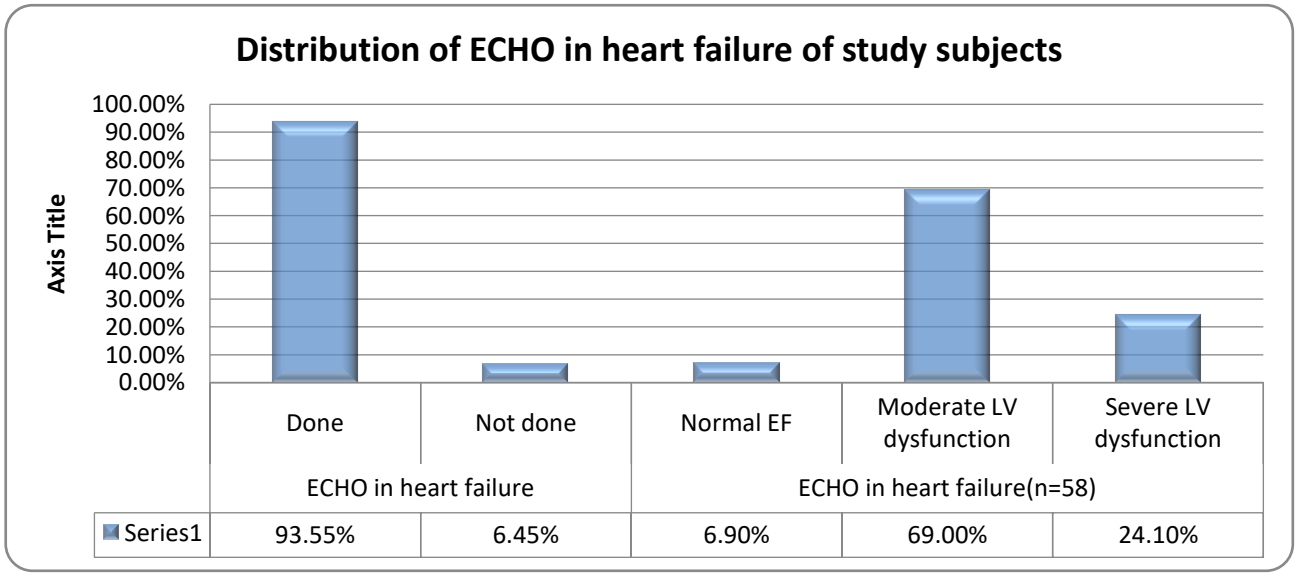

Figure2:-Association of risk factors with ischemic heart disease.

Proportion of patients with ischemic heart disease was significantly higher in age group 41-50 years(72.22%), 51-60 years(69.23%) and 31-40 years(60%) as compared to 18-30 years(20%), 61-70 years(37.50%) and >70 years(52.94%). (p value = 0.001) But mean ± SD of age(years) of patients without ischemic disease was58.43±16.41andwithischemicdiseasewas57.29±12. 28withnosignificant association between them. (p value=0.585)

Proportion of patients with ischemic heart disease was significantly higher in smokers (81.82%), diabetics (76.19%), hypertensive (66.07%) and patients with abnormal lipids (96.88%) as compared to non-smokers (52.81%, p value = 0.011), non-diabetic (50.63%, p value = 0.003), non-hypertensive (43.18%, p value = 0.001) and patients with normal lipids (36.76%, <0.0001) respectively.

Distribution of ischemic heart disease was comparable in patients without anemia (59.68%), moderate anemia (53.33%) and severe anemia (47.83%). (p value = 0.365)

Distribution of ischemic heart disease was comparable inpatients with and without hypothyroid (60% vs 55.56% respectively). (p value = 0.704). It is shown in table 2, figure 2.

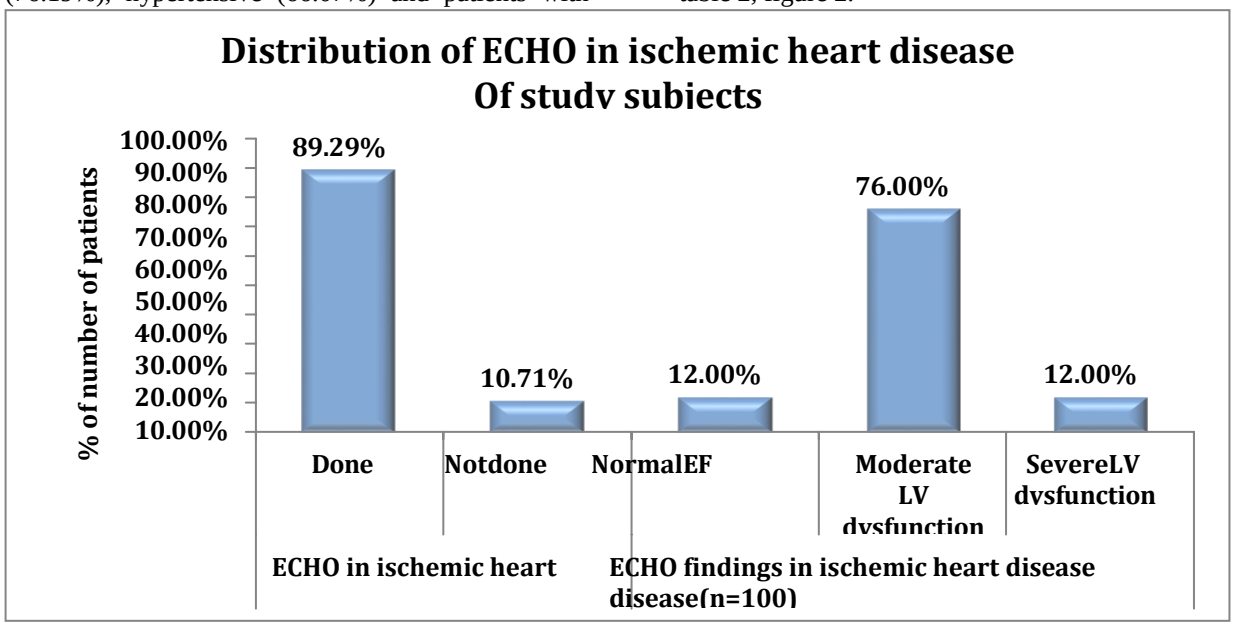

Figure3:-DistributionofECHOinischemicheartdiseaseofstudysubjects.

In present study, in majority(89.29%) of patients, ECHO in ischemic heart disease patients was done. ECHO in ischemic heart disease patients was not done in only 12 out of 112 patients (10.71%).

In majority (76%) of patients, moderate LV dysfunction was present followed by severe LV dysfunction (12%) and normal EF (12%). It is shown in table 3,figure 3.

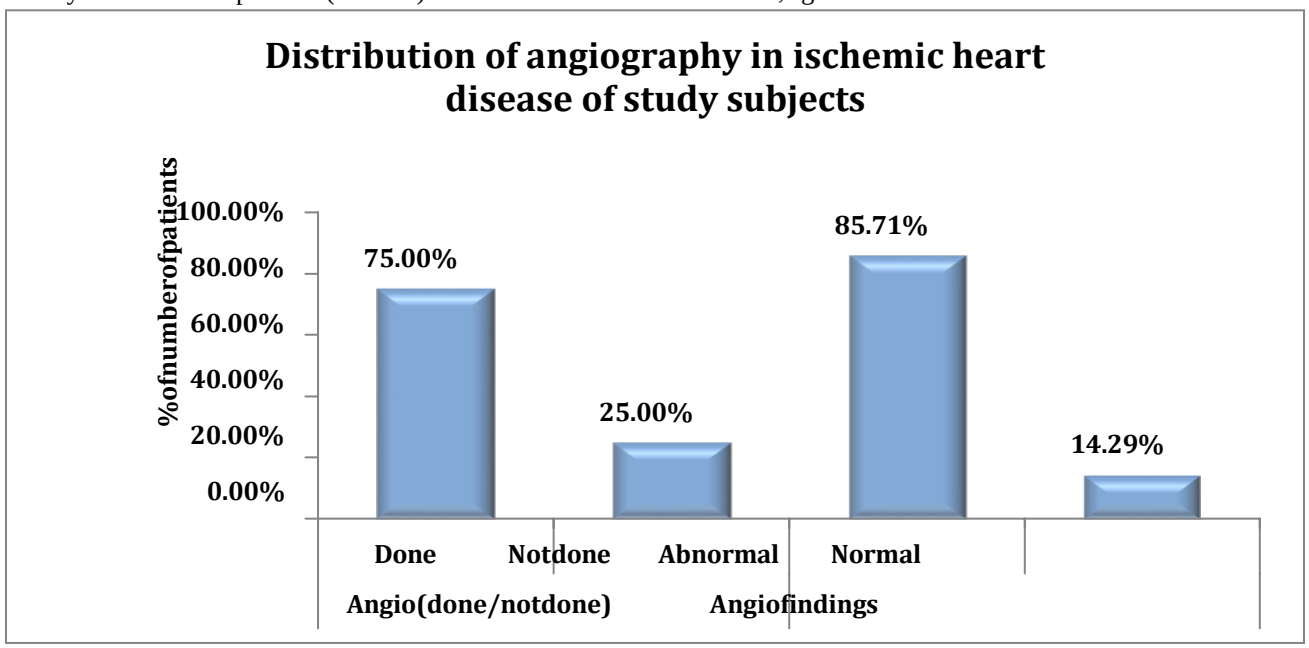

Figure 4:-Distribution of angiography in ischemic heart disease of study subjects.

Inpresentstudy,inmajority(75.00%)ofpatients,angiography wasdone.Angiography was not done in only 28 out of 112 patients (25.00%). In majority (85.71%) of patients, angiography findings was abnormal. Angiography findings was normal in only 12 out of 84 patients (14.29%). It is shown in table 4, figure 4.

Table2:-Distribution of coronaries artery disease of study subjects.

Coronaries artery disease	Frequency	Percentage
NormalCoronaries	12	14.29%
LAD	18	21.43%
LAD+RCA	10	11.90%
LAD+LCX	10	11.90%
RCA	10	11.90%
LCX	10	11.90%
LCX+RCA	6	7.14%
LM	4	4.76%
LAD+LCX+RCA	2	2.38%
LM+RCA	2	2.38%

LAD (21.43%) was the most common coronary artery disease followed by LAD + RCA(11.90%),LAD+LCX(11.90%),RCA(11.90%),LCX(11.90%),LCA+ RCA (7.14%) and LM (4.76%). LAD + LCX + RCA and LM + RCA was present in only 2 out of 84 patients (2.38%) each.It is shown in table 5 and figure 5.

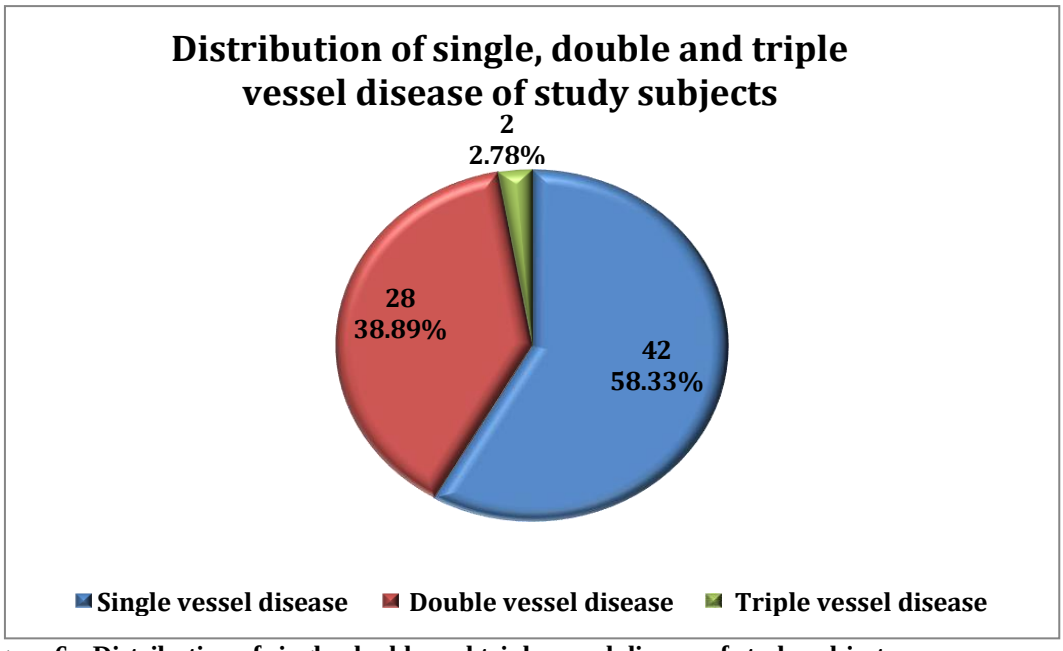

Figure 6:- Distribution of single, double and triple vessel disease of study subjects.

Out of 72 patients with coronary artery disease, 58.33% had single vessel disease, 38.89% had double vessel disease and 2.78% had triple vessel disease. It is shown in table 6 and figure 6.

DISCUSSION

The current study revealed that ischaemic heart disease was present in 56% of the total study subjects. Out of all patients affected, the most common disease presentation was myocardial infarction, seen in82.14% of the patients followed by chronic stable angina, seen in 16.07% of the patients. The least common form of presentation was unstable angina, present in 1.79% of

the patients. Wenger *et al* reportedthatchronicstableanginawasthemostcommonin itialcomplaintof
women presenting with ischaemic heart disease. Our observations differ from the observations of the study since myocardial infarction was the most common initial presentation of patients in our study. This difference could be attributed to the fact that women tend to neglect their symptoms and present later to the hospital than their male counterparts, particularly in developing countries like India. Moreover, women tend to present with atypical symptoms like fatigue, nausea and breathlessness rather than typical angina symptoms which lead to delayed presentation [5,18,32].

The prevalence of ischemic heart disease was higher in individuals aged more than 40 years of age. Observational studies in the past have revealed that the incidence of ischaemic heart disease increases with age in women, particularly during the post-menopausal period[3,8,33]. Hence, this observation is in concordance with other studies.

Smoking, Diabetes, hypertension and dyslipidemia were significantly associated with an increased risk of ischemic heart disease in the study population. This is in accordance with other studies conducted globally which also have observed that these traditional risk factors seem to be more detrimental in women[12-14,34,35].Anaemia and hypothyroidism were however, not significantly associated with an increased risk of ischemic heart disease in the study population.

Majority of patients, that is, 76% patients with ischemic heart disease in whom echocardiography was performed, had moderate LV dysfunction. This indicates that ischemic heart disease is responsible for causing significant LV dysfunction.

Amongst the patients in whom coronary angiography was done, 85.71% patients had abnormal angiograms and a significant proportion of patients, that is 14.29% patients, had normal coronaries. This is in accordance with other studies conducted
in women patients with ischemic heart disease which reveal that women tend to have lesser burden of obstructive epicardial disease and a significant proportion of women have normal coronaries with symptoms attributable to microvascular angina[19,28].

Amongst the patients with abnormal coronary angiograms, LAD was the most commonartery affected (21.43%) followed byequal prevalence of disease inRCA and LCX (11.90%). Furthermore, majority of the patients in the study group had single-vessel disease (58.33%) followed by double-vessel (38.89%) and triple- vessel disease (2.78%). These observations were also in accordance with similar studies conducted elsewhere amongst women participants [36].

LIMITATIONS

The major limitation of our study was the retrospective nature of our study, thereby generating a low level of evidence. A limited sample size of the study precluded any subset analysis. Due to financial constrains all the patients enrolled in the study did not undergo angiography which may effect the eventual outcomes of the patients. Also due to the retrospective nature of the study data on long term follow up and survial outcomes could not be assessed.

We recommend that future prospective studies including long term follow up of such patients and data on prevalence of a second cardiac event in them must be recorded. Also, a study with a relatively larger sample size can help in risk stratification based on the smoking index, BMI, lipid profile of the patients can help to generate new data.

CONCLUSION

This study conducted at a tertiary-care hospital in Jammu revealed that ischaemic heart disease constitutes a significant proportion of cardiovascular morbidity amongst women.

The prevalence of ischaemic heart disease increases with age and is higher in elderly women than in younger women. Traditional risk factors like smoking, diabetes, hypertension and dyslipidemia confer significantly increased risk of ischemic heart disease in women and appear to be more detrimental in women.

Ischemic heart disease also leads to LV dysfunction in women, particularly moderate LV dysfunction.

A significant proportion of women with ischemic heart disease have normal angiograms, implying greater role of microvascular angina and endothelial dysfunction in women.

Most women with ischemic heart disease having abnormal angiograms have single vessel disease with LAD being the most commonly affected artery followed by RCA and LCX in equal proportions.

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