Risk Factors Molding the Direction of Ischemic Heart Disease and the Most Prevalent Ishcemic Heart Disease amongst Males and Females of Punjab

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ABSTRACT

Introduction: Ischemic heart disease (IHD) is a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium; it typically occurs when there is an imbalance between myocardial oxygen supply and demand. It is a myth that this disease is more prevalent amongst males. In the present study we will be evaluating the risk factors associated with ischemic heart disease and the most prevalent ischemic heart disease amongst males and females

Material and Methods: The present study was conducted involving 100 male and 100 female patients reporting to in the outpatient department emergency of Department of Medicine, Rajindra Hospital/ Government Medical College, Patiala. A detailed history was obtained from all the patients and complete clinical and labortary investigations were performed and recorded. The data was analysed using SPSS software.

Conclusion: The incidence was maximum in 6th decade in females and 5th decade in males of their life. Hypertension was the most common risk factors in females and males. The least common risk factor was alcohol amongst females and smoking, diabetes, family history ranked the same amongst males.

Keywords: Diabetes, Hypertension, Ischemic Heart Disease, Myocardial

INTRODUCTION

Ischemic heart disease (IHD) is a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium; it typically occurs when there is an imbalance between myocardial oxygen supply and demand. Central to an understanding of the pathophysiology of myocardial ischemia is the concept of myocardial supply and demand. About 75% of the total coronary resistance to flow occurs across three sets of arteries: (1) large epicardial arteries (Resistance 1 = R 1), (2) prearteriolar vessels (R 2), and (3) arteriolar and intramyocardial capillary vessels (R 3). In the absence of significant flow-limiting atherosclerotic obstructions, R 1 is trivial; the major determinant of coronary resistance is found in R 2 and R 3. Abnormal constriction or failure of normal dilation of the coronary resistance vessels also can cause ischemia. When it causes angina, this condition is referred to as microvascular angina.[1] Atherosclerotic heart disease, ischemic heart disease, (IHD) and coronary artery disease (CAD) are synonymous terms used to describe this disease process.[2]

Ischemic heart disease is generally thought to be a man's disease. However it is a myth that this disease is less common and less severe in women.[3] A 50-year-old woman's risk of dying from coronary artery disease is 10 times greater than her mortality risk from hip fracture and breast cancer combined.[4] CAD in women continues to be a major public health problem. Since 1984, it has claimed lives of more women than men in the United States annually.[5] In the present study we evaluated the risk factors associated with ischemic heart disease and the most prevalent ischemic heart disease amongst males and females

MATERIAL AND METHODS

The present study was conducted in the outpatient department emergency of Department of Medicine, Rajindra Hospital/ Government Medical College, Patiala. A total of 200 patients were enrolled in this study which was conducted over a period of 3 years. 100 males and 100 female patients took part in the study. The patients were included based on the diagnosis of ischemic heart disease which was made on following basis: ECG documenting MI or; angiographic demonstration of coronary stenosis >50% (from record of patient); angina or H/O angina with evidence of myocardial ischaemia on ECG or (stress electrocardiogram/ echocardiogram) and correlation with risk factors and positive biomarkers or history of coronary artery bypass graft (CABG) or percutaneous coronary intervention (PCI). Patients with chest pain due to any other causes were not included in the study. All the patients and their relatives were informed about the study and a prior informed consent was obtained.

A detailed history was obtained from all the patients and recorded in a predesigned proforma. Complete examination and routine investigations of all the patients were performed and recorded in the proforma.

STATISTICAL ANALYSIS

The results of the study were analysed using SPSS software and the chi square test was applied as a test of significance. P value of less than 0.05 was considered significant.

RESULTS

The results obtained from the study of 100 females and 100 males cases of IHD admitted in Rajindra Hospital, Patiala are as follows.

Table 1 demonstrates the age distribution of the male and female patients reporting to the department. The mean age of

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the patients was 59. 5 years with the age range of 40-79 years. Maximum incidence of ischemic heart diseases occurred in the age group of 60-69 years in females and 50-59 years in males. The minimum incidence was seen in 70-79 years amongst females and males. P value came out to be .019 indicating a highly significant difference.

Table 2 demonstrates the risk factors associated with the coronary artery disease. The risk factors reported in our study were diabetes, hypertension, hyperlipidemia, obesity, alcohol, smoking and family history. Amongst this hypertension was the most common risk factors in females and males. The least common risk factor was alcohol amongst females and smoking, diabetes, family history ranked the same amongst males. There was a significant difference in risk factors amongst males and females except family history where the difference was not significant.

Table 3 demonstrates the type of coronary artery disease. Maximum number of patients (64 male and 50 female) were admitted with Acute myocardial infarction and only 25 female and 6 males were admitted with chronic stable angina. The p value came out to be .001 indicating a highly significant difference.

DISCUSSION

Ischemic heart disease is a common condition amongst males and females these days. Modern lifestyle owing to its sedentary habits increases the risk of heart disease. In our study maximum cases were found in 6th decade (29% in males and 41% in females) followed by in the age group of 7th decade (21% in male and 36% in females). According to a study by Kannel et al[6], a sharp increase in IHD was found among men during the 5th and 6th decade of life and women lag approximately 10 years behind. IHD does not become a major cause of morbidity and mortality in women until the age of 55 years. The Framingham study demonstrated that young women have lower cholesterol levels. At 50-55 years, however, cholesterol levels increase and exceed men's and we know that high triglycerides levels have a greater impact on CAD development.[7]

In the present study 20 male patients (20%) had diabetes mellitus, 10 patients had hypertension as well as diabetes. 45 female patients (45%) had diabetes mellitus, out of which 37 patients were having hypertension also. Kannal[8], reported that diabetes increased the risk of coronary artery disease 3 fold in women, placing them in similar risk to men of the same age. The present study is comparable with the study Vaccarino et al[9] done with respect to females. In the present study 40% males and 70% female patients with IHD had hypertension. Case control and cohort studies have consistently identified hypertension as a major independent risk factor for the development of IHD and subsequent mortality. A systolic pressure of 160 mm Hg or greater or a diastolic blood pressure of 85 mm of Hg or greater have been shown to increase the risk of IHD 2 to 3 fold in both men and women. In the study Bengttson et al,[10] 22 of the 47 women (46.8%) with myocardial infarction had the history of arterial hypertension. In the study Beverly[11] showed that 78% female were having hypertension. The incidence of hypertension in the present study correlates with the study of Bengttson et al (1973).

In the present study we found 25% males and 45% females patients were having obesity. Whether obesity itself is an independent risk factor for IHD, remains unclear and the available evidence suggests that the unrestrained weight gain worsen the atherogenic risk factor profile. According to a study by Kerry A, Millner et al[12], 38% of women patients were having obesity. IHD patients with obesity may be due to rapid urbanization and change in lifestyle. Obesity of females in the present study is comparable with James C.[13] and Beverly[11] studies. In the present study 38% males and 65% female patients had abnormal lipid profile. In the Framingham study[7],

Age intervals (Years)	Male	% age	Female	% age
40-49	30	30	18	18
50-59	39	39	36	36
60-69	22	22	41	41
70-79	09	09	5	5
Total	100	100	100	100
Chi Square	9.993			
P value	0.019			
Significance	S			

Table-1: Showing age distribution

Risk Factors	Male	Female	Chi Square	P value	Significance
Obesity	25	45	8.791	0.003	HS
Diabetes Mellitus	20	45	14.245	<0.001	HS
Hypertension	40	70	18.182	<0.001	HS
Hyperlipidemia	38	65	14.593	<0.001	HS
Alcohol	34	0			
Smoking	20	2	18.939	<0.001	HS
Family History	20	14	1.276	0.259	NS

Table-2: Showing coronary risk factors

Types of CAD	Male	% age	Female	% age
Acute MI	64	64%	50	50%
Unstable Angina	30	30%	25	25%
Chronic Stable Angina	6	6%	25	25%
Chi Square	13.819			
P value	0.001			
Significance	HS			

Table-3: Showing type of coronary artery diseases

total plasma cholesterol level was found to be a major predictor of IHD risk for both men and women. For every 1% increase in total plasma cholesterol level a 2% increase in the incidence of IHD was observed for both men and women.

In the present study of women with Ischemic heart disease we had 14 patients (14%) menstruating and 86 patients (86 %) had attained menopause. Kannel et al.[8] compared pre and post menopausal women of same age group participating in the Framingham study. A 2 fold increase in IHD incidence among post menopausal women was observed. In the present study also we have also observed higher incidence of IHD among post menopausal group when compared to still menstruating group. Rosenberg et al.[14] 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 consumption of alcohol is 34% in males and 0% in females and smoking is 20% in males and 2% in females. In a study by Beverley et al[11], risk factor of smoking in females is 20%.

In the present study there were 30% males and 25% female patients who presented with unstable angina, 6% males and 25% female patients who presented with stable angina. This series of patients shows that women are more prone to present initially with acute MI. In Framingham study 68% of deaths in women occurred at initial manifestation of CAD, compared 49% in males. This may be due to a higher proportion on unrecognized infarction in women.[15,16]

CONCLUSION

From the above study it can be concluded that the incidence was maximum in 6th decade in females and 5th decade in males of their life. The risk factors such as Diabetes mellitus, hypertension, increased levels of cholesterol and triglycerides, obesity, tobacco chewing and Family history of IHD play an important role in occurrence of coronary heart disease. Therefore a detailed history of the patient aids in diagnosing ischemic heart disease.

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