



SPECTRUM OF CARDIOVASCULAR DISEASES AT OUTPATIENT DEPARTMENT OF A TERTIARY CARE HOSPITAL

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ABSTRACT:

OBJECTIVE: We need to know the prevalence of various heart diseases in order to allocate our resources and plan preventive strategies. This study was conducted to determine the frequency of various cardiovascular diseases in a cross section of our population.

MATERIAL AND METHODS: Data was collected in July 2013 and February 2015. All adult patients were included and patients presenting to the pediatric department were excluded. Demographic data like age and gender were recorded for all patients. Patients were categorized as having Ischemic Heart disease (IHD), hypertension (HTN), valvular heart disease (VHD) or miscellaneous disorders (arrhythmia, non-ischemic cardiomyopathy or other rare cardiovascular diseases). Different diseases were diagnosed according to standard guideline based protocols.

RESULTS: A total of 721 patients were studied; 54.64% (394) were males and 45.36% (327) were females. The mean age of the patients was 51.47 ± 12.97 years. Overall, IHD was diagnosed in 404 (56%) patients; 254 (64.5%) males and 150 (45.9%) females. The second most common diagnosis was miscellaneous disorders which were seen in 21.5% and was equal in both sexes. More females were hypertensive and having valvular heart disease as compared to males (13.1% vs 8.6% and 15.9% vs 4.6% respectively). Patients with grown up congenital heart disease were 2.1% (2.4% females and 1.8% males). Different diseases were more likely to be seen in different age groups.

CONCLUSION: Ischemic heart disease is the commonest cardiovascular disease and affects males more frequently; hypertension and valvular heart disease are the second commonest disorders and affect females preferentially. Miscellaneous and congenital disease patients are equal in both the sexes. Prevalence of valvular heart disease, congenital heart disease and miscellaneous cardiovascular diseases decreased over two years whereas ischemic heart disease and hypertension remained the same.

KEY WORDS: Cardiovascular diseases, Outpatient department.

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INTRODUCTION:

Cardiovascular diseases are leading cause of death throughout the world and importantly so in the developing world. Eighty percent of the cardiovascular disease related deaths are in low and middle income countries and occurring at younger age as compared to high income countries¹. Women, however, develop coronary heart disease about ten years later than men.² In European countries IHD is more frequently observed and men are 2-3 times more likely to be suffering from it than women.³

Hypertension (HTN) is one of the most important causes of premature death worldwide killing nearly 9.4 million people every year globally, and the problem is growing⁴. Hypertension is also a major risk factor for heart disease⁵. According to

the 1990 data, the HTN was decreasing; however, recent data suggests that it is again on the rise. In 1999-2002, 28.6%⁶, while approximately 30% during 2005-2008⁵.

Although the prevalence of valvular heart disease (VHD) is lower than that of other cardiovascular diseases but the heart valve disease has become an evolving problem. Most studies indicated that sex differences in the etiology and treatment of the disease could exist.⁷

This study provides detail regarding frequencies of various heart diseases among patients presenting in outpatient department (OPD); this information is useful both for the development of health care system and patients' care. The knowledge of the relative frequencies of various heart diseases is also important for planning preventive strategies and allocating our resources for the treatment of different cardiovascular diseases.

MATERIAL AND METHODS:

This cross sectional, observational study was conducted in two parts i.e., in July 2013 and

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February 2015. Data was collected in outpatient department (OPD) of Punjab institute of cardiology (PIC), Lahore Pakistan. PIC is a tertiary care hospital with a wide catchment area situated in a metropolitan city. Patients of either gender, 17-84 years of age were included in the study (age was recorded in the data collected in 2015 only). Patients presenting in pediatric outdoor were excluded from the study. All previously worked up and new cases were enrolled. Data was collected for each patient by interview, clinical examination and from available record of the patient if any.

Patients' characteristics i.e. gender and age was recorded. Patients were classified as having Ischemic Heart disease (IHD), hypertension (HTN), valvular heart disease (VHD), Congenital heart disease (CHD) or miscellaneous disorders which included rhythm disorders, non-ischemic cardiomyopathy, other rare cardiovascular diseases or undiagnosed patients. IHD was diagnosed on the basis of history, ECG changes suggestive of ischemia (significant Q waves, ST segment deviation, T wave inversion or new left bundle branch block), coronary angiography, echocardiography and blood tests. CHD and VHD were diagnosed clinically and by echocardiography. Hypertension (HTN) was diagnosed by history, previous record of blood pressure using 140 mmHg systolic and 90 mmHg diastolic as cut point or if patient was on antihypertensive therapy. Patients who had both IHD and HTN were grouped as IHD patients.

Statistical analysis: Statistical analysis was performed using SPSS Version 20.0. Categorical variables like sex, IHD, VHD, CHD, HTN and Miscellaneous were reported as frequencies and percentages. Chi-Square Statistics was applied to observe the association of categorical variables with gender. P value ≤ 0.05 considered significant. Test was applied as two tailed.

RESULTS:

A total of 721 patients (390 in July 2013 and 331 in February 2015) were studied.

Out of 721 patients, 54.65% (394) were males and 45.35% (327) were females. The age range of the patients was 17-84 years and mean age was 51.47 ± 12.97 years. Distribution of various disease groups is shown in Figure 1. When we looked at the frequencies of various cardiovascular diseases in 2013 and 2015, it showed that IHD and HTN remained the same but there was significant decline in number of cases of CHD, VHD and miscellaneous heart disease patients (table 1). IHD was significantly more common in

Figure-1: Prevalence of various heart diseases in patient presenting to outdoor department.

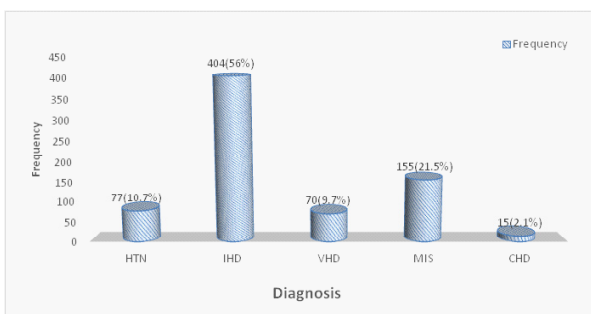


Table-1: Year-wise frequency of different diseases.

DIAGNOSIS	HTN	IHD	VHD	MIS	CHD	Total	
Year	2013	33(42.9%)	209(51.7%)	49(70.0%)	89(57.4%)	10(66.7%)	390(54.1%)
	2015	44(57.1%)	195(48.3%)	21(30.0%)	66(42.6%)	5(33.3%)	331(45.9%)
Total	77(100.0%)	404(100.0%)	70(100.0%)	155(100.0%)	15(100.0%)	721(100.0%)	
P-value	0.0567	0.0632	0.001	0.034	0.004		

Table-2: Disease pattern with respect to gender.

Diagnosis	Gender		P-value
	Male n(%)	Female n(%)	
HTN	34(8.6)	43(13.1)	0.001
IHD	254(64.5)	150(45.9)	
VHD	18(4.6)	52(15.9)	
MIS	81(20.6)	74(22.6)	
CHD	7(1.8)	8(2.4)	

men than women 254 vs 150 (64.5% vs 45.9%, p-value <0.005) Table-2; however VHD and HTN were significantly higher among women than men. Miscellaneous cases and patients with CHD were equally distributed in both the sexes. Amongst the females there was an increase in HTN and IHD whereas there was decrease in VHD, CHD and miscellaneous cases in 2015 as compared to 2013 (Table 3).

The disease pattern in different age groups (Table 4) showed that IHD was most prevalent in 51-60 years (32.8%). At age group of 41-50 years HTN was the most frequent (34.1%) and the VHD more frequently distributed in 21-30 years age group. CHD patients were very few and distributed from less than 20 years to 50 years. Majority of miscellaneous cases were seen between 30-50

**Table-3: Distribution of diseases with respect to gender and study year.**

Gender			Diagnosis					Total	P-value
Male	Year	2013	24(70.6%)	142(55.9%)	10(55.6%)	49(60.5%)	4(57.1%)	229(58.1%)	0.571
		2015	10(29.4%)	112(44.1%)	8(44.4%)	32(39.5%)	3(42.9%)	165(41.9%)	
Female	Year	2013	9(20.9%)	67(44.7%)	39(75.0%)	40(54.1%)	6(75.0%)	161(49.2%)	0.001
		2015	34(79.1%)	83(55.3%)	13(25.0%)	34(45.9%)	2(25.0%)	166(50.8%)	

Table-4: Distribution of different diseases according to age group in the year 2015.

Age groups (years)	Diagnosis					Total	P-value
	HTN	IHD	VHD	MIS	CHD		
< 20	0	0	1(4.8%)	2(3.0%)	1(20.0%)	4(1.2%)	0.002
21-30	0	3(1.5%)	6(28.6%)	11(16.7%)	1(20.0%)	21(6.3%)	0.001
31-40	8(18.2%)	16(8.2%)	4(19.0%)	15(22.7%)	1(20.0%)	44(13.3%)	0.156
41-50	15(34.1%)	59(30.3%)	5(23.8%)	15(22.7%)	1(20.0%)	95(28.7%)	0.655
51-60	11(25.0%)	64(32.8%)	3(14.3%)	16(24.2%)	0	94(28.4%)	0.1509
61-70	10(22.7%)	44(22.6%)	1(4.8%)	6(9.1%)	1(20.0%)	62(18.7%)	0.024
71-80	0	7(3.6%)	0	1(1.5%)	0	8(2.4%)	0.5412
81-90	0	2(1.0%)	1(4.8%)	0	0	3(0.9%)	0.333
Total	44(100.0%)	195(100.0%)	21(100.0%)	66(100.0%)	5(100.0%)	331(100.0%)	

years.

DISCUSSION:

Cardiovascular diseases are leading cause of death throughout the world and importantly so in the developing world. Eighty percent of the cardiovascular disease related deaths are in low and middle income countries and occurring at younger age as compared to high income countries¹. In order to allocate our resources and plan preventive strategies, we must know the spectrum of major cardiovascular diseases in our population.

In our study, as expected there is higher number of symptomatic CAD patients. Among males 64.5% and among females around 46% had CAD. In our country, the prevalence of IHD is 6.25%; 8% males and 5% females⁸ a similar male to female ratio is seen in our study. The situation is not very

different in India where it is found to be 3.7%⁹ to 9.4%¹⁰ in females and 3.4%⁹ to 13.5%¹⁰ in males. A report from the American Heart Association in 2008 showed that the prevalence of IHD is higher in men than in women (8.3% in men vs. 6.1% in women).¹¹

In our study very few patients (2.08%) were suffering from CHD. This does not represent the actual problem as we excluded the pediatric age group. The gender difference is also there in our study regarding congenital heart disease patients. More females are suffering from this disease than males. Out of the 15 patients, 7 (46.66%) were males and 8(53.34%) were females. Abbag showed similar results in Saudi Arabia where male to female ratio was 0.9:1 that is 48.35% males and 51.64% females.¹²

In our study 8.6% of male patients and 13.1% of female patients were hypertensive, with a significant statistical difference. This figure underestimates the actual situation as hypertensive patients who also had IHD were dealt under the heading of IHD patients. Gupta et al showed that hypertension was observed slightly higher among females (48.4%) as compared to males (47.5%)¹³ as is shown in our study. However Yadav et al reported Hypertension more in males (42.9%vs 34.2%).¹⁴

Hypertension was seen in 10.7% of patients attending outpatient department and 21.5% belonged to miscellaneous group of cardiovascular diseases. Nisar et al¹⁵ reported frequency of hypertension and miscellaneous disorders to be 8% and 32.0% respectively, comparable to our study.

Around 2 billion children under 15 years of age live in endemic areas of rheumatic heart disease¹⁶ as is Pakistan. In our study around 10% of patients are valvular, mostly rheumatic. But lesser number than actual may be due to the fact that we excluded pediatric patients. Our women have more valvular heart disease. Shrestha et al



found more female patients suffering from valvular (rheumatic) heart disease; 1055 females vs 658 males, and disease preponderance between 30-49 years of age¹⁷ as is shown by our study.

CONCLUSION:

Ischemic heart disease is the commonest cardiovascular disease and affects males more

frequently; hypertension and valvular heart disease are the second commonest disorders and affect females preferentially. Miscellaneous and congenital disease patients are equal in both sexes. Prevalence of valvular heart disease, congenital heart disease and miscellaneous cardiovascular diseases decreased over two years whereas ischemic heart disease and hypertension remained the same.

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