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Research Article

A Study on Clinical and Aetiological Profile of Heart Failure at Mamata General Hospital

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Abstract: Heart failure has much aetiology and is frequently encountered illness which is worldwide health problem with ever increasing proportion & major problem in elderly persons and is one of the commonest problems encountered in our patients in day-to-day practice .and most common cause of death in patients with Cardiac Disease. About 100 patients above the age of 18 years admitted with heart failure meeting the inclusion criteria (according to Framingham criteria with right sided or left sided independently or in combination are included) are taken into the study. Patients below the age of 18 years and already diagnosed cases of congenital heart disease are excluded from this study. On the basis of Clinical assessment, Electrocardiography and Echocardiography aetiology was found for all these patients with heart failure. Out of 100 patients in the study, the incidence of heart failure is more common in the age groups of 46 – 65 years of age. Incidence is more common in men than women. Patients presented with breathlessness, pedal edema, orthopnea etc., The primary aetiologies being Coronary artery disease (50%), Dilated Cardiomyopathy (17%), Hypertension (14%), RHD (7%), Anemia (7%), Cor Pulmonlae (3%), others (2%). Within the general population, cases of heart failure largely occur in elderly people and the incidence is higher in men than in women. The commonest presentation was breathlessness, followed by pedal edema. The commonest cause of heart failure is coronary artery disease followed by dilated cardiomyopathy and then hypertension combined with ischemic heart disease.
Keywords: Heart failure, Coronary artery disease, Hypertension, Cardiomyopathy, Electrocardiography, Echocardiography.

INTRODUCTION

ACC/AHA defines as "Heart failure is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs ventricle filling with or ejection of blood. The cardinal manifestations of heart failure are dyspnea and fatigue, which may limit exercise tolerance, and fluid retention, which may lead to pulmonary congestion and/or splanchnic congestion and peripheral edema [1].

Heart failure is a common cardiovascular condition with increasing incidence and prevalence [2], which is a frequently encountered illness but conflicting data exists about its rate of occurrence in general population, relative frequencies of predisposing Heart disease and the prognosis for the patients in whom Heart Failure develops.

Heart failure is a worldwide health problem predominantly in elderly persons. Unlike western countries where heart failure is predominantly a disease of elderly; in India it also affects younger age group [3]. The prevalence and aetiology of heart failure has been previously incompletely described in Indian population due to absence of surveillance programmes to track incidence, prevalence, causes etc., and hence this study [4].

As per the data available, estimation of prevalence of heart failure in India due to coronary artery disease, hypertension, obesity, diabetes and rheumatic heart disease to range from 1.3 to 4.6 million, with an annual incidence of 491 600-1.8 million [4]. Around 5.7 million people in the United States have heart failure. It is the most rapidly growing Cardio Vascular problem and a major cause of death, taking nearly 55,000 lives every year.

Moreover the economic burden imposed by Heart Failure is high and is expected to slow dramatically in view of current clinical and demographic trends. There is also anticipation that the problem of Heart Failure will double in next 30-40 years.

MATERIALS AND METHODS

A study on clinical and etiological profile of heart failure was done on patients of above 18 years of age, who were admitted in Mamata General Hospital.

Inclusion criteria

All the classical cases of heart failure above the age of 18 years according to Framingham criteria with right sided or left sided independently or in combination (biventricular failure) are included.

Right sided failure

Symptoms: Exertional dyspnoea, Pedal edema, Cough with expectoration

Signs: Raised JVP, Cardiomegaly, RV S3 gallop, Basal crepitations, Hepatomegaly, Ascites

Left sided failure

Symptoms: Paroxysmal nocturnal dyspnea, Orthopnea, Chest pain

Signs: Cyanosis, Pallor, Cardiomegaly, Dyskinetic apex, LVS3 gallop, Basal crepitations

Biventricular failure: Combination of above symptoms and signs

Exclusion criteria

Patients below the age of 18 years and already diagnosed cases of congenital heart disease are excluded from this study.

METHODOLOGY

All the above patients were subjected to above 18 years of age presented with heart failure are taken into study. Diagnosis of heart failure is confirmed by Framingham Criteria and 2-D Echocardiography and based on these results Clinical presentation and aetiology of the patients of heart failure is analysed.

RESULTS AND DISCUSSION

Table 1: Causes of Heart Failure

Aetiology	No. of cases	Percentage (%)
Coronary Artery Disease	50	50%
Dilated cardiomyopathy	17	17%
Hypertension	14	14%
Rheumatic heart disease	7	7%
Anemia	7	7%
Cor pulmonale	3	3%
Others	2	2%
Total	100	100%

Table 2: Age and Sex distribution of Heart Failure

Sl. No	Age group	Total	%	Male	Female
1	18-25	10	10	5	5
2	26-35	11	11	6	5
3	36-45	8	8	4	4
4	46-55	29	29	15	14
5	56-65	26	26	14	12
6	66-75	10	10	7	3
7	>75	6	6	5	1
Total		100	100%	56	44

Socio economic distribution

Heart failure is more common in low socioeconomic individual as compared to the high socio economic groups. But coronary artery disease causing heart failure which is commonly seen in high socio economic groups is also seen equally in low socio economic groups as Diabetes/ Hypertension/ smoking are almost equal in both these groups.

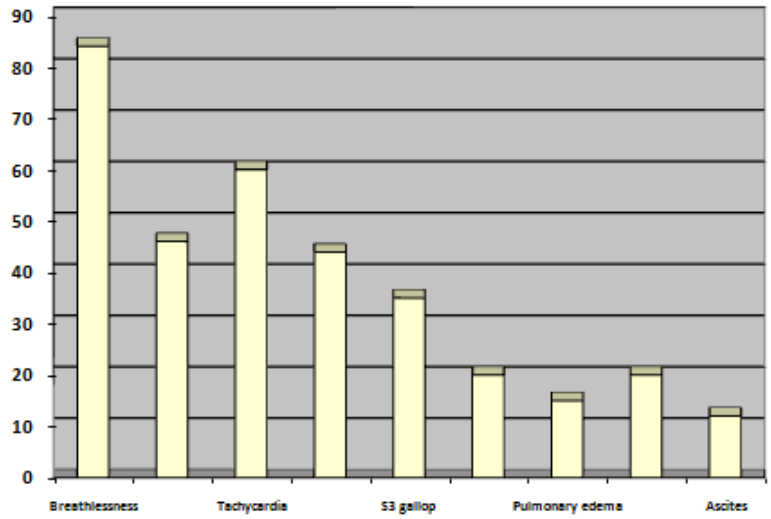

Fig. 1: Distribution of clinical features of Heart failure

DISCUSSION

The incidence of heart failure increases with age. It is more common in age groups between 45 to 65 years which accounts most number of cases.

Karl Swedberg Joh Cleland *et al.* [5] in the guidelines for the diagnosis and treatment of chronic heart failure executive summary 2005 stated that the clinical profile which mainly included breathlessness, ankle swelling and fatigue, peripheral edema, raised JVP, hepatomegaly and characteristic signs of congestion of systemic veins.

Recent studies indicate that ischemic heart disease is the common aetiology. Dilated cardiomyopathy is a potent contributor to heart failure and is the second common cause of heart failure in our study along with ischemic heart disease.

Coronary Artery Disease

In our study it is commonest cause of Heart Failure contributing 50 % with incidence of 56 % in men and 44 % in women similar to the studies of Hamzullah Khan *et al.* [6] and Docherala *et al.* [7].

The male to female ratio is 1.3:1 and more common age group is 46 - 65 years.

The male to female ratio almost equals after the age of 66 years.

In CAD atherosclerosis was found to be common [8].

Hypertension is most common risk factor, followed by smoking obesity, family history of coronary artery disease and Diabetes Mellitus.

Echocardiography was done in patients, and had Regional wall motion abnormality, Left ventricular dysfunction and Cardiomegaly with less ejection fraction.

Severe Left ventricular dysfunction is seen in 11 patients.

The Mitral Regurgitation because of papillary muscle dysfunction and papillary muscle rupture is seen in 8 cases.

The Framingham Study Shows, that Coronary Artery Disease is most common cause associated with Hypertension which is similar to our study.

Cardiomyopathy

The second leading cause of heart failure constituting 17 % cases of heart failure similar with Khan MA *et al.* [9].

The common age group in our study is 16 to 25 years and 46 to 55 years.

The male to female ratio in these age groups were similar to other studies.

The main aetiology was ischemic dilated cardiomyopathy which accounted for 41.1% cases and next was idiopathic cardiomyopathy found in 23.5% cases.

Post partum cardiomyopathy was seen in 11.7% cases and alcoholic dilated cardiomyopathy was seen14.24% cases.

Left bundle branch pattern in electrocardiogram was seen in 47.61% of cases and atrial fibrillation seen in 14.24 % cases.

Hypertension

This stands third leading cause of heart failure in our study accounting to 14% of total cases and is also seen in association with ischemic heart disease.

Commonly seen in age group of 56 to 65 years and the ratio are almost equal in younger age groups. Hypertension is the most common cause of heart failure according to Framingham cohort study.

Blood pressure of 160/100 mm Hg was noted in almost 84% of cases.

Our study showed that many patients were known hypertensive's and on irregular medication and many had stopped medication and no regular follow ups were maintained.

ECHO study in hypertension with heart failure shows left ventricular hypertrophy and diastolic dysfunction. Many patients showed hypertensive retinopathy.

Rheumatic Heart Disease

It is the fourth leading cause of heart failure, according to our study, which is more prevalent in age groups between 16 to 25 years, with a male to female ratio about 1:2.5.

Aizawa *et al*. [10] confirmed that 3% of cases were of valvular disease in studies correlating valvular diseases with CCF.

According to Berry N *et al*. [11] study 1977, the incidence of Rheumatic heart disease is 1.23 per 1000 male and 2.07 per 1000 in female.

In rheumatic heart disease the mitral valve disease is the commonest lesion out of which pure mitral stenosis accounts to 14.2% and pure mitral regurgitation to 14.2% and combined at 28.4%.

The pure aortic valve disease is seen in only 5 pts in which pure aortic stenosis seen in 11.1% cases and aortic stenosis plus aortic regurgitation seen in 44.4% cases were found.

Corpulmonale

This is another cause of heart failure. Bronchial asthma and bronchiectasis are the leading causes of cor pulmonale. Smoking is seen in all the patients.

Electrocardiography suggestive of Cor pulmonale i.e., Right atrial overload, Right ventricular hypertrophy, poor progressive of 'R' wave in Chest leads is present in all patients.

2-D Echo was done and showed dilated atrium right n pulmonary artery with moderate tricuspid regurgitation in all cases.

Ejection fraction was less than 40% in all cases.

Anemia

Anemia in our study was the fifth leading cause of heart failure contributing 7% of cases.

It was more common in age group of above 66 years of age.

All patients had haemoglobin percentage of less than 6 grams.

Dimorphic anemia was the leading cause and next was iron deficiency anemia.

ECHO was showing mild dilated chambers and ejection fraction was almost normal in all patients.

Miscelleneous Causes

Other causes of heart failure in our study were a case of muscular dystrophy and chronic renal failure.

Little investigations were done owing to the low socioeconomic status of almost 90% of cases.

CONCLUSION

- The common age group for heart failure is between 46 to 65 years of age and the incidence is higher in men than in women.
- The commonest presentation was breathlessness, followed by pedal edema.
- The commonest cause of heart failure is coronary artery disease followed by dilated cardiomyopathy and then hypertension combined with ischemic heart disease. Other causes of heart failure are rheumatic heart disease, anemia, corpulmonale, muscular dystrophy and chronic renal failure.
- 2-D Echocardiography is essential for diagnosis and assessment of prognosis of heart failure. It is useful in ischemic heart disease for showing regional wall motion abnormality and ejection fraction. It is also helpful in assessing the severity of valvular lesions.

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