The Clinico-Etiological Profile of Elderly Patients Presenting with Heart Failure at a Tertiary Care Hospital

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Abstract
Background: Heart failure is a complex clinical illness due to structural or functional abnormality in the ventricular filling or ejection of blood from the heart which leads to dyspnea, fatigue, & the presence of edema & rales. This study will help to better understand clinical profile and etiology of Heart Failure in elderly patients in this region. It will facilitate better long term management and also initiate appropriate preventive measures to minimize exacerbations of Heart Failure. **Material and Methods:** Inclusion Criteria- All patients above 60 years of age with heart failure on the basis of Boston Criteria were included in my research. Exclusion Criteria- Patients with COPD, Patients not giving written informed consent. **Results:** The present prospective, observational sectional research was conducted in 138 heart failure patients. Maximum patients were males (70.29%). Most of the patient of heart failure were of age group 66-70 years (41.30%).67.39% patients were having reduced ejection fraction (<40%), 26.81% were having preserved ejection fraction (>50%) & 6.52% were having borderline ejection fraction (40-50%). Common clinical symptoms among the research patients were dyspnea (98.55%), followed by orthopnea (81.88%). Basal lung crepitations were found in 93.48% of patients, peripheral edema was seen in 63.04%. The most common etiology among the research patients was ischemic heart disease (56.52%) followed by hypertensive heart disease (19.57%) & cardiomyopathy (11.59%).
Conclusion: Early recognition & treatment of these co-morbid conditions can reduce exacerbations of Heart Failure. Screening & counseling of patients with high risk factors is crucial in early diagnosis & treatment of heart failure.
Keywords: Angiotensin-converting enzyme inhibitors, Acute heart failure, coronary artery disease.

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Introduction

According to the standards put forward by the American College of Cardiology Foundation & the American Heart Association, heart failure is a complex clinical illness due to structural or functional abnormality in the ventricular filling or ejection of blood from the heart which leads to dyspnea, fatigue, & the presence of edema & rales.[1] Heart failure is a common cause of morbidity and mortality in elderly population and it is rising because of increasing life expectancy globally.[2] Heart failure is a complex clinical disease caused by the heart's inability to meet the metabolic demands of tissues. Left ventricular contractile dysfunction is the main cause behind Heart Failure. It is divided into three categories based on ejection fraction, Hear Failure with Reduced Ejection Fraction (EF <40%), Heart Failure with Preserved Ejection Fraction (EF >50%) and Heart Failure with Borderline Ejection Fraction (EF- 40-50%). According to epidemiological research, HF affects between 1.5% & 2% of the population & is the leading cause of hospitalization for the elderly. CAD, DM, BP, RHD, & primary cardiac muscle illnesses are the predominant causes of HF in India.[3] It persists extensively in India & other poor countries worldwide. It has been shown that in developing nations, RHD is responsible for 12-65% of all hospitalizations among cardiovascular diseases.[4] Heart failure in the old is difficult to diagnose without validated tools. The prevalence & aetiology of heart failure in the Indian population has previously only been documented insufficiently.[5] Scanty data is available on clinico-etiological profile of Heart Failure in elderly population in this region. Comorbidities represent particular problems to the management of heart failure & are a prominent predictive indication of increased morbidity & mortality.[6] This study will help to better understand clinical profile and etiology of Heart Failure in elderly patients in this region. It will facilitate better long term management and also initiate appropriate preventive measures to minimize exacerbations of Heart Failure.[7,8]

AIM

• To Study the Clinico- Etiological Profile of Heart Failure in Elderly Patients.

OBJECTIVES

- Detailed clinical evaluation of all elderly patients (>60 years of age),[5] presenting with symptomatology suggestive of Heart Failure at OPD/IPD of Medicine Department of the Hospital will be undertaken methodically.
- Patients diagnosed as having Heart Failure based on Boston Criteria will be further investigated. Then 2-D Echo will be performed in elderly.
- Based on 2-D Echo findings Heart Failure will be classified as Heart Failure with Preserved Ejection Fraction (HFpEF) and Heart Failure with Reduced Ejection Fraction (HFrEF) and etiology will be identified.

Precipitating factors for Decompensation in known cases of Heart Failure will be identified.

Methodology

Inclusion criteria

All patients above 60 years of age with heart failure on the basis of Boston Criteria were included in my research.

Exclusion criteria

- Patients with COPD.
- Patients not giving written informed consent.

Statistical Analysis: Data so collected was tabulated in an excel sheet, under the guidance of statistician using SPSS version 22.00 for windows; SPSS inc, Chicago, USA).

RESULTS

Table 1: Gender distribution among the research patients

Gender	N	(%)
Male	97	70.29
Female	41	29.71
Total	138	100

The present prospective, observational sectional research was conducted in the "Department of Medicine, at Teerthanker Mahaveer Medical College & Research Centre" after approval from Institutional Ethics Committee. Maximum patients were males (70.29%) as compared to females (29.71%) as shown in [Table 1].

Table 2: Age distribution among the research patients

Age Group (in years)	N	(%)
61-70	52	37.68
71-80	57	41.30
>80	29	21.01

37.68%, 41.30% & 21.01% of the patients belonged to age group of 61-65, 66-70 & >70 years respectively [Table 2].

Table 3: NYHA class among the research patients

NYHA class	N	%
I	12	8.70
II	23	16.67
III	66	47.83
IV	37	26.81

NYHA class I, II, III & IV was reported among 8.70%, 16.67%, 47.83% & 26.81% of the patients respectively [Table 3].

Table 4: Ejection fraction among the research patients

Ejection Fraction	N	%
Reduced Ejection Fraction (<40%)	76	55.07
Borderline Ejection Fraction (40-50%)	25	18.12
Preserved Ejection Fraction (>50%)	37	26.81

Maximum patients were having ejection fraction<40% (55.07%) followed by 40-50% (18.12%) while 26.81% of the patients were having ejection fraction of >50% as shown in [Table 4].

Table 5: Co-morbidities among the research patients

Co-morbidities	N	%
Diabetes	22	15.94
Hypertension	55	39.86

Diabetes & hypertension was found in 15.94% & 39.86% of the patients respectively [Table 5, Figure 5].

Table 6: Cardiac findings on ECG & ECHO among the research patients

Cardiac Findings	N	%
Primary valvular heart disease	24	17.39
IHD	51	36.96
Atrial fibrillation	33	23.91
LBBB	12	8.69
RBBB	5	3.62

[Table 6] shows the cardiac findings on ECG & ECHO among the research patients. Most common cardiac finding was secondary mitral regurgitation (36.96%) followed by atrial fibrillation (23.91%). Primary valvular heart disease was reported in 17.39% of the patients respectively.

Table 7: Clinical symptoms among the research patients

Symptoms	N	%
Dyspnea	136	98.55
Orthopnea	113	81.88
Paroxysmal Nocturnal Dyspnea	77	55.80
Fatigue	63	45.65
Chest Pain	62	44.93
Palpitation	48	34.78
Weight Gain	17	12.32

Common clinical symptoms among the research patients were dyspnea followed by orthopnea, paroxysmal nocturnal dyspnea & fatigue. Weight gain was observed in 12.32% while palpitation was present in 34.78% of the patients respectively [Table 7].

Table 8: Clinical signs among the research patients

Signs	N	%
Basal Lung Crepitations	129	93.48
Peripheral Edema	87	63.04
Raised JVP	61	44.20
Gallop	46	33.33
Pleural Effusion	23	16.67
Ascites	15	10.87
Enlarged Tender Liver	14	10.15

Basal lung crepitations, peripheral edema, raised JVP, gallop, ascites, pleural effusion & enlarged tender liver was found in 93.48%, 63.04%, 44.20%, 33.33%، 16.67%, 10.87% & 8.70% of the patients respectively. Hence the most common clinical sign was basal lung crepitations [Table 8].

Table 9: Etiology among the research patients

Etiology	N	%
Ischemic Heart Disease	78	56.52
Hypertensive Heart Disease	27	19.57
Cardiomyopathy	16	11.59
Chronic Cor Pulmonale	4	2.90
Myocarditis	2	1.45

The most common etiology among the research patients was ischemic heart disease (56.52%) followed by hypertensive heart disease (19.57%) & cardiomyopathy (11.59%). Chronic cor pulmonale & myocarditis was reported among 2.90% & 1.45% of the patients respectively [Table 9].

DISCUSSION

The present prospective, observational sectional research was conducted in the "Department of Medicine, at Teerthanker Mahaveer Medical College & Research Centre". 138 senior heart failure patients hospitalized to the ER, medical wards, & intensive care unit made up the research population. The purpose of this research was to examine the Clinico-Etiological Profile of the Elderly Patients with Heart Failure who Present to this Tertiary Care Hospital. The research's key findings are outlined below.

Maximum patients were males (70.29%) as compared to females Most of the patient of heart failure were of age group 66-70 years (41.30%). 37.68% patients of heart failure were of age group 61-65 & 21.01% patients were older than 70 years. NYHA class I, II, III & IV was reported among 8.70%, 16.67%, 47.83% & 26.81% of the patients respectively. Occurrence of heart failure with reduced ejection fraction was more common in elderly population. 67.39% patients were having reduced ejection fraction (<40%), 26.81% were having preserved ejection fraction (>50%) & 6.52% were having borderline ejection fraction (40-50%). Patients with hypertension were more prone to heart failure i.e 39.86% as compared to diabetes, which was found in 15.94%.Most common cardiac finding was secondary mitral regurgitation (36.96%) followed by atrial fibrillation (23.91%).

Common clinical symptoms among the research patients were dyspnea (98.55%), followed by orthopnea (81.88%), paroxysmal nocturnal dyspnea (55.80%), fatigue (45.65%), chest pain (44.93%), palpitation (34.78%) & weight gain (12.32%). Common Clinical signs as observed in the research were fine crepitations at lung bases, dependent oedema, elevated JVP & Gallop. Basal lung crepitations were found in 93.48% of patients, peripheral edema was seen in 63.04%, raised JVP in 44.20% & gallop in 33.33%. Ascites was detected in 16.67% of patients, pleural effusion in 10.87% & enlarged tender liver was found in 10.15% of patients. The most common etiology among the research patients was ischemic heart disease (56.52%) followed by hypertensive heart disease (19.57%) & cardiomyopathy (11.59%). Chronic cor pulmonale & myocarditis were reported among 2.90% & 1.45% of the patients respectively.[9-12]

CONCLUSION

Heart failure prevalence is increasing among elderly patients with co-morbid factors like coronary artery disease, hypertension, diabetes mellitus & obesity. Early recognition & treatment of these co-morbid conditions can reduce exacerbations of Heart Failure. Screening & counseling of patients with high risk factors is crucial in early diagnosis & treatment of heart failure.

The results of this research can help in facilitating early recognition, better long term management & prevention of exacerbations of heart failure. Clinical & etiological profile of heart failure in elderly patients in this region as identified in this research is likely to enhance understanding of heart failure & thus facilitate early recognition & better management of heart failure.

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