|| Print ISSN: 2589-7837 || Online ISSN: 2581-3935 ||

International Journal of Medical Science and Diagnosis Research (IJMSDR)

Available Online at www.ijmsdr.com

Volume 3, Issue 1; January: 2019; Page No. 137-140

A STUDY ON HEART FAILURE WITH PRESERVED EJECTION FRACTION WITH CLINICAL PROFILE AT MGM, MEDICAL COLLEGE, INDORE

Dr. Parul Jain[1*], Dr. Ashish Kumar Jain[2]

[1] Associate Professor, Modern Dental College & Research Centre, Gandhi Nagar, Airport Road, Indore

[2] Associate Professor, Dept. of Cardiology, Mahatma Gandhi Memorial Medical College, Indore

Conflicts of Interest: Nil

ABSTRACT:

Background: A Study on Heart Failure with Preserved Ejection Fraction with Clinical Profile including 300 patients.

Method: This study was conducted at MGMG Medical College, Indore which was a prospective observational study in which patients presented with clinical features of heart failure, with Left ventricular EF > 50%, from the period of Jan 2015 to 30th June 2016, were total 300 patients included in the study.

Result: All patients has ejection fraction >50% with diastolic dysfunction. 153 (51%) patients had grade 1 diastolic dysfunction, 126 (42%) patients had grade 2, and 21 (07) patients had grade 3 or grade 4 diastolic dysfunction. Out of 300 patients 213 (71 %) patients had concentric LVH. 142 (47%) patients had left atrial dimension (LAD) >4 cm. E/e' ratio was > 15 in 57 (19%) patients and 189 (63%) patients had E/e' > 12. Out of 300 patients 264 (88%) patients had e'wave < 11 cm/s. Estimated systolic ulmonary pressure (ESPP) was> 35 mmHg in 153 (51%) of the patients.

Conclusion: Hypertension was the most frequent risk with dyspnea was the most common presenting symptom. Heart failure with preserved ejection fraction was more in female. Baseline information on heart failure with preserved ejection fraction discovered from this study can be used as reference for further studies.

Keywords: Heart Failure, Preserved Ejection Fraction & Clinical Profile.

Introduction

Epidemiological studies have discovered that 1.5% to 2% population experience heart failure (HF) and it is the main reason for hospital admission of elderly patients[1]. It has been estimated that the prevalence increases to 6% - 10% in patients over 65 years of age[2,3]. The survival after HF has enhanced due to improvement in treatment. Yet, HF is one of the principal causes of death, approximately 30,000 deaths per year.

The widespread risk factors related with DHF *i.e.* hypertension, diabetes & CAD are more prevalent in India. Due to higher tendency for these risk factors, there is a likelihood that the burden of DHF is likely to be higher in India. As the exact prevalence and incidence of DHF are not known, it indicates a need to carry out the study which gives us an idea regarding the prevalence, aetiology, morbidity and mortality pattern of this study. So, we have carried out the study to obtain the clinical profile of the patients experiencing DHF along with aetiology, pharmacological treatments and short-term outcomes[4].

Material & Method

This study was conducted at MGMG Medical College, Indore which was a prospective observational study in which patients presented with clinical features of heart failure, with Left ventricular EF > 50%, from the period of Jan 2015 to 30th June 2016, were total 300 patients included in the study.

Corresponding author: Dr. Ashish Kumar Jain

Inclusion Criteria:

1. The patients, who had severe anemia (hemoglobin <8.00 g/dl),

2. Hemodynamically significant valvular disease, prosthetic valve replacement, constrictive pericarditis.

Exclusion Criteria:

Ventricular pacemaker excluded from study.

Clinical data, including the medical history, demographic detail, cardiovascular risk factors, and associate comorbidities, were collected. Patients underwent detailed clinical evaluation including 12 lead ECGs with rhythm strip recording, chest skiagram and routine laboratory tests (complete blood count, renal function test). Echocardiography was performed and, following diastolic function parameters were measured as follows: peak early diastolic filling (E) and late diastolic filling (A)velocities, E/A ratio, E deceleration time, early diastolic septal mitral annular velocity (e') ,and E/e' as an index of LV filling pressure. Left atrial dimension was calculated. Diastolic dysfunction was classified into four grades according to ASE guidelines.[5]

Statistical Analysis

Patient population was analyzed for demographic distribution, etiological associations, Continuous data are expressed as the mean value ± 2 standard deviations. Percentage analysis was used to describe distribution of demographic variables.

Results

Table 1: Baseline Characteristics (N=300)

Characteristic	**Mean, (Range)**
Age (Years)	53.18 (±14.27), (30-85)
BMI (kg/m2)	24.68 (±3.29) , (15.42-36.41)
Sex	**No. (%)**
Female	189(63%)
Male	111 (37%)
Presenting complaint	
Dyspnea	279 (93)
H/O PND	177 (55)
Fatigue	144 (48)
Cough	111 (37)
Chest pain	69(23)
H/O Orthopnea	42(14)
Comorbidities	
Hypertension	231 (77)
Obesity	162 (54)
Dyslipidemia	141 (47)
Diabetes	126 (42)
Smoking	108 (36)
COPD	84 (28)
CKD	63 (21)
IHD	147 (18)
AF	54 (7)
CVA	27 (9)
HCM	06 (2)

BMI= body mass index, IHD= ischemic heart disease, COPD=chronic obstructive pulmonary disease, CKD= chronic kidney disease, CVA=cerebrovascular accident, HCM=hypertrophic cardiomyopathy (Table 1)

Table 2: Measurement of Echocardiographic (N=300)

Characteristic	**No. (%)**
Concentric LVH.	213 (71)
Left atrial dimension (LAD) was>4 cm	142 (47)
E/e' ratio > 15	57 (19)
E/e' > 12	189 (63)
e' wave < 11 cm/s	264 (88)
Estimated systolic pulmonary pressure (ESPP) > 35 mmHg	153 (51)
Grade 1 diastolic dysfunction	171 (57)
Grade 2 diastolic dysfunction	126 (42)
Grade 3/4 diastolic dysfunction	21 (07)

All patients has ejection fraction >50% with diastolic dysfunction. 153 (51%) patients had grade 1 diastolic dysfunction, 126 (42%) patients had grade 2, and 21 (07) patients had grade 3 or grade 4 diastolic dysfunction. Out of 300 patients 213 (71 %) patients had concentric LVH. 142 (47%) patients had left atrial dimension (LAD) >4 cm. E/e' ratio was > 15 in 57 (19%) patients and 189 (63%) patients had E/e' > 12. Out of 300 patients 264 (88%) patients had e'wave < 11

cm/s. Estimated systolic ulmonary pressure (ESPP) was> 35 mmHg in 153 (51%) of the patients. (Table 2)

Discussion

In echocardiographic evaluation we found structural changes in heart , including concentric LV remodeling, concentric hypertrophy, and LA enlargement, All patients had LVEF> 50%. LVH (71%) were common findings as patients were older, more often women, and with a high prevalence of hypertension, and each of which associate with increase risk for developing concentric remodeling.[6]All of our patients had variable degrees of diastolic dysfunction, with increased LA dimension (47%), 58.12% patients had pulmonary hypertension, and these findings are comparable to the findings in other studies.[7]
Heart failure with usual ejection fraction is a challenging problem for clinicians & patients. Treatment of HFnEF has been entirely to treat the underlying cause. However as we unfold the associations & pathogenesis, new modalities of therapy which address the diastolic dysfunction may come in future. Therefore there is a need for studies that establish the clinical profile and outcome in patients with heart failure with normal ejection fraction. A total of 53 patients experienced HFnEF during the study period were enrolled. The results of the study showed that females (55%) were more prone to develop HFnEF as compared to male patients. The result of our study is similar to that of the study conducted by Maestre et al.[8] in which 64.4% patients, who experienced HFnEF, were female. Similar result was obtained in the studies carried out by Masoudi et al.[9] and Yancy et al.[10]. Other cross-sectional studies also showed similar results. The echocardiographic evaluation of patients in our study also indicated that severe diastolic dysfunction is more common in female (37.9% vs. 33.3%). The epidemiological studies have shown that HFnEF is the disease of elder population. In our study also out of 53 patients, 39 (73.6%) patients were elder. Several community based studies demonstrated similar finding.

Conclusion

Hypertension was the most frequent risk with dyspnea was the most common presenting symptom. Heart failure with preserved ejection fraction was more in female. Baseline information on heart failure with preserved ejection fraction discovered from this study can be used as reference for further studies.

References

1. Cowie, M., Mosterd, A., Wood, D., Deckers, J., Poole-Wilson, P., Sutton, G. and Grobbee, D. (1997) The Epidemiology of Heart Failure. European Heart Journal, 18, 208-225.
2. Mosterd, A.H., De Bruyne, M., Deckers, J., Linker, D., Hofman, A. and Grobbee, D. (1999) Prevalence of Heart Failure and Left Ventricular Dysfunction in the General Population; The Rotterdam Study. European Heart Journal, 20, 447-455.
3. Ho, K.K., Pinsky, J.L., Kannel, W.B. and Levy, D. (1993) The Epidemiology of Heart Failure: The Framingham Study. Journal of the American College of Cardiology, 22, 6A-13A.
4. Aurigemma, G.P. and Gaasch, W.H. (2004) Diastolic Heart Failure. New England Journal of Medicine, 351, 1097-1105.
5. Nagueh MD, Chair Sherif F, Appleton MD Christopher P, Gillebert MD Thierry C, Marino MD Paolo N, Oh MD Jae K, Smiseth MD, PhD Otto A. *Recommendations for the evaluation of left ventricular diastolic function by echocardiography. J Am Soc Echocardiography 2009;22(2):107–31.
6. Lam CSP, Roger VL, Rodeheffer RJ, Bursi F, Borlaug BA, Ommen SR, et al. Cardiac structure and ventricular-vascular function in persons with heart failure and preserved ejection fraction from Olmsted County, Minnesota. Circulation 2007;115:1982–90.
7. Donal Erwan, Lund Lars H, Oger Emmanuel, Hage Camilla,Reynaud Hans Persson Ame´ lie. Baseline characteristics of patients with heart failure and preserved ejection fraction included in the Karolinska Rennes (KaRen) study. Arch Cardiovasc Dis 2014;107:112–21.

8. Maestre, V.G., Gallego, J., García, M., García de Burgos, F. and Martín-Hidalgo, A. (2009) Prediction Clinical Profile to Distinguish between Systolic and Diastolic Heart Failure in Hospitalized Patients. European Journal of Internal Medicine, 20, 313-318.

9. Masoudi, F.A., Havranek, E.P., Smith, G., Fish, R.H., Steiner, J.F., Ordin, D.L. and Krumholz, H.M. (2003) Gender, Age, and Heart Failure with Preserved Left Ventricular Systolic Function. Journal of the American College of Cardiology, 41, 217-223.

10. Yancy, C.W., Lopatin, M., Stevenson, L.W., De Marco, T. and Fonarow, G.C. (2006) Clinical Presentation, Management, and In-Hospital Outcomes of Patients Admitted with Acute Decompensated Heart Failure with Preserved Systolic Function: A Report from the Acute Decompensated Heart Failure National Registry (ADHERE) Database. Journal of the American College of Cardiology, 47, 76-84