

Original Research Article

A profile of heart failure patients in a tertiary care centre in Eastern India

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Received: 30 October 2016

Accepted: 29 November 2016

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ABSTRACT

Background: Epidemiological data regarding profile of heart failure in India is lacking. So this study was done to assess the epidemiological profile of heart failure patients in eastern India. Aim of the study was to assess the epidemiological profile of heart failure patients in this part of country.

Methods: Total 1000 outdoor and indoor patients presented with symptoms and signs of heart failure according to Framingham criteria were studied.

Results: Age of onset of HF is lower than western country. IHD is the commonest cause of HF. Diabetes and hypertension are important risk factors.

Conclusions: Earlier detection and treatment of hypertension and diabetes mellitus might have greater impact in reducing the burden of HF in this part of country.

Keywords: Profile, Heart failure, Tertiary care centre, Eastern India

INTRODUCTION

Heart failure is a major public health problem and is becoming an emerging epidemic. The most important cause of the increasing burden of heart failure is the increasing number of elderly population. The prevalence of heart failure is estimated 1-2% in the western world and the incidence is estimated at 5-10 per 1000 persons per year.^{1,2} Unlike, western countries where heart failure is predominantly is a disease of the elderly, in India it affects relatively younger patients. Prevalence of heart failure is increasing in India because of rise of coronary artery disease and persistence of pretransitional disease like Rheumatic heart disease (RHD), endomyocardial fibrosis etc.^{3,4} Although much is known about the epidemiology of coronary artery disease, a lot needs to be done in the field of epidemiology of heart failure.

Incidence and prevalence of heart failure are unreliable in India because of lack of surveillance system to adequately capture these data. With this background, the authors decided to undertake this epidemiological study to assess the epidemiological profile of heart failure patients in this part of the country.

Aims and objectives of the study were to assess the epidemiological profile of the patients with heart failure referred to the tertiary care centre in eastern India

METHODS

Total 1000 outdoor and indoor patients presented with symptoms and signs of heart failure according to Framingham criteria were included. A detailed clinical history, physical examination, electrocardiography, chest

X ray, biochemical and echocardiographic examination was done. Patients with chronic kidney disease, lung disease and chronic liver disease were excluded. This study was done in the department of cardiology, R G Kar Medical College, Kolkata in the year 2011-2012.

RESULTS

Out of 1000 patients, 356 (35.6%) were females and 644 (64.4%) were males. The mean age of the patients was 50.70 ± 14.8 years. Diabetes mellitus (DM) was present in 289 (28.9%) patients. Dyslipidemia, hypertension (HTN) and obesity were seen in 367 (36.7%), 544 (54.4%) and 105 (10.5%) patients respectively. 417 (41.7%) patients were smokers. Anaemia was seen in 432 (43.2%) patients. Among them 185 (18.5%) were males and 247 (24.7%) were females with a mean haemoglobin of $10.35 \text{g/dl} \pm 2.1$. Hyponatraemia was present in 241 (24.1%) of patients. Serum creatinine more than 1.5mg/dl was seen in 133 (13.3%) patients.

Table 1: Age-distribution of the study population.

Age group (years)	Male	Female	Total
< 20	2	9	11
(21-30)	44	42	86
(31-40)	114	72	186
(41-50)	116	65	181
(51-60)	165	86	251
(61-70)	152	66	218
(71-80)	40	12	52
>80	11	4	15

The etiologies of heart failure were antero-septal ST elevation myocardial infarction (AS STEMI) in 294 (29.4%) patients, inferior wall ST elevation myocardial infarction (IW STEMI) in 25 (2.5%), non ST elevation myocardial infarction (NSTEMI) in 83 (8.5%) patients,

old myocardial infarction in 85 (8.5%) patients, and post CABG in 26 (2.6%) patients.

Total numbers of ischaemic heart disease (IHD) patients were 586 (58.6%). Other causes of heart failure were hypertension in 117 (11.7%), valvular heart disease in 147 (14.7%), hypertrophic cardiomyopathy (HCM) in 24 (2.4%), idiopathic dilated cardiomyopathy in 29 (2.9%), peripartum cardiomyopathy in 4 (0.4%), myocarditis in 11 (1.1%), constrictive pericarditis in 13 (1.3%), antineoplastic drugs in 6 (0.6%), post pacemaker implantation in 21 (2.1%), corpulmonale in 20 (2.0%) and congenital heart disease in 22 (2.2%).

The most important precipitating factor for heart failure was acute coronary syndrome (ACS) in 514 (51.4%) patients. Others were infections in 24 (2.4%) patients, atrial fibrillation in 108 (10.8%) patients, anaemia in 30 (3.0%) patients, pneumonitis in 28 (2.8%) patients, infective endocarditis in 5 (0.5%) patients, antineoplastic drugs in 6 (0.6%) patients, noncompliance with diet and medications in 238 (23.8%) patients, permanent pacemaker implantation in 21 (2.1%) patients, pregnancy in 4 (0.4%) patients, ventricular tachycardia in 22 (2.2%) patients.

The different types of heart failure were new onset heart failure (HF) with pulmonary oedema in 441 (44.1%) patients, chronic decompensated HF in 316 (31.6%) patients, hypertensive heart failure in 117 (11.7%) patients, cardiogenic shock 84 (8.4%) in patients, right HF in 42 (4.2%) patients. The mean ejection fraction (EF) was $46.94\% (\pm 14.1)$. Heart failure with preserved ejection fraction (EF) was present in 407 (46.3%) patients and HF with reduced EF in 526 (56.4%). Among patients with heart failure with preserved EF, 213 (22.8%) were males and 194 (20.8%) were females. The most important etiology of HF with preserved EF was hypertension (28.74%), and valvular heart disease (30.71%).

Table 2: Statistical analysis of the variables obtained in the study.

N=1000	Maximum	Minimum	Mean	Standard Deviation
Age (years)	88	16	50.70	14.8
Hemoglobin (g/dl)	17	5.8	10.35	2.1
Creatinine (mg/dl)	3	0.4	1.11	0.46
Ejection Fraction	78	20	46.94	14.1

DISCUSSION

Mean age of patients in our study was 50.70 years (± 14.8) which is lower than the patients of Europe and USA. This lower age of occurrence of HF is probably due to the earlier onset of CAD in Indians and also the high prevalence of RHD in our country. 35.6% of patients were female. This is lower than western data and may be

because of lesser access of females to tertiary care centre. In present study DM and HTN were present in 28.9% and 54.4% of patients. These data are similar to many other studies.^{5,6} This is probably because of globalization of risk factors of CAD. Obesity, dyslipidemia and smoking were present in 10.5%, 36.7%, and 41.7% of patients. Reddy et al. estimated the prevalence of obesity to be around 6.8% in HF patients in a study from urban Delhi

and rural Haryana.⁶ In the present study acute decompensated heart failure was present in 31.6% patients and acute pulmonary oedema was present in 44.1% patients. ACS was the most important cause of pulmonary oedema. IHD was the most important cause of HF (58.6%). This is in accordance with larger published studies.^{6,7} Present data showed that 14.7% of patients have valvular heart disease mostly RHD, 2.9% patients have Dilated cardiomyopathy. These data are consistent with study by Grover A et al.⁸

In present study cardiogenic shock was present in 8.4% patients and the most important cause was STEMI. Present study showed 46.3% of HF patients had normal or preserved EF and most important cause was HTN in 28.74% and valvular heart disease in 30.71%, unstable angina in 14%, NSTEMI in 11% and HCM in 5.8%. This is consistent with many published data except higher incidence of valvular heart disease in present data.⁸⁻¹⁰ This is probably because of higher prevalence of RHD in India.⁸ Noncompliance with diet and medication (23.8%) was an important precipitating factor for HF. Joshi PP also showed noncompliance issues and infections constituted 27.2% of precipitating factors.⁹⁻¹¹ Presence of anaemia renal dysfunction and hyponatremia in present data are consistent with many published data.¹²⁻¹⁴ In present study isolated right sided HF was present in 4.2% of patients which was similar to study by L Veronique et al.¹⁵ Due to high prevalence of complete heart block in eastern India and most of the implant patients have VVI pacemaker, post permanent pacemaker (allVVI) HF patients was 2.1% in present study.

CONCLUSION

Present study sheds light on the profile of heart failure patients in a tertiary care centre in Eastern India. Though large numbers of Western data are available regarding etiology of HF, Indian data are lacking specially in this part of country. Though RHD is still an important contributor of heart failure in this part of country, IHD is the most important cause of HF. Patients population are relatively younger in our study than Western countries. Hypertension and diabetes are burdening the health care system with HF in this part of country like the Western world. Early detection and treatment of Hypertension and diabetes mellitus might have great role in preventing the development of HF and reducing the burden in health care system.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Majumder B, Bahuguna YM, Chatterjee S. A profile of heart failure patients in a tertiary care centre in Eastern India. *Int J Res Med Sci* 2017;5:216-8.