



Clinical Profile of Heart Failure in Geriatric Patients in a Tertiary Cardiac Hospital of Bangladesh

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Background

- Geriatric group of patients are the most vulnerable for compromised healthcare in our social context and heart failure is common in this age group. There is less information on clinical characteristics of heart failure considering age related vulnerability and associated comorbidities. The objective of this study is to identify the clinical profile of heart failure in geriatric group of patients.
- Heart failure is a complex clinical syndrome with symptoms and/or signs that caused by structural and/or functional cardiac abnormality and corroborated by elevated natriuretic peptide level and/or objective evidence of pulmonary/systemic congestion.¹



Background

- Heart failure is increasing in prevalence and affecting 26 million people worldwide.²
- The prevalence of heart failure doubles with each decades of life after the age of 45 years.³
- In the UK, most patients admitted to hospital with heart failure are more than 70 years old.⁴
- The pathophysiology involved are myocardial injury, fall in left ventricular performance, activation of renin angiotensin aldosterone system, peripheral vasoconstriction and haemodynamic alteration.⁵



Methods

- This study included hospitalized geriatric patients presenting with clinical features of heart failure in National Institute of Cardiovascular Diseases (NICVD).
- Due to the time restrain we collected data of 100 cases over one month period.
- This was a single center, cross- sectional study. Ethical clearance was taken from NICVD.



Methods

Inclusion criteria: Patient having clinical features of heart failure (effort intolerance, tachypnoea, oedema, raised JVP and basal creps and possible other information (Framingham Criteria)⁶ and increase in natriuretic peptide or echocardiographic findings of heart failure.



Methods

- *Framingham Criteria*
- *Major criteria:* Paroxysmal nocturnal dyspnea, neck vein distention, rales, radiographic cardiomegaly (increasing heart size on chest radiography), acute pulmonary edema, S3 gallop, increased central venous pressure (>16 cm H₂O at right atrium), hepatojugular reflux, weight loss >4.5 kg in 5 days in response to treatment.
- *Minor criteria:* Bilateral ankle edema, nocturnal cough, dyspnea on ordinary exertion, hepatomegaly, pleural effusion, decrease in vital capacity by one third from maximum recorded, tachycardia (heart rate >120 beats/min.)



Methods

- Diagnosis of heart failure required the simultaneous presence of at least 2 major criteria or 1 major criterion in conjunction with 2 minor criteria. Minor criteria are acceptable only if they cannot be attributed to another medical condition (such as pulmonary hypertension, chronic lung disease, cirrhosis, ascites, or the nephrotic syndrome).
- *Exclusion criteria:* Patients with i). Known chronic kidney disease, ii). Acute myocardial infarction, and iii). Liver failure

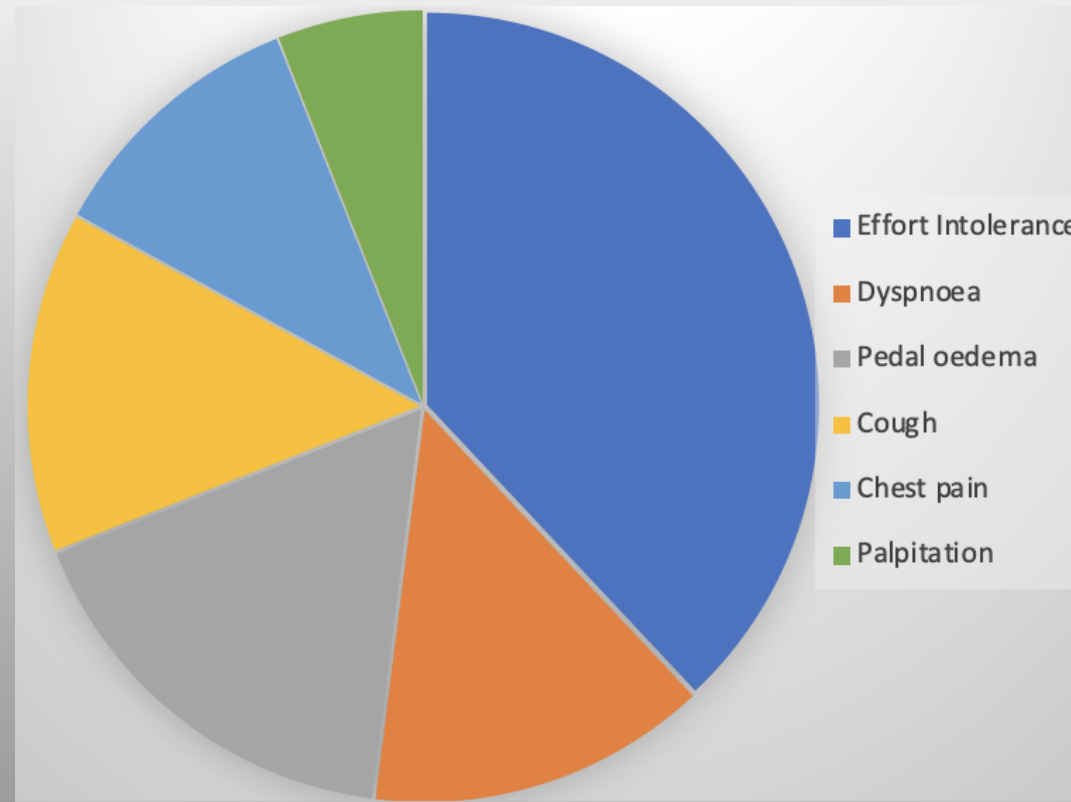


Operational definitions

Heart failure: Describes the clinical syndrome that develops when the heart can not maintain adequate output or can do so only at the expense of elevated ventricular filling pressure.⁷

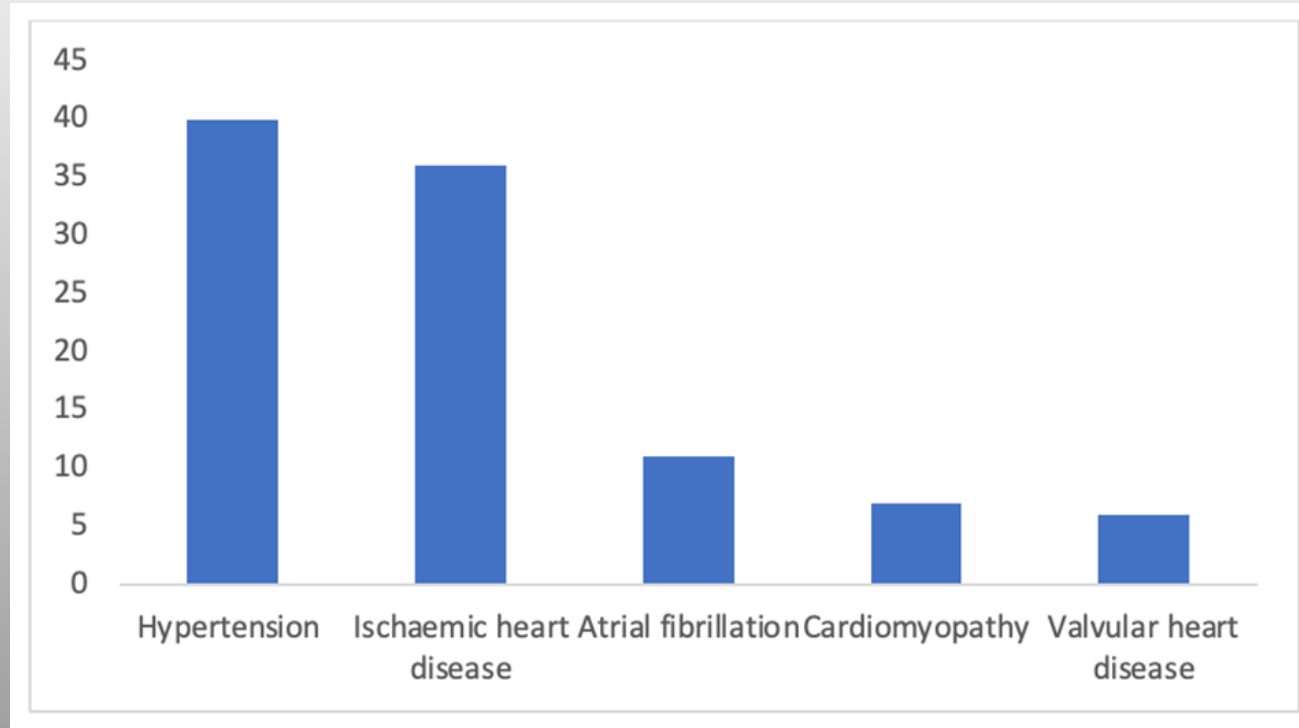
Geriatric patient : Patient with a chronological age of 65 years old or older.

Results



In total 100 patients were included in the study with a mean age of 77 years. Among them, 59% were female and 41% were male. Common cardiorespiratory symptoms included effort intolerance (38%), dyspnoea (14%), pedal oedema (17%), cough (14%), chest pain (11%), palpitation (6%) – Fig. 1.

Results



The most common comorbidities were hypertension (40%), ischaemic heart disease (36%), atrial fibrillation (11%), cardiomyopathy (7%) valvular heart disease (6%) – Fig. 2.

Results

Table 1: Classification of study population according to LVEF

Classification	Percentage (%)
(1) HF with reduced EF (HFrEF)	19
(2) HF with improved EF (HFimpEF)	13
(3) HF with mildly reduced EF (HFmrEF)	22
(4) HF with preserved EF (HFpEF)	46

Regarding left ventricular ejection fraction (LVEF), heart failure (HF) was classified into the following categories (Table 1) : (1) HF with reduced EF (HFrEF) - 19%; (2) HF with improved EF (HFimpEF) - 13% and HF with mildly reduced EF (HFmrEF) - 22% and HF with preserved EF (HFpEF) - 46% - Table 1.

Results

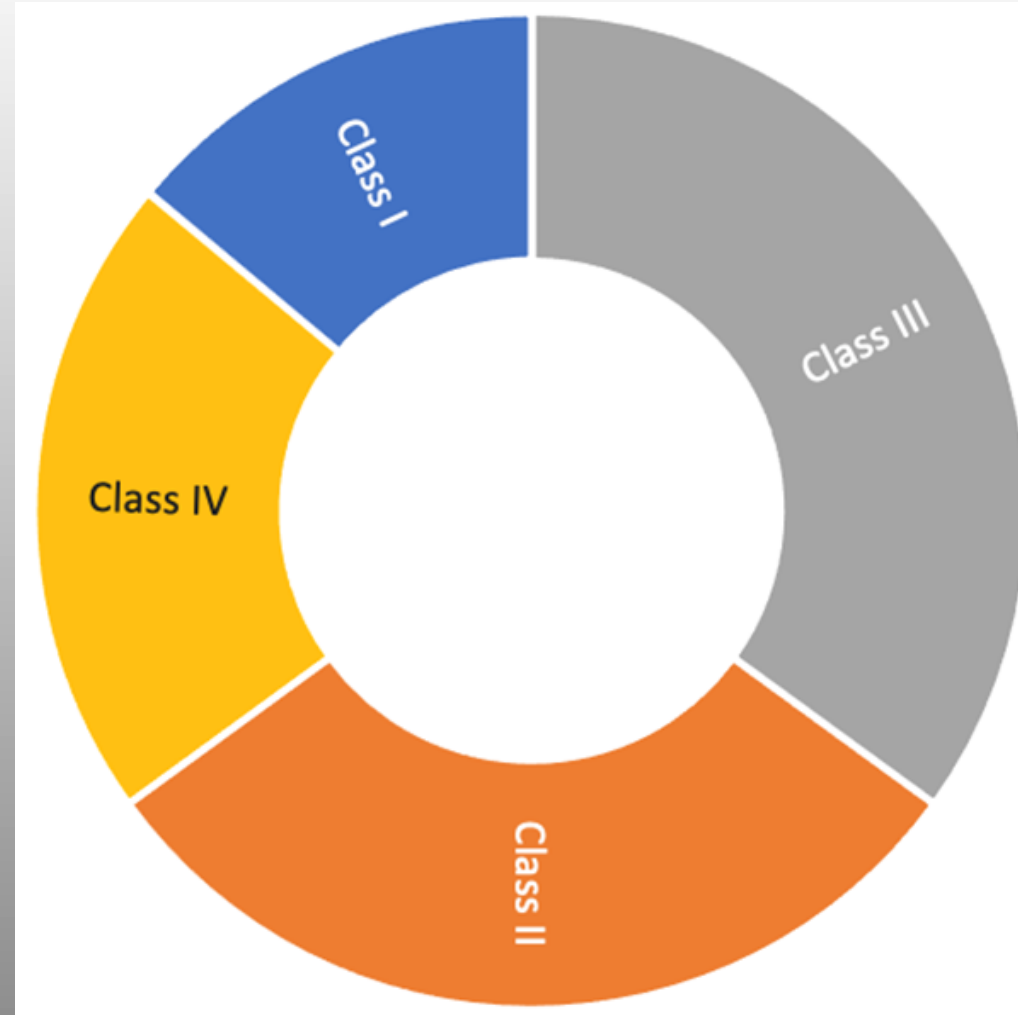


Fig. 3: Regarding functional NYHA classification, 14% patient presented with class I, 30% with class II, 35% presented with class III, 21% presented with class IV NYHA heart failure



Results and Discussion

- In Bangladesh approximately, 8% of the total population is aged 60 years or above, and this is projected to increase to 11.5% (21.526 million) in 2030 and to 21.5% (43.491 million) by 2050.⁸ In spite of large number of elderly population, geriatric medicine or departments, social welfare system is not well established in Bangladesh.



Results and Discussion

- Recognized as geriatric syndrome,⁹ most common causes of heart failure in geriatric patients are arterial hypertension and coronary atherosclerosis. Other common causes in developing countries are: Cardiac arrhythmia, thyroid disorder, infection, metabolic disorders, nutritonal disorders and anaemia. Some of them are the causes of high output cardiac failure.¹⁰ In our study hypertension was the most common comorbidities.



Results and Discussion

- About 23% of our study population had iron deficiency anaemia. Iron deficiency anaemia is common in our geriatric population and iron deficiency alters myocardial function and structure contributing to heart failure.¹¹ Lack of proper nutrition, poverty, concomitant hookworm infection all contribute to iron deficiency anaemia in our population.



Results and Discussion

- In this study, about one third patients have associated renal failure(AKI/CKD). In heart failure, low cardiac output can compromise renal perfusion and lead to acute renal failure. Studies showed that approximately half (49%) of patients with heart failure suffer from CKD ¹² and renal insufficiency is more prevalent in patients with heart failure.¹³



Results and Discussion

- HFpEF is the most common type of heart failure in the elderly¹⁴ signifying that HFpEF is a true geriatric syndrome. Approximately 50% of five million cases of heart failure in USA have HFpEF and aging is a factor for HFpEF epidemic.¹⁵ Our study finds HF with preserved EF (HFpEF) - 46% which is a major percentage. The diagnosis of HFpEF is challenging and depends on meticulous clinical evaluation, echocardiography and haemodynamic assessment and frequently missed by physician.¹⁶ Our study findings will help to be more vigilant about geriatric heart failure.



Conclusion

Geriatric heart failure is often left unnoticed. Currently, there is no published study in Bangladesh which depicted the characteristics of heart failure in elderly. This study revealed that a significant geriatric population has unrecognized heart failure (HFpEF). A holistic approach involving multidisciplinary and comprehensive clinical evaluation will ensure appropriate geriatric cardiac care. Preventive strategies will be guided from this study findings as correction of anaemia in our context.



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National Institute of Cardiovascular Disease
of
Ethical review Committee

Report of Ethical Aspect of Research Protocol

1. Project Title:

2. Principal Investigator with
address:

3. Form for Ethical Clearance:

Submitted Properly



Not submitted Properly



Not submitted



4. Protocol Summary for ERC

Submitted Properly



Not submitted Properly



Not submitted



5. Informed Consent form:

Submitted Properly



Not submitted Properly



Not submitted



6. Suggestion (If any):

Submitted Properly



Not submitted Properly



Not submitted



7. Total Cost

:

8. Funding Agency (If Applicable)

:

9. The research Protocol is

Accepted

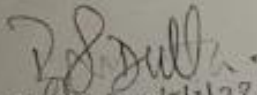


Not Accepted

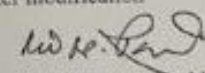


Accepted after modification




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Thanks