

Heart Failure: Understanding the Prevalence and Modern Approach of Management

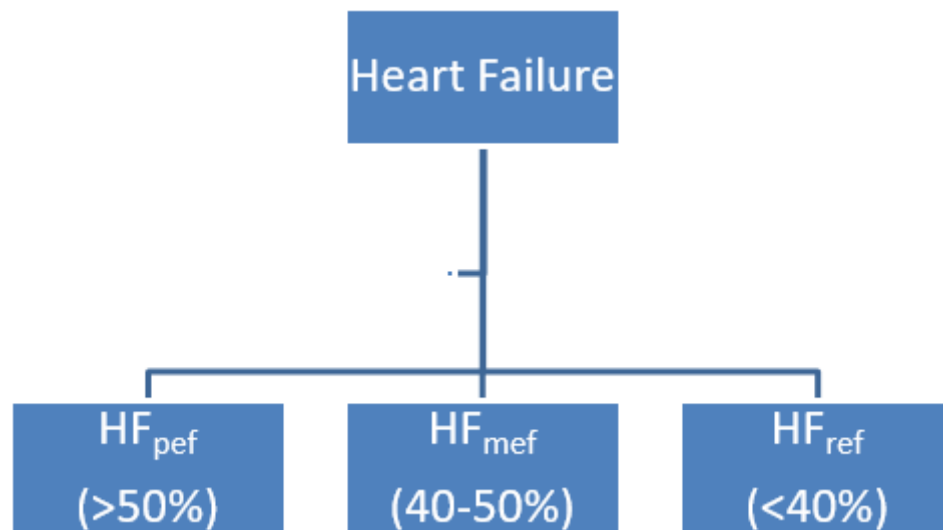
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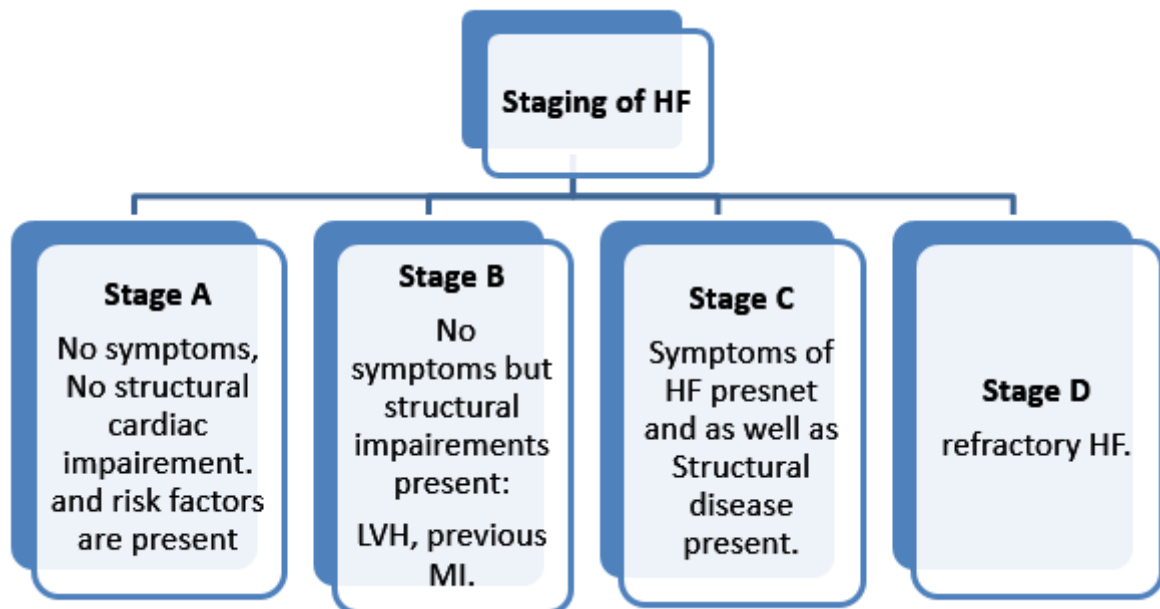
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Abstract: With increasing modernization and increased work load. People are suffering with various kinds of cardiovascular issues including, ACS, IHD, Cardiomyopathies and Heart failure. As laymen, it was made us understand that heart failure is when our heart stops pumping blood. So to enhance our take on HF, the prevalence and the etiological factors with compensation mechanism of the body and management approach as well is discussed.

Keywords: heart failure, hypertension, cad, beta blockers, ARNI blockers, vicious cycle.

Introduction: Heart failure is defined as complex clinical structural or functional cardiac disorder which impairs the ability of ventricle to eject blood or fill itself with blood. While comparing it with Cardiomyopathies which are structural and functional both disorders present in absence of CAD, hypertension, valvular disorder, etc. Heart failure is classified according to ejection fraction (EF) calculated by ECHO. EF is actually (End Diastole volume – End systole volume) / End Diastole Volume.





But, more importantly, HF is not just about EF its time look ahead. To mention, $HF_{pef} > HF_{ref}$. Suggesting that Heart failure with preserved ejection has poorer prognosis than heart failure with reduced ejection fraction.

Moving forward, we also have the Framingham criteria of Heart failure, but to know the criteria, we must first know the three major reasons of all the HF symptoms:

LOW LV OUTPUT Sx: Extreme fatigue, Altered mental state, Dyspnea, Oliguria, Narrow pulse pressure, pulsus alterans, cardiomegaly.

↑LVEDP Sx: ↑ LAP = PCWP : Dyspnea, Nocturnal cough, Acute pulmonary oedema, Orthopnea, PNd, S3 sound present

↑RVEDP Sx: Ascites, Oedema, hepatomegaly, ↑JVP, volume overload state.

- Major Criteria**
1. Acute pulmonary edema
 2. Cardiomegaly
 3. Hepato Jugular reflex
 4. JVP
 5. Paroxysmal Nocturnal Dyspnea
 6. Rales
 7. Third Heart sound gallop

- Minor Criteria**
1. Ankle Edema
 2. Dyspnea on Exertion
 3. Hepatomegaly
 4. Nocturnal cough
 5. Pleural effusion
 6. Tachycardia

Purpose of the study: The following study is performed to analyze the prevalence of Heart failure in patients with unhealthy lifestyle and the related comorbidities. The study also signifies the advancement in management of cardiovascular diseases.

Methods and Materials: For this study, a total of 85 patients were examined. Out of which, 48 were men of age between 35-55 and 32 women between age 30-50. Patients were asked for their Anaemnesis vitae and Anaemnesis morbi followed by subjective and objective examination. And Finally with the help of (2D- ECHO and auscultation) instrumental methods, the diagnosis was made of people having Heart failure or not. Patients were kept on Beta blockers, SGLT2 inhibitors, ARBs and were asked to maintain a healthy lifestyle.

Results: At the end of our study it was found that Out of 80 patients, 40 patients were in HF_{ref} category followed by 30 patients falling under HF_{pef} category and 10 had no such symptoms and were with normal Ejection fraction. Different etiologies of Hfref and HFpef were found and formulated under Table. 1

HF _{ref}	Hf _{pef}
All causes of DCM (ischemic and non ischemic)	Hypertension
Chronic lung disease	HOCM and RCM
Chronic pressure overload (Severe AS)	Aortic Stenosis
	CKD
	A Fib
	Anemia

Clues from evaluation: Table. 2

	Systolic dysfunction	Diastolic dysfunction
Hypertension	++	+++
CAD	+++	+
3rd heart sound	+++	++++
4th heart sound	-	+++
Rales	++	++
JVP	++	+
Displaced Apex	++	-

Compensatory mechanism:

1. Sympathetic Nervous System : increased heart rate.
2. Renin Angiotensin Aldosterone System : increased salt and water retention.
3. Inhibition of Natriuretic peptide : volume overload.

Vicious Cycle:

- A. Myocardial injury with low LV performance.
- B. Compensated by SNS, RAAS, ADH.
- C. Expense of increased both preload and afterload.
- D. Further depresses LV performance (LV remodeling)

So, drugs used in management of HF block SNS, RAAS, Nephrylsin (degrades Natriuretic peptide).

Approach to Hf_{ref} management :

- Probable cause
- NYHA classification
- Staging
- IVC diameter.

- 1) Diuretics + ARNI : Toresamide 5mg BD + Valsartan Sacubitril combination
- 2) Within 2-3 days, after Euvolemic status: Carvedilol 3.125 mg BD (maximum dosage 12.5 mg BD)
- 3) Spironolactone (LVEF <35%) : 12.5 mg BD.
- 4) Dapagliflozin 10 mg BD.

65% of patients (52) improved and their ejection fraction was maintained, with decreasing obesity also with lifestyle modifications.

Conclusion: With this study we have observed that unhealthy lifestyle is the leading cause in multiple cardiovascular disorders. As the westernization is increasing day by day, people should exercise properly and keep having their body checkups and they should take their health seriously and live a stress free and happy life.

References:

1. Agababyan I.R., Pulatova K.S., Rofeev M.S. Metabolic syndrome as one of the main factors of arterial hypertension development. // Achievement of science and education. 2019. № 10 (51). С. 54-58.
2. Dilshodovna, A. M. ., Odylovna, K. F. ., Samveilovna, P. K. . (2022). Peculiarities of Psychological Disorders in Patients with Acute Coronary Syndrome. INTERNATIONAL JOURNAL OF HEALTH SYSTEMS AND MEDICAL SCIENCES, 1(6), 203–207. Retrieved from <http://inter-publishing.com/index.php/IJHSMS/article/view/695>
3. Kristina Samvelovna Pulatova, Timur Mukhitdinovich Pulatov, Mukhammad Olimovich Esankulov THE SPECIFIC FEATURES OF ARTERIAL HYPERTENSION IN OVERWEIGHT PATIENTS WITH PSORIASIS // Academic research in educational sciences. 2021. №2. URL: <https://cyberleninka.ru/article/n/the-specific-features-of-arterial-hypertension-in-overweight-patients-with-psoriasis> (дата обращения: 13.05.2023).
4. Abdulloyeva , M. ., Pulatova , K. ., & Mirzaev , R. . (2023). ORTIQCHA VAZN VA ARTERIAL GIPERTONIYA BILAN OG'RIGAN YOSHLARDA YUZAGA KELADIGAN JINSIY ZAIFLIK. Евразийский журнал медицинских и естественных наук, 3(4 Part 2), 91–94. извлечено от <https://in-academy.uz/index.php/EJMNS/article/view/13515>
5. Khasanjanova F. O., Tashkenbayeva E. N., Abdulloeva M. D. OF THROMBOLYTIC THERAPY IN PATIENTS WITH ST-ELEVATION ACUTE CORONARY SYNDROME IN YOUNG AGED PERSONS //International Bulletin of Medical Sciences and Clinical Research. – 2023. – Т. 3. – №. 4. – С. 139-143.
6. Пулатова К. С. ВЛИЯНИЕ АНТИГИПЕРТЕНЗИВНЫХ ПРЕПАРАТОВ НА ИНСУЛИНОРЕЗИСТЕНТНОСТЬ И ПОКАЗАТЕЛЕЙ ЛИПИДНОГО СПЕКТРА //European Journal of Interdisciplinary Research and Development. – 2023. – Т. 15. – С. 72-75.
7. Pulatova K. S., Panjriwala S. J., Chhabra B. Hemodynamic Features of IHD in Overweight Patients //American Journal of Pediatric Medicine and Health Sciences (2993-2149). – 2023. – Т. 1. – №. 10. – С. 582-586.
8. Samvelovna P. K. et al. Precision Wellness Solutions: Revolutionizing Hypertension Management in Obesity //American Journal of Pediatric Medicine and Health Sciences (2993-2149). – 2023. – Т. 1. – №. 8. – С. 267-270.
9. Bakhtiyarovich A. A., Samvelovna P. K. Peculiarities of the Influence of Metabolic Syndrome on the Course of Coronary Heart Disease //American Journal of Pediatric Medicine and Health Sciences (2993-2149). – 2023. – Т. 1. – №. 8. – С. 396-400.