

**ECHOCARDIOGRAPHIC EVALUATIONS OF LEFT VENTRICULAR DIASTOLIC DYSFUNCTION IN HYPERTENSIVE PATIENT**

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**ABSTRACT**

The consideration of left ventricular diastolic function should be an important part of a routine examination, especially in patients presenting with dyspnea or heart failure. In general, the common risk factor for heart failure is hypertension; therefore, it should be checked regularly. Cross Sectional Descriptive study design was used and the study was conducted in Social Security Hospital Lahore. Probability convenient sampling technique and Non probability convenience sampling technique were used and duration of study was 3 months. 150 patients of different gender, age and wall thickness of the left ventricle were used to check their variability and relationship. According to the results, males were at higher risk of dysfunction in diastolic heart function than female and this dysfunction was mostly commonly observed at the age of 40-49 and the walls of the left ventricle were thickened in 73% patients. Thus, the study showed that ventricular heart failure or diastolic heart failure is very general and is a common cause of death.

**KEYWORDS:** The consideration of of death.

**INTRODUCTION**

The assessment of left ventricular diastolic function should be an integral part of a routine examination, particularly in patients presenting with dyspnea or heart failure. About half of patients with new diagnosis of heart failure have normal or near normal global ejection fractions. These patients are diagnosed with “diastolic heart failure” or “heart failure with preserved ejection fractions”.

The assessment of left ventricular diastolic function and filling pressures is of paramount clinical importance to distinguish this syndrome from other diseases such as pulmonary disease resulting in dyspnea, to assess prognosis, and to identify underlying cardiac disease and its best treatment. Echocardiography has played a central role in the evaluation of left ventricular diastolic function over the past two decades.

It is noted that female and older patients with heart failure with normal ejection fraction (HFNEF) are more often to have hypertension, but are less predisposed to have coronary artery disease, then the patients those have reduced systolic function. It also proved from the studies that 60% of the patients with heart failure have a normal or nearly normal ejection fraction (EF).

**METHODOLOGY**

**Study Design:** Cross Sectional Descriptive  
**Settings:** Social Security Hospital, Lahore.

**Duration of Study:** 3 months after the approval of synopsis.

**Sample Size:** Sample size will be 151, calculated by sample size calculator “EPITOOL”.<sup>[8]</sup>

$$n = \frac{Z^2 pq}{d^2}$$

**Sampling Technique:** Non probability convenient sampling technique will be used.

**Sample Selection**

**Sampling Technique:** Non probability convenient sampling technique was used.

**Sample Selection****Inclusion Criteria**

- Echocardiographic evaluation of hypertensive patients of both genders
- Patients of any age group
- Ventricular hypertrophy
- Diastolic dysfunction
- Arrhythmia

**Exclusion Criteria**

- Patients with any metabolic diseases
- Patients with any mental illness
- Patients with any recent cardiac surgery

**RESULTS**

<b>Gender</b>	
Male	94
Female	56
<b>Age</b>	
30-39	21
40-49	60
50-59	38
70-79	31
<b>Wall thickness of left ventricle</b>	
Yes	110
No	40
<b>E/E' ratio</b>	
>10	71
<10	40
10-14	38
>14	1
<b>E/A ratio</b>	
>0.8	61
<0.8	64
<2	19
>2	6
<b>LA volume index</b>	
Normal	50
Normal to increased	49
Increased	50
Increased	1

**DISCUSSION**

A study was conducted to investigate the left ventricle diastolic dysfunction in hypertensive patients. 150 students were selected by cross-sectional study technique. According to recent results, left ventricular heart failure was more well-known in males as compared to female, 63% as compared to female, 37%. Similar outcomes were presented by W.J. Paulus et al that the consequence of ventricular heart failure or diastolic heart failure is more prominent in male gender as compared to the female gender.

The recent results show that ventricular diastolic dysfunction is greater in people with age of 40-49 that is 40%, 14% at age of 30-39, 25% at age of 50-59 and 20% in the age of 70-79. The similar findings were shown by W.J. Paulus et al, in 2007 that predisposing condition of diastolic heart failure is most prominent in older ages.

**CONCLUSION**

A study conducted that ventricular heart failure or diastolic heart failure is most common in males as compared to females. The other outcome concluded from the study was that diastolic heart failure is most common at the age of 40-49. Patients with heart failure with

perfused EF or ventricular dysfunction have shown thickness in left ventricular wall and the E/E ratio of patients is greater than 10 while E/A ratio is usually lower than 0.8. LA volume of ventricular dysfunction patients is normal or normal to increase.

**REFERENCES**

1. Authors/Task Force Members, McMurray JJ, Adamopoulos S, Anker SD, Auricchio A, Böhm M, Dickstein K, Falk V, Filippatos G, Fonseca C, Gomez-Sanchez MA. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC. *European journal of heart failure*, 2012 Aug; 14(8): 803-69.
2. Nagueh SF, Appleton CP, Gillebert TC, Marino PN, Oh JK, Smiseth OA, Waggoner AD, Flachskampf FA, Pellikka PA, Evangelisa A. Recommendations for the evaluation of left ventricular diastolic function by echocardiography. *European Journal of Echocardiography*, 2009 Mar 1; 10(2): 165-93.
3. Lam CS, Donal E, Kraigher-Krainer E, Vasan RS. Epidemiology and clinical course of heart failure

- with preserved ejection fraction. *European journal of heart failure*, 2011 Jan; 13(1): 18-28.
4. MacMahon SW, Wilcken DE, Macdonald GJ. The effect of weight reduction on left ventricular mass. *New England Journal of Medicine*, 1986 Feb 6; 314(6): 334-9.
  5. Zhu D, Chen B, Feng X, Li Z, Li W, Nie Y, Ma X, Yu Y, Gao W. Influence of age and gender on Doppler index of diastolic function in Chinese hypertensive patients. *Irish Journal of Medical Science (1971-)*, 2015 Dec 1; 184(4): 791-7.
  6. McGoon M, Gutterman D, Steen V, Barst R, McCrory DC, Fortin TA, Loyd JE. Screening, early detection, and diagnosis of pulmonary arterial hypertension: ACCP evidence-based clinical practice guidelines. *Chest.*, 2004 Jul 1; 126(1): 14S-34S.
  7. Cooper LT, Baughman KL, Feldman AM, Frustaci A, Jessup M, Kuhl U, Levine GN, Narula J, Starling RC, Towbin J, Virmani R. The role of endomyocardial biopsy in the management of cardiovascular disease: a scientific statement from the American Heart Association, the American College of Cardiology, and the European Society of Cardiology Endorsed by the Heart Failure Society of America and the Heart Failure Association of the European Society of Cardiology. *Journal of the American College of Cardiology*, 2007 Nov 6; 50(19): 1914-31.
  8. Maceira AM, Prasad SK, Khan M, Pennell DJ. Normalized left ventricular systolic and diastolic function by steady state free precession cardiovascular magnetic resonance. *Journal of Cardiovascular Magnetic Resonance*, 2006 Jan 1; 8(3): 417-26.
  9. LEVY D, ANDERSON KM, SAVAGE DD, KANNEL WB, CHRISTIANSEN JC, Castelli WP. Echocardiographically detected left ventricular hypertrophy: prevalence and risk factors: the Framingham Heart Study. *Annals of internal medicine*, 1988 Jan 1; 108(1): 7-13.