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ORIGINAL RESEARCH

Assessment of cases of Cardiac dysfunction by echocardiography

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ABSTRACT

Background: A complicated clinical disease known as heart failure can result from any cardiac problem, either structural or functional, that affects the left ventricle's (LV) ability to fill or expel air. The present study was conducted to assess cases of cardiac dysfunction by echocardiography. **Materials & Methods:** 79 patients with cardiac dysfunction of both genders were selected. All underwent echocardiography using an Aplio & Ge convex transducer. **Results:** Out of 79 patients, males were 49 and females were 30. Left ventricular diastolic dysfunction was found in 42 and left ventricular systolic dysfunction in 37 subjects. In LVDD, 25 were diabetics and 17 were non- diabetic. In LVSD, 15 were diabetics and 22 were non- diabetics. Grading in LVDD was 0 seen in 4 in diabetics, 1 seen in 6 and 4, 2 seen in 10 and 5, 3 in 5 and 8 subjects with diabetes and non- diabetes respectively. In LVSD, grading was 0 seen in 0 and 2, 1 seen in 4 and 8, 2 seen in 9 and 7, 3 in 2 and 5 subjects with diabetics and non- diabetes respectively. The difference was significant ($P< 0.05$). **Conclusion: C**ardiac dysfunction was detectable by echocardiography. Maximum patients had left ventricular diastolic dysfunction as compared to left ventricular systolic dysfunction. Most of these patients were diabetics.

Keywords: Diabetes mellitus, Echocardiography, ventricular diastolic

INTRODUCTION

A complicated clinical disease known as heart failure can result from any cardiac problem, either structural or functional, that affects the left ventricle's (LV) ability to fill or expel air.[1]Dyspnea, exhaustion, and fluid retention are the main signs of heart failure and can cause peripheral edema and pulmonary congestion. Heart failure affects about 5 million people in the US, and more than 550,000 people receive a heart failure diagnosis for the first time every year. In the US, heart failure is thought to cost close to $30 billion annually in direct and indirect expenses.[2]

One of the most well-known cardiovascular conditions that causes a clinical crisis is diastolic dysfunction. This condition causes the left ventricle's mass to thicken due to inadequate ventricle filling, which raises the blood's weight in the aspiratory vessels and causes transudate liquid to spill into the lung alveoli, causing pneumonic edema, which lowers the blood's oxygen content and, if left untreated, can even cause death. The myocardium loses its ability to pump blood during diastole, which is an unstressed measurement and quality phase that results in a lack of these courses and diastolic dysfunction.[3] Improvements in diastolic capacity can occur with or without systolic function, and they can occur without cardiovascular breakdown. Aging, corpulence, diabetes mellitus, cardiovascular ischemia, hypertension, aortic stenosis, myocardial illnesses, endomyocardial clutters, pericardial emission and constrictive pericarditis are different normal reasons for left ventricular diastolic dysfunction.[4] The present study was conducted to assess cases of cardiac dysfunction by echocardiography.

MATERIALS & METHODS

The present study consisted of 120 patients with cardiac dysfunction of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender, etc was recorded. A thorough analysis was carried out. Using an Aplio & Ge convex transducer, echocardiography was conducted. The malfunction of the left ventricle, including its diastolic and systolic, was graded. To identify underlying diabetes, blood tests including random blood sugar and glycated hemoglobin levels were performed. The results of the study were subjected to statistical analysis. P value less than 0.05 was considered significant.

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RESULTS

Table I: Distribution of patients

Total- 120		
Gender	**Males**	**Females**
Number	49	30

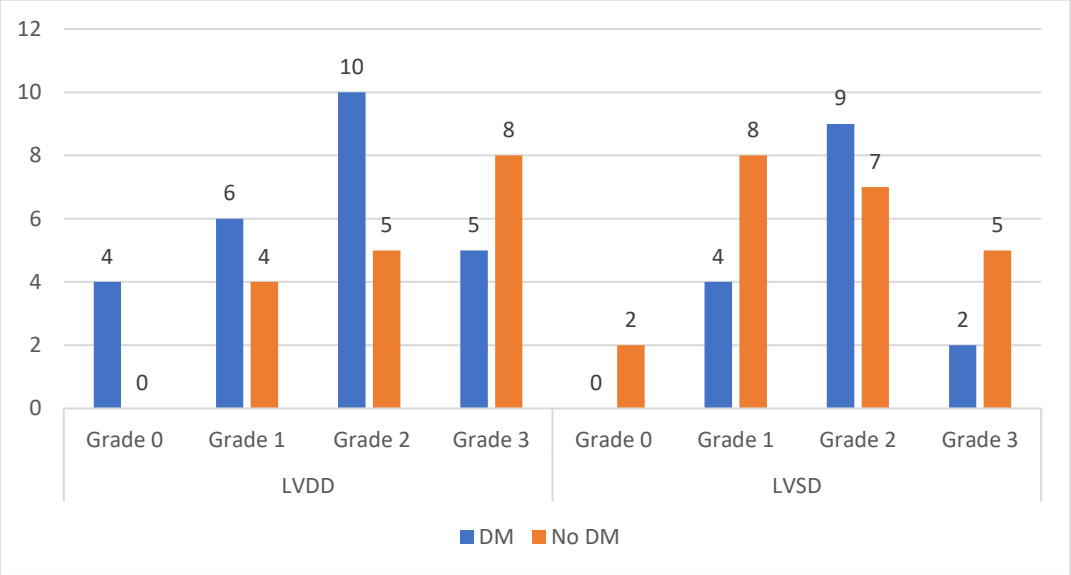
Table I shows that out of 79 patients, males were 49 and females were 30.

Table II: Evaluation of cardiac dysfunction

Diagnosis	Grade	DM	No DM	P value
LVDD	0	4	0	0.05
	1	6	4	
	2	10	5	
	3	5	8	
LVSD	0	0	2	0.03
	1	4	8	
	2	9	7	
	3	2	5	

Table II, graph I shows that left ventricular diastolic dysfunction was found in 42 and left ventricular systolic dysfunction in 37 subjects. In LVDD, 25 were diabetics and 17 were non- diabetic. In LVSD, 15 were diabetics and 22 were non- diabetics. Grading in LVDD was 0 seen in 4 in diabetics, 1 seen in 6 and 4, 2 seen in 10 and 5, 3 in 5 and 8 subjects with diabetes and non- diabetes respectively. In LVSD, grading was 0 seen in 0 and 2, 1 seen in 4 and 8, 2 seen in 9 and 7, 3 in 2 and 5 subjects with diabetics and non- diabetes respectively. The difference was significant (P< 0.05).

Graph I: Evaluation of cardiac dysfunction



DISCUSSION

Left Ventricular Diastolic dysfunction is a hazard factor for the improvement of congestive cardiovascular breakdown.[5] The higher predominance of diastolic dysfunction and cardiovascular breakdown with saved discharge part (HFpEF) in type-2 diabetes patients appears to show the effect of diabetes in the improvement of these conditions and is related with changes in heart digestion, structure, work and the instruments adding to myocardial dysfunction in diabetes incorporate hyperglycemia, lipotoxicity, insulin obstruction and weight is a high hazard marker, an increment in weight, moreover associate with diabetes, hypertension, hyperlipidemia and impacts heart capacity and structure with developing age.[6]The present study was conducted to assess echocardiographic findings in left ventricular diastolic dysfunction in patients with diabetes mellitus. We found that out of 79 patients, males were 49 and females were 30. Various imaging modalities can be used to diagnose left ventricle diastolic dysfunction, including echocardiography, cardiac catheterization, magnetic resonance imaging (MRI), pulse waves Doppler and tissue Doppler imaging (TDI), and cardiac scintigraphy.[7] The most effective non-invasive method for determining the diastolic capacity grade is cardiac catheterization, which involves calculating the mean pneumonic fine wedge weight and the left ventricular end-diastolic pressure. E

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wave is taller than A wave in a typical functional heart, according to Doppler pulse waves and Tissue Doppler Imaging (TDI) characteristics. E' should be more notable than 8.0 ms, DT=160 ms - 200 ms, and the 9 E/A ratio should be more noticeable than 1.0.[8,9] Doppler echocardiography is a simple, non-invasive method that can be used to assess diastolic function and provide accurate data on diastolic performance. The design of transmitral speed is made. The E wave, which occurs during the rapid filling stage, and the lower A wave, which emerges from atrial compression, make up the trans-mitral speed design. The stream design swiftly moves through the stages of ordinary unwinding (E>A), postponed (hindered) unwinding (E>A) filling patterns.[10,11]We observed that left ventricular diastolic dysfunction was found in 42 and left ventricular systolic dysfunction in 37 subjects. In LVDD, 25 were diabetics and 17 were non- diabetic. In LVSD, 15 were diabetics and 22 were non- diabetics. Grading in LVDD was 0 seen in 4 in diabetics, 1 seen in 6 and 4, 2 seen in 10 and 5, 3 in 5 and 8 subjects with diabetes and non- diabetes respectively. In LVSD, grading was 0 seen in 0 and 2, 1 seen in 4 and 8, 2 seen in 9 and 7, 3 in 2 and 5 subjects with diabetics and non- diabetics respectively. In Nishimura et al.'s[12] study, 149 patients in all were given a chance at the inquiry; of these, 53 (35.6%) were female and 96 (64.5%) were male. A total of 37 patients underwent ordinary analysis, 86 underwent grade 1 analysis, 22 underwent grade 2 analysis, and 4 underwent grade 3 analysis. 141 of the 149 patients had high blood pressure. 26 patients were determined to have LVSD, 37 were concluded to be ordinary, and 86 were detecting LVDD. Of the patients, 67 had diabetes and 82 did not. The patients' average age was 54 years old, with a standard deviation of 10.64%.

CONCLUSION

Author found that cardiac dysfunction was detectable by echocardiography. Maximum patients had left ventricular diastolic dysfunction as compared to left ventricular systolic dysfunction. Most of these patients were diabetics.

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