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Research Article

**FUNCTION OF LEFT VENTRICLE AND REASONS BEHIND
THROMBUS OF LEFT VENTRICLE**¹Dr Shahzeen Eisha, ²Dr Rabail Naseer, ³Dr Hafiz Muhammad Bilal¹Sheikh Zayed Medical College and Hospital Rahim Yar Khan.

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Abstract:

Objective: This research work was carried out to assess the function of left ventricle and the determination of the reasons behind thrombus of the left ventricle.

Study Design: This was a prospective research work depending upon the observations.

Methodology: This research work was carried out in Sheikh Zayed Medical College and Hospital Rahim Yar Khan. All the patients suffering from the thrombus of the left ventricle identified with the utilization of echocardiography from June 2016 to July 2018 were under study for various reasons behind it & function of the left ventricle.

Results: Total 56.0% patients suffering from the thrombus of the left ventricle were because of the chronic ischemic diseases of heart whereas 36.0% patients were available with dilated cardiomyopathy. Aneurysm of the left ventricle was present in 7.80% patients. The average age of the patients was 54.0 ± 3.0 years with 74.0% male patients & 26.0% female patients. The average ejection fraction was $22.0 \pm 2.50\%$ in the patients of dilated cardiomyopathy whereas it was $35.0 \pm 17.0\%$ in the patients suffering from primary diseases of the heart arteries.

Conclusion: The main reasons associated with the thrombus of the left ventricle are dilated cardiomyopathy & ischemic diseases of heart. The abnormal function of the left ventricle is very frequent denominator in these patients.

Key Words: Thrombus, Denominator, Thromboembolism, Ventricle, Cardiomyopathy.

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INTRODUCTION:

The thrombus of the left ventricle has the ability to occur in various cardiovascular states. The cardiac thrombus of the past was under suspicion in retrospect following clinical embolic occasions. With the advancement of the field of angiography, cardiac thrombus could be identified ante-mortem but available with low value of determination [1]. With the innovation in the field of echo-cardiograph, it has become obvious that ante-mortem identification of the intra-cardiac thrombus is a fact & its diagnosis is very possible with the normal and with full confidence with the help of non-invasive resources with the level of sensitivity & specificity of about 90.0% [2]. We frequently encounter patients suffering from thromboembolism of cerebral or immediate limb is secondary to embolism of arteries from cardiac's source.

Thrombus of the left ventricle can be select even prior from the embolic event of the arteries has happened and has permitted preemptive anti-coagulant treatment to anticipate the embolic occasion of arteries. In this research work, we researched on twenty-six patients suffering from thrombus of left ventricle for a duration of complete two years to assess the basic reason & to assess the function of the left ventricle in those patients.

METHODOLOGY:

We performed the echocardiography of 26 patients suffering from the thrombus of the left ventricle. We excluded the patients suffering from the thrombus of left artery, right artery & right ventricle. We noted down the information about the age and gender of the patients. We medically evaluated the patients of this research work for the determination of the main disease or abnormality. The complete examination included past history of the disease, physical checkup, and radiograph of the chest, electrocardiograph & transthoracic Doppler echocardiography with the utilization of the Toshiba SSH 140A system. We noted down the dimensions of the systolic and diastolic of the left ventricle.

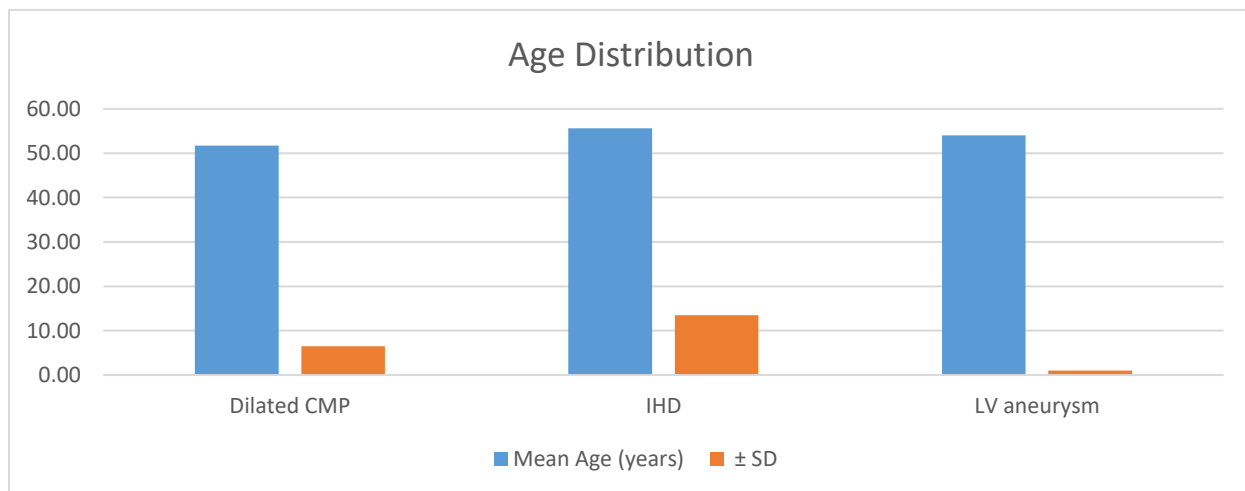
The determination of the ejection fraction of the left ventricle carried out for every patient. Briefly speaking, the determination of the main reasons and the function of the left ventricle for every patient carried out with the help of thrombus of the left ventricle.

RESULTS:

Total 19 patients out of twenty-six patients with thrombi of the left ventricle were men (74.0%) & 27.30% (n: 7) were women. The average age of the patients was 54.0 ± 3.0 years as available in Table-1. We saw the dilated cardiomyopathy in total 36.10% (n: 9) whereas ischemic heart diseases were the main cause of problem in 56.0% (n: 15) patients. Aneurysm of left ventricle was the primary reason of the abnormality in 7.80% (n: 2) patients.

Table-I : Age Distribution

Disease	Mean Age (years)	\pm SD
Dilated CMP	51.70	6.50
IHD	55.60	13.50
LV aneurysm	54.00	1.00

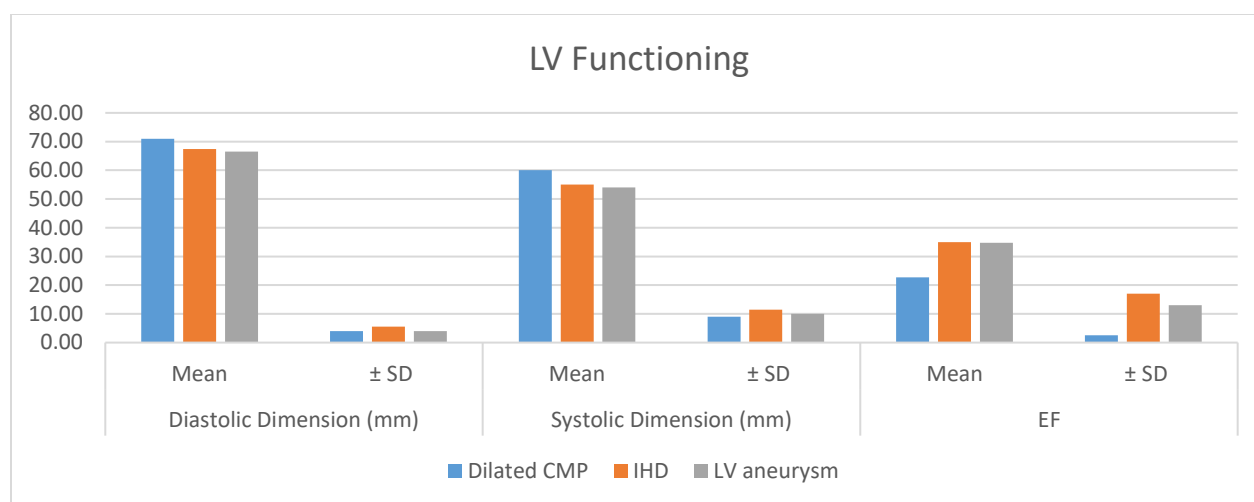


The average dimensions of the systolic and diastolic of left ventricle in the dilated cardiomyopathy was 71.0 ± 4.0 & 60.0 ± 9.0 mm correspondingly. The average ejection fraction of the patients was 22.70 ± 2.50 . The average systolic and diastolic dimensions of

the left ventricle for the ischemic heart diseases were 67.40 ± 5.50 and 55.0 ± 11.50 mm correspondingly with the average ejection fraction of 35.0 ± 17.0 as mentioned in Table-2.

TABLE-II : LV Function in 26 Cases of LV Thrombi

Disease	Diastolic Dimension (mm)		Systolic Dimension (mm)		EF	
	Mean	\pm SD	Mean	\pm SD	Mean	\pm SD
Dilated CMP	71.00	4.00	60.00	9.00	22.70	2.50
IHD	67.40	5.50	55.00	11.50	35.00	17.00
LV aneurysm	66.50	4.00	54.00	10.00	34.80	13.00



DISCUSSION:

There is availability of the thrombus of the left ventricle in the trans-mural myocardial infarction's setting as well as ventricle aneurysm & dilated cardiomyopathy. Diagnosis of the availability of the thrombus of the left ventricle is of vital significance as it can incline to the catastrophic events of arteries like cerebra-vascular accidents & ischemia of sudden limb so frequently encountered medically [3]. The occurrence of the system embolism was 12.0%, 27.0% and 50.0% in the patients suffering from myocardial infarction, aneurysm of the left ventricle & dilated cardiomyopathy [2, 6]. The average age of fifty-four years indicates to the reality that thrombus of the left ventricle is principally an abnormality of the diseases of heart in the population with high age.

The prevalence of the IHD diseases increases with the increase of the age. Very huge ratio of male to female also indicates to the sex bias available in the diseases of coronary artery which is main prompting factor for

the thrombus of the left ventricle (Table-1). We saw the thrombus of left ventricle in 20.0% to 30.0% patients suffering from acute MI particularly with huge anterior infarcts, with hyperkinesia of the left ventricle, fibrillation of arteries & low rate of ejection fraction [4]. It is available in 60.0% patients of the autopsies of dilated CMP [5]. Less cardiac productivity & intra-cardiac stasis are the basics of the formation of the mural thrombus [7]. Aneurysm of the Left ventricle can meet both of these states hence it is high risk factor for determination & recurring of the thrombus of the left ventricle in the duration of acute MI. ten percent patients experienced the systemic emboli within ninety days of acute MI [4].

This complication may be mobile or stationary with obviously defined margins. It may be available cystic or solid. Sometimes, it is present in the localized thickening in the wall of the left ventricle [8]. Textural examination may diagnose the thrombi disposed to embolization [9]. The danger of embolization is higher

with non-ischemic dilated CMP in comparison to the chronic IHD. It is also again higher with the fibrillation of the arteries with abnormal function left ventricle as it is obviously evident in the recent research work [10]. Anti-coagulation can prevent & decrease the rate of occurrence of systemic embolization and decrease the danger of mortality in the patients of thrombus of the left ventricle [11].

The patients of post myocardial infarction suffering from the thrombus of the left ventricle with abnormal function of the left ventricle or with past background incidence of the thromboembolism require anti-coagulation of long term from 3 to 6 complete months with utilization of warfarin & aspirin with INR of two to three [12]. Due to less danger of embolism in aneurysm of the left ventricle, there is no advice of anti-coagulation beyond initial 3 months of acute myocardial infarction [12]. The treatment of the heparin in the acute myocardial infarction decrease the occurrence of the formation of thrombus of left ventricle by 50.0% [13]. Patients having dilated cardiomyopathy pose high danger of the thromboembolism than the patients having ischemic heart diseases. In the later perception, congestive failure of the heart may not be an adequate sign for anti-coagulation unless there is fibrillation of the arteries, past history of thromboembolism or demonstration of thrombus of left ventricle or on the basis of echocardiography [14]. Anti-coagulation also changes the intra-coronary thrombus positively in patients with ischemic heart disease [[15]. Thrombolysis has the ability to decrease the thrombosis's rate [16]. The continuity of the anti-coagulation discouraged after three to six months after the residual thrombus continues since organization of the clot concentrates further fragmentation improbably [17]. Extended course of anti-coagulation is available in the indication of enlargement of thrombus of left ventricle and the recurring of the formation of the thrombus [18].

CONCLUSION:

The basic reasons associated with the thrombus of the left ventricle are dilated cardiomyopathy & ischemic diseases of heart. The abnormal function of the left ventricle is very frequent denominator in these patients. The availability of the thrombus of left ventricle has the ability to change the clinical condition of the patients & it also keeps the professionals fully attentive. Preventive measures provide help in avoidance of the dangerous complications of the embolism of the arteries available in the stroke form and ischemia of the limbs. The electrocardiograph with 2 dimensions perform

unmatched part in the administration of the patients suffering from the thrombus of the left ventricle.

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