



STUDY OF ECHOCARDIOGRAPHY AND CORONARY ANGIOGRAPHY FINDINGS IN ACUTE ST ELEVATION THROMBOLYSED MYOCARDIAL INFARCTION PATIENTS

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ABSTRACT **Background:** Coronary heart disease (CHD) is a major cause of morbidity and mortality in India. Echocardiography is especially helpful in estimation of the myocardium at risk and final infarct size after reperfusion therapy; evaluation of patients with unstable hemodynamic findings and detecting mechanical complications; evaluation of myocardial viability; estimation of ejection fraction. Coronary angiography remains the standard for identifying the arterial narrowing's related to atherosclerotic coronary artery disease (CAD) and provides the most reliable anatomic information. So we intended to correlate echocardiographic and coronary angiographic findings in the patients presenting to this institute.

Method: It was an observational study done in tertiary care hospital at Aurangabad, Maharashtra, INDIA in 50 patients from November 2009 to October 2011 on those who were admitted in intensive care unit, for ST elevation myocardial infarction and were thrombolysed. Echocardiography was done by cardiologist after third day before discharge and coronary angiography was done by cardiologist within one month of the discharge from hospital.

Results: Observations were made with respect to demographic finding, echocardiographic and coronary angiographic findings; data was compiled and analysed.

Conclusions: 1) Patients who had anterior or anterolateral infarctions, apical wall motion was significantly depressed and was more pronounced in patients with total occlusion of LAD. Similarly in inferior infarcts, infero-basal segments were significantly depressed.

2) Patients with normal coronary arteries or non significant obstructive lesions had higher EF than patients with obstructive lesions in One, Two or Three Vessels. The EF was significantly lower in the patients with Three vessel disease than in those with One vessel disease.

3) Patients with normal coronaries were younger (below 45 years) than those with obstructive lesions.

4) RWMA along with reduced EF on echocardiography, LAD was affected in maximum number of patients who had single vessel disease

5) Echocardiography being a non invasive technique will help in deciding the further course of the patients of AMI, after discharge from the hospital. Those with RWMA and reduced EF have high chances of having multivessel disease.

KEYWORDS : STEMI, Echocardiography, Coronary angiography RWMA Regional wall motion abnormality.

INTRODUCTION:

Poor patients of myocardial infarction are less likely to get evidence-based treatments, and have greater 30-day mortality. Reduction of delays in access to hospital and provision of affordable treatment could reduce morbidity and mortality in India.¹ An estimated 31.8 million in India have coronary heart disease (CHD).¹ ST Elevation myocardial infarction (STEMI) is major public health problem in both the developed and the developing countries. The incidence in the developing countries is now similar to that in the developed countries.² By the year 2020 it is estimated that cardiovascular disease will surpass infectious diseases as the world's leading cause of death and disability.³

Echocardiography is especially helpful in estimation of the amount of myocardium at risk and final infarct size after reperfusion therapy; evaluation of patients with unstable hemodynamic findings and detecting mechanical complications; evaluation of myocardial viability; estimation of ejection fraction; and any associated abnormality.⁴

Coronary arteriography remains the standard for identifying the presence or absence of arterial narrowing's related to atherosclerotic coronary artery disease (CAD) and provides the most reliable anatomic information for determining the appropriateness of medical therapy, percutaneous coronary intervention (PCI), or coronary artery bypass graft (CABG) in patients with ischemic CAD.⁵

So we intended to correlate echocardiographic and coronary

angiographic findings in the patients presenting to this institute.

MATERIAL AND METHODS:

The present study was an observational study conducted in the ICCU patients in a tertiary care hospital between November 2009 and October 2011. Sample size was 50. Patients presenting with the first episode of acute ST elevation myocardial infarction on electrocardiogram, underwent thrombolysis were included in the study. Patients having significant Valvular heart disease, pericardial disease and patients having renal insufficiency or previous infarction were excluded.

An institutional ethical committee approved this study on October 2009.

Detail history and clinical examination was done in ST elevation myocardial infarction who were thrombolysed with streptokinase infusion given over a period of 60 minutes. Echocardiography was done by cardiologist from third day onwards before discharge. Coronary angiography was done by cardiologist within one month of the discharge from hospital.

For the purpose of collection of data a proforma was prepared which was filled by the investigator and the observations were entered in the MS Excel spreadsheet 2007.

Patients were divided into two groups i.e. anterior wall MI & inferior wall MI after reading the electrocardiogram. Echocardiography was

done using iE 33, Philips Medical System, Andover, MA USA. Echocardiographic findings of 50 patients of AMI were studied with special reference to segmental wall motion abnormalities. Parasternal long axis, parasternal short axis, apical four chamber views were taken for recording the regional wall motion abnormality. Left ventricular ejection fraction measured by Modified Simpson's method.

Coronary Angiography was done in Siemens cath-lab. Coronary angiogram was performed through right femoral approach and with Judkin's technique. Low osmolar non-ionic contrast agent (omni paque) was used. Multiple views were taken to make sure that all coronary segments are seen clearly. Quantitative analysis was done with medical imaging system, CMS analysis software

OBSERVATIONS AND RESULTS:

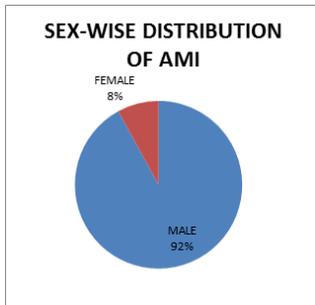
In the present study of 50 patients, the mean age observed was 49.66 with the SD ± 10.96 years (Table No.1) with maximum number of patients in age group of 41-50 yrs. Youngest patient was 23 years male. Oldest Patient was 65 years old. 20% patients were younger than 40 years.

Table No.1 Age wise distribution :-

Age in Years	Cases of AMI	
	No.	Percentage
18-30 Years	4	8
31-40 Years	6	12
41-50 Years	18	36
51-60 Years	12	24
61-65 Years	10	20
Total	50	100 %
Mean Age 49.66 yrs. SD 10.96 yrs.		

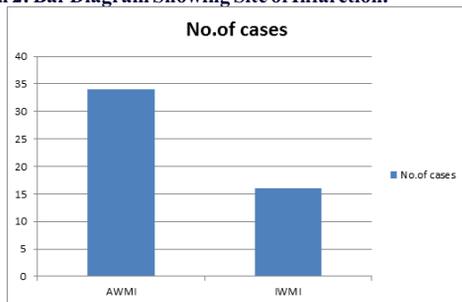
Out of 50, 46 (92%) were males and 4(8%) patients were females.(Graph 1)

Graph 1: Pie Diagram showing Sex-wise distribution of AMI



The cases are categorized as AWMI & IWMI. Out of 50, 68 % (n-34) pts. had anterior wall myocardial infarction & remaining 32% (n-16) patients had inferior wall myocardial infarction.(Graph 2)

Graph 2: Bar Diagram Showing Site of Infarction.



In the present study there were 42% (n-21) smokers, 16% (n-8) patients had hypertension, 8 % (n-4) had diabetes mellitus, 8%(n-4) were alcoholic, 6%(n-3) had obesity, 2% (n-1) were tobacco chewers, and 2% (n-1) had COPD. 28% (n-14) patients had non modifiable risk factors.(Table No.2)

Table No.2: Associated risk factors:

Risk factors	No. of patients
Smoking	21

Hypertension	8
Diabetes mellitus	4
Alcoholism	4
Obesity	3
Tobacco chewing	1
COPD	1
Non modifiable risk factors	14
Total	50

It was observed that 86% patients (n-43) had RWMA on echo. Out of these 74.41 % (n-32) had AWMI and 25.59 % (n-11) had IWMI. 14%(n-7%) did not show any abnormality of wall motion on echocardiography out of which 28.57%(n-2) patients had AWMI and remaining 71.43% were having IWMI.

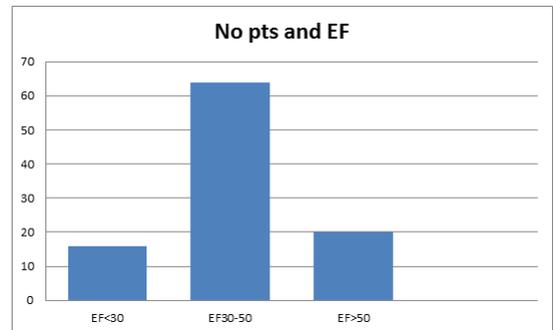
RWMA was found to be more in AWMI (32 of 34) (94.11%) than in IWMI (11 of 16) (68.75%). The difference observed was statistically significant (p=0.0274). In the patients with AWMI anterolateral and apical wall motion was significantly depressed. In the patients with IWMI inferobasal significantly involved.(Table No.3)

Table No.3: RWMA in Patients of AMI:

Site of Infarction	Total	RWMA			
		Yes		No	
		No.	Percentage	No.	Percentage
AWMI	34	32	74.41	2	28.57
IWMI	16	11	25.59	5	71.43
Total	50	43(86%)	100	7(14%)	100

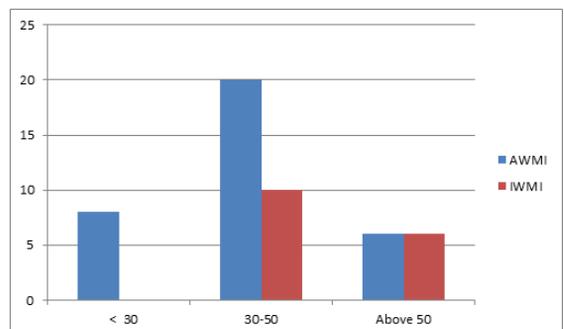
In the present study, 16 % (n-8) patients had EF of <30%, 60% (n-30) had EF of 30-50% and remaining 24 % (n-12) cases had EF above 50%. Maximum numbers of patients 30(60%) were found to have EF between 30-50% (Graph 3)

Graph 3: Bar Diagram showing patients showing frequency distribution of EF



All patients with EF <30% which comprised 16 % (n-8) of the total had AWMI. 30 patients (60%) had EF between 30-50%, out of which 20 patients had AWMI and 10 had IWMI. Out of 24 % (n-12) patients with EF > 50%, 6 patients had AWMI and 6 patients had IWMI. Chi square test was applied, p value is > 0.05, and hence it is not significant.(Graph 4)

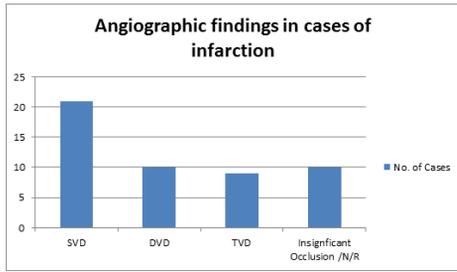
Graph 4: Bar Diagram showing Influence of site of infarction on EF



After analysing the data of coronary angiographic findings, it was noticed that 21(42%) patients showed Single vessel disease (SVD);

10(20%) had double vessel disease (DVD) while 9(18%) had triple vessel disease (TVD). 6(12%) patients did not show any abnormality on CAG and remaining 4(8%) patients had recanalised artery. The patients with recanalised arteries and occlusion < 50% are considered to have non significant obstructive CAD. (Graph 5)

Graph 5: Bar diagram showing coronary angiography findings



Out of 21 patients of SVD, 76.19% (n-16) had AWMI and 23.71% (n-5) were having IWMI. Out of 10 patients of DVD, 70% (n-7) had AWMI and 30% (n-3) were having IWMI.

There were 9 patients of TVD, 88.88% (n-8) having AWMI and 11.12% (n-1) having IWMI. Out of 10 patients of "Non significant Stenosis", 30% (n-3) had AWMI and 70% (n-7) were having IWMI. Chi square test was applied. P value is 0.0279. It is less than 0.05; hence it is statistically significant. (Table No.4)

Table No.4: Angiography and site of Infarction:

Region of MI	Total	SVD		DVD		TVD		No significant stenosis	
		No.	%	No.	%	No.	%	NO	%
AWMI	34	16	76.19	7	70	8	88.88	3	30
IWMI	16	5	23.71	3	30	1	11.12	7	70
Total	50	21	100 (42%)	10	100 (20%)	9	100 (18%)	10	100 (20%)

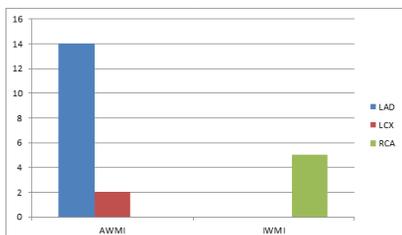
There were more number of patients(80.95%) of SVD in the age group 41-60 years .The incidence of DVD and TVD was less(10%,11%respectively) in the age group below 40 years. The patients (70%) with non obstructive disease were below the age group 40-50 years. Patients with non obstructive CAD were younger than those with SVD and multi vessels disease.(Table No.5)

Table No.5 Age & extent of Coronary Artery Disease on Coronary Angiography:

Age	SVD	DVD	TVD	No CAD*	Total
18-30 Years	2	0	0	2	4
31-40 Years	1	1	1	2	5
41-50 Years	8	2	5	3	18
51-60 Years	9	2	1	1	13
61-65 Years	1	5	2	2	10
Total	21	10	9	10	50

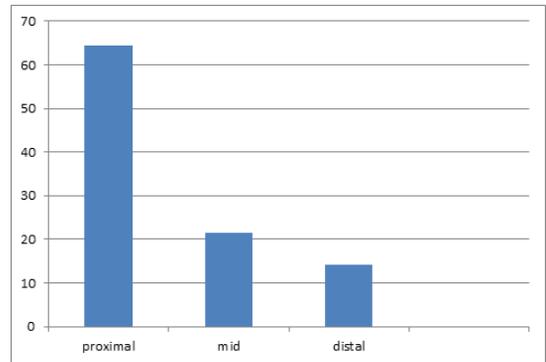
*Normal + Recanalised and Non significant obstructive Coronaries. In the present study there were 42% (n-21)patients who had single vessel disease ,out of which the culprit artery was LAD in66.71%(n-14),LCX was affected in 9.5%(n-2) and RCA was the culprit artery in 23.8% patients (n-5). The patients who had LAD stenosis 92.85% (n-13) had AWMI and 7.15% (n-1) had ASWMI. LCX was culprit artery in 9.5% (n-2) patients and both of them (100%) had AWMI. RCA was dominant in 23.8% (n-5) patients and all of them had IWMI. (Graph 6)

Graph 6: Bar Diagram showing culprit vessel in Patients with SVD



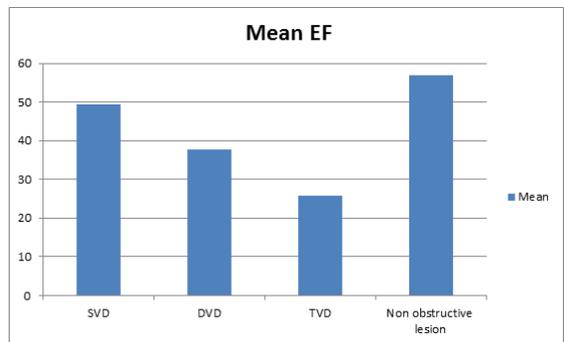
Out of 14 patients who had LAD occlusion 64.28% (n-9) had proximal stenosis, In 21.42% (n-3) patients LAD was occluded in the mid segment.(Graph 7)

Graph 7: Bar Diagram showing Site of Occlusion of LAD



In this study in CAG findings the mean EF in SVD was 49.29 ± 4.818 , in DVD it was 37.80 ± 8.79 , and in TVD it was 25.89 ± 4.70 and in Non significant obstructive lesion it was 56.90 ± 5.76 .(Graph 8)

Graph 8: Bar Diagram showing Influence of CAD on Ejection Fraction



In the present study 16% (n-8) patients were found to have EF<30, severity of the disease was more in this group. Out of which 75% (n-6) patients had TVD, and 25% (n-2) had DVD, not a single pt. in this group had SVD.

There were 60% (n-30) patients who were having EF between 30-50%. Among these, 53.33% (n-16) had SVD, 26.66% (n-8) had DVD, 10% (n-3) patients had TVD and 10% (n-4) patients had non obstructive occlusion (i.e. less than 50%). In the last group of EF>50%, there were 24% (n-12), among them 58.33% (n-7) had non significant obstructive lesion and remaining 41.66% (n-5) had SVD.(Table No 7)

Table No 7: Influence of lesions on ejection fraction:

EF	SVD	DVD	TVD	No significant obstruction	Total
EF<30	0	2	6	0	8 (16%)
EF30-50	16	8	3	3	30 (60%)
EF>50	5	0	0	7	12 (24%)

Out of 86%(n-43) patients who demonstrated RWMA on Echocardiography, 90.69%(n-39) had significant CAD on coronary angiography and 9.31%(n-4) patients were having no significant coronary artery disease . Out of these 4 patients, 2 patients had recanalised LAD and 2 patient had mild to moderate plaques.

Out of 14%(n-7) patients who did not show any RWMA ,85.71%(n-6) patients had normal coronary arteries and one patient had 60% LAD stenosis in mid segment.

The difference observed in the presence or absence of RWMA and presence or absence of significant CAD was statistically significant (p=0.0001). (Table No. 8)

Table No. 8 Correlation of RWMA and CAG findings :

RWMA	CAG findings s/o CAD	
	Yes	No
Present - 43	39	4
Absent - 07	01	6
Total - 50	40	10

DISCUSSION:

In the present study there were 50 patients with the mean age of 49.66 ± 10.96 years. There were maximum number of patients in the age group of 41-50 years. In the study population, youngest patient was 23 years old who had anterior wall MI and another patient of 24 years old had inferior wall MI.

Similar observations have been made by other workers (table-9). Betriu et al (1979) studied 259 patients with the mean age of 57.3 ± 5.2 years. In a study by J D Turner et al (1977), they studied 92 patients with the mean age of 54 ± 1 year. Another study done by Taylor et al (1976) they studied 106 patients with the mean age of 48.6 ± 9.9 years. Penco M. et al (1996) studied 524 patients with the mean age of 59 ± 9.4 years.

Table no.9 showing mean age for AMI in different studies:

Sr No.	Study	Mean Age
1	Betriu et al ⁶	57.3 ± 5.2 years
2	J D Turner et al ⁷	54.1 ± 1 years
3	Taylor et al ⁸	48.6 ± 9.9 years
4	Penco M et al ⁹	59 ± 9.4 years
5	Present study	49.66 ± 10.96 years

In the present study there were 92% males and 8% females. Male to Female ratio was 11.05:1. Male preponderance has been reported in other studies also (table-10).

Table no. 10: showing sex-wise distribution in different studies:

Sr.No.	Study	Male	Female	M:F Ratio
1	Amit Vora et al ¹⁰	220	80	2.75:1
2	Penco M et al ⁹	420	104	4.03:1
3	Taylor et al ⁸	78	28	2.78:1
4	Turner et al ⁷	80	12	6.66:1
5	Betriu et al ⁶	248	11	27:1
6	Present study	46	4	11.5:1

The higher incidence of myocardial infarction in males may be due to increased stress and addictions prevalent in males as compared to females. Lower incidence in females may be due to hormonal protection in premenopausal period as well.

In the present study 42%(n-21) patients were smokers, 16%(n-8) patients had Hypertension, 8%(n-4) Patients had DM, 8% (n-4) patients were Alcoholic, 6%(n-3) patients obese, 2%(n-1) patients were tobacco chewer, 2% (n-1) had COPD, 28% (n-28) patients had no modifiable risk factors.

In a study by Prem pais et al¹¹ they studied patients of first episode of acute myocardial infarction. They observed that smoking, hypertension, diabetes, and obesity are the modifiable risk factor in preventing IHD which is similar to the present study.

In the present study it was observed that out of 50 patients 68% (n-34) had anterior wall myocardial infarction (AWMI) and 32% (n-16) had inferior wall myocardial infarction (IWMI). In a study of 300 patients of AMI by Amit Vora et al 60% (n-180) had AWMI and 40% (n-120) had IWMI. Domingo et al, studied 87 patients of AMI out of which 47.67% (n-40) had AWMI and 53.33% (n-47) had IWMI (table-11).

Taylor et al in a study of 106 patients, found 47.16% (n-50) to have AWMI and 40.56% (n-43) to have IWMI. In a study of 92 patients by Turner et al, 56.52% (n-52) had AWMI and 41.30% (n-38) had IWMI and in 2.1% (n-2) patients the site of infarction was indeterminate. (Table no: 11)

Table no: 11 showing site of infarction in different studies

Sr. No.	Study	AWMI	IWMI	Others
1	Amit Vora et al ¹⁰	60%	40%	--
2	E. Domingo et al ¹²	47.67%	53.33%	--

3	Taylor et al ⁸	47.16%	40.56%	12.34% lateral
4	Turner et al ⁷	56.52%	41.30%	2.1% indeterminate
5	Present study	68%	32%	--

The maximum no. of patients of AWMI were from age group 41-50 years with the mean age 46.94 ± 8.41 years whereas the mean age for IWMI was 50.64 ± 12.69 years. The difference observed in the age was not statistically significant (p>0.05).

It was observed in the present study that 86% (n-43) had Regional wall motion abnormality on echocardiography. Out of which 74.41% (n-32) had AWMI and 25.59% (n-11) had IWMI. 14%(n-7) did not show any abnormality of wall motion on echocardiography out of which 28.57%(n-2) patients had AWMI and remaining 71.43%(n-5) had IWMI which is statistically significant by Fishers exact test with P value of 0.0274 (<0.05).

Sabia et al¹³ studied 180 patients presenting to the emergency room with the symptoms suggestive of AMI. Out of 29 patients of AMI with technically adequate two dimensional echocardiography, 7% (n-2) patients did not demonstrate RWMA and 93% (n-27) patients had RWMA. In a study of 33 patients of AMI by Horowitz et al¹³ (94%) showed RWMA on initial 2D Echo. Heger et al¹⁵ detected segmental asynergy in all the patients with myocardial infarction. In a study by Vissar et al¹⁶ in 48 patients of first myocardial infarction left ventricular asynergy was present in all of them. Table-12 shows the incidence of RWMA in AMI in different studies. (Table no. 12)

Table no.12: showing the incidence of RWMA in AMI in different studies:

Sr. No.	Study	No. of Patients	RWMA	
			Present	Absent
1	Sabia P. et al ¹³	29	27	2
2	R.S.Horowitz et al ¹⁴	33	31	2
3	C.A Vissar et al ¹⁶	53	48	5
4	James J Hegar et al ¹⁵	44	44	--
5	Present study	50	43	7

In the present study ejection fraction was found to be <30 in 16% (n-8) patients. All of them had AWMI. Ejection fraction between 30-50% was observed in 40% (n-20) with AWMI and 20% (n-10) with IWMI. Ejection fraction >50% was observed in 24% (n-12) patients, 6 patients in AWMI & 6 patients with IWMI. AWMI patients had reduced EF in comparison with those with IWMI. The difference observed was not statistically significant (p>0.05).

In a study by Betriu et al⁶, severe left ventricular dysfunction (EF < 30%) was found in 17% patients while moderate impairment of left ventricular function (EF 30-50) was seen in 47%. The remaining 36% had EF more than 50. There was almost equal distribution of Ejection Fraction in both the studies.

Amit Vora et al¹⁰ studied 300 patients of acute MI. Out of which 95% patients underwent Echocardiography and 62% underwent coronary angiography. There were only 19 patients who were evaluated for both 2D echocardiography and coronary angiography. The echocardiography of these 19 patients showed that 15 out of 19 (78.94%) of these had LV ejection fraction (EF) more than 40, as against only 4 out of 19 (21.05%) patients with LVEF less than 40. All of them revealed coronary artery disease.

In the present study it was found that 42% (n-21) patients had SVD, 20% (n-10) patients had DVD, 18% (n-9) Patients had TVD, and 12% (n-6) patients were found to have normal coronary arteries and 8% (n-4) patients has recanalised artery on Coronary angiographic findings.

In a study by Taylor et al⁸ they studied 109 patients. All patients underwent CAG. They found 27% patients had SVD, 20% patients had DVD and 53% patients had TVD and the incidence of LMCA stenosis was 11%.

Turner et al⁷ studied the distribution of coronary artery disease in the 117 patients having AMI who subsequently underwent coronary angiography. Of all the patients having angiography, 30% had left main or three vessels disease, 32% had two vessels and 25% had single vessel coronary artery disease. 2% patients had normal findings on

coronary angiography. The incidence of LMCA stenosis was 11% In another study by Betriu et al⁶, they found that 34% patients had SVD, 33% had DVD, 26% had TVD and there were 10% patients who had no obstructive coronary disease. The incidence of LMCA stenosis was 1.1%.

In the present study it was observed that the incidence of SVD was more than that of DVD and TVD and the incidence of LMCA stenosis was 0%. These findings are comparable with the study done by Betriu et al. Taylor et al found more number of patients (53%) had TVD and Turner et al found more number of patients 32% had DVD. (Table no. 13)

Table no. 13: showing angiographic findings in different studies:

Sr No.	Study	No. of Pts.	Time of Angiography	Coronary Angiographic findings				Incidence of LMCA Stenosis
				SVD	DVD	TVD	Stenosis < 50%*	
1	Taylor et al ⁸	109	12 Days	27%	20%	53%	0%	11%
2	Turner et al ⁷	117	1 Month	25%	32%	30%	2%	11%
3	Betriu et al ⁶	236	1 Month	34%	33%	26%	10%	1.1%
4	Present study	50	18.68±7.896 days	42%	20%	18%	20%	0%

*Less than 50% obstruction /Normal/ Recanalised Vessels.

Patients with normal /recanalised and non obstructive lesions were below the age of 45 years (80%) and two patients (20%) were 65 years old who had recanalised coronaries. In a study by Betriu et al⁶ the findings were similar to the present study.

In the present study it was found that out of 21 patients of SVD 76.19% (n-16) patients had AWMI and 23.71% (n-5) had IWMI. Out of 10 patients of DVD 70% (n-7) had AWMI and 30% (n-3) had IWMI. There were 9 patients of TVD, 88.88% (n-8) patients had AWMI and 11.12% (n-1) had IWMI. Out of 10 patients of Non obstructive significant Stenosis 30% (n-3) patients had AWMI and 70% (n-7) had IWMI.

The difference observed in the number of vessels affected and in the site of infarction was statistically significant (p=0.0279).

Hamby et al¹⁷ found Multivessel coronary artery disease in selected group in 86% of Inferior and 82% of anterior myocardial infarction.

However Turner et al⁷ observed that Multivessel coronary artery disease was similar in anterior (72%) and with inferior (80%) myocardial infarction. They commented that Multivessel artery disease is commonly found after myocardial infarction and cannot be predicted from the site of infarction as determined by Electrocardiogram.

The mean EF in cases of SVD was 49.29±4.818, in DVD 37.80±8.79, in TVD it was 25.89±4.70 and in cases of non obstructive lesion it was 56.90±5.76. (Table no 14)

Table no 14: showing mean EF in different studies:

Study	Non obstructive lesions	1- vessel	2-vessel	3-vessel
Betriu et al ⁶	57 ± 10	49 ± 14	42 ± 13	38 ± 14
Present study	56.90 ± 5.76	49.29±4.818	37.80 ± 8.79	25.89 ± 4.70

Patients with normal coronary arteries or non obstructive lesions had higher EF than patients with obstructive lesions in 1 or 2 or 3 vessels. In a study by Betriu et al⁶ similar findings were observed. They observed that EF was significantly lower in patients with three vessel disease than those with one vessel disease. In our study EF was lower in TVD than that of DVD and the EF was found to be higher in cases of SVD than that of DVD and TVD.

In the present study 86% patients were observed to have RWMA Out of 86% (n-43) patients who demonstrated RWMA on echocardiography, 90.69% (n-39) had significant CAD on coronary angiography and

9.31% (n-4) patients were having non obstructive coronary artery disease. Out of these 4 patients, 2 patients had recanalised LAD and 2 patients had mild to moderate plaques.

Out of 14% (n-7) patients who did not show any RWMA, 85.71% (n-6) patients had normal coronary arteries and one patient had 60% LAD stenosis in mid segment.

The difference observed in presence or absence of RWMA and presence or absence of significant CAD was statistically significant (p=0.0001).

In a study by Amit Vora et al¹⁰ they observed that out of 19 patients who underwent both echocardiography and coronary angiography all had significant coronary artery disease.

Sabia et al¹³ found that 90% patients had involvement of infarct related artery on both echocardiography and on CAG.

CONCLUSION

- In the present study 50 patients of acute ST elevation myocardial infarction were studied. The mean age observed was 49.66 ± 10.96 years. The maximum number of patients were males in the age group of 41-60 years. Females were only 8% (n-4).
- Regional wall motion was analyzed in all patients by 2D echocardiography. Patients who had anterior infarctions, apical and anterolateral wall motion was significantly depressed and was more pronounced in patients with total occlusion of LAD. Similarly in inferior infarcts, infero-basal segment was significantly involved, when the coronary angiography showed significant RCA stenosis.
- There were 21 patients with single vessel and 19 with multivessel disease.
- Patients with normal coronary arteries or non significant narrowing had higher EF than patients with lesions in One, Two or Three Vessels. The EF was significantly lower in the patients with Three vessel disease than in those with One vessel disease.
- Patients with normal coronaries were younger than those with obstructive lesions (below 45 years).
- Correlation was significant between echocardiographic findings pointing towards culprit artery and subsequent documentation on CAG
- Echocardiography a non invasive technique is of great help in deciding the further course of action in the patients of AMI. Those with RWMA and reduced EF have high chances of having multivessel disease and they need further intervention.
- RWMA along with reduced EF on echocardiography, LAD was affected in maximum number of patients who had single vessel disease

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