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A Study of Lipid Profile and Coronary Angiographic Profile In Young Stemi Patients

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A B S T R A C T

Acute coronary syndrome (ACS) is the primary cause of death in developed nations and ranks among the top contributors to disease burden in developing regions as well. It is the primary cause of death in developed nations and ranks among the top contributors to disease burden in developing regions as well. The majority of participants were male (95.0%), with only 5.0% being female. Among the patients, 30.0% had a good EF, 42.5% had mild dysfunction, 22.5% had moderate dysfunction, and 5.0% had severe dysfunction. A slightly higher proportion of patients (52.5%) underwent thrombolysis (L), while 47.5% underwent primary PCI. Most participants (77.5%) were non-smokers, while 22.5% were smokers. A significant majority (85.0%) did not have diabetes, whereas 15.0% were diabetic. Hypertension was present in only 5.0% of patients, while 95.0% did not have hypertension. The prevalence of single-vessel disease (SVD) was highest in the LAD (40.0%), followed by RCA involvement (22.5%), with 2.5% having LCX involvement. Double-vessel disease (DVD) was present in 15.0% of cases, while triple-vessel disease (TVD) was found in 10.0%. A majority (82.5%) of patients did not have recanalization, whereas 17.5% showed recanalization. Although there are differences in the distribution of coronary artery disease patterns among individuals with and without dyslipidaemia, none of the observed associations reach statistical significance. This suggests that while dyslipidaemia may contribute to disease progression, its direct impact on specific vessel involvement or recanalization outcomes is not clearly established in this sample study

Keywords: Acute Coronary Syndrome (ACS), ST-Elevation Myocardial Infarction (STEMI), Young Myocardial Infarction Patients, Dyslipidaemia, Lipid Profile, Coronary Artery Disease (CAD), Coronary Angiography

INTRODUCTION

Acute coronary syndrome (ACS) is the primary cause of death in developed nations and ranks among the top contributors to disease burden in developing regions as well. In 2001, ACS resulted in 7.3 million fatalities and 58 million disability-adjusted life years (DALYs) lost globally [1]. Notably, three-quarters of all ACS-related deaths and 82% of total DALYs occurred in low- and middle-income countries. However, the death rates from ACS vary significantly among developing nations, both as a percentage of cardiovascular disease (CVD) deaths and as a share of total fatalities. ACS remains the foremost cause of CVD fatalities worldwide [1]. According to global burden of disease estimates from 2001, 43% of all CVD deaths can be attributed to ACS. On a global scale, CVD deaths account for approximately 30% of all deaths. Yet, the death rates and patterns differ between high-income countries and those with low to middle incomes. In high-income nations, CVD death rates hover around 38%. In contrast, the overall rate of CVD deaths in low- and middle-income countries is collectively lower at 28%, but there are significant discrepancies, with rates reaching as high as 58% in Eastern Europe and plummeting to just 10% in Sub-Saharan Africa. CVD is the leading cause of death across all developing regions, with the exception of Sub-Saharan Africa, where it ranks as the top cause of death for individuals over 45 years of age [1].

Myocardial infarction (MI) is a significant contributor to cardiovascular-related deaths. Recognizing patients at high risk for MI is essential for effective prevention and intervention [2]. STEMI, a specific type of MI resulting from the complete blockage of a coronary artery, is strongly linked to dyslipidemia [3]. Therefore, the current protocols for assessing the risk of atherosclerotic cardiovascular diseases (CVD), such as MI, include evaluating atherogenic lipoproteins [4], which encompass low-density lipoprotein cholesterol (LDL), high-density lipoprotein cholesterol (HDL), and triglycerides (TGs).Patients with a higher risk of CVD typically exhibit an atherogenic lipoprotein profile characterized by elevated levels of both triglyceride-rich lipoproteins (TGRLs) and LDL, alongside reduced HDL levels [5]. Both HDL and LDL are closely connected to CVD [6][7], though there's debate regarding whether these factors can independently predict MI risk [8-11]. Recent studies suggest that TGRLs play a significant role in CVD [12,13]; however, the heterogeneous nature of TGRLs, which include intestinal chylomicrons and hepatic very-low-density lipoproteins, poses challenges for their clinical application. In low- and middle-income countries, by 2030, deaths from coronary heart disease are expected to surpass those from infectious diseases, establishing coronary heart disease as the leading cause of mortality. ST-segment elevation myocardial infarction (STEMI) represents one of the most severe forms of coronary heart disease, and although percutaneous coronary intervention (PCI) can lower in-hospital mortality among STEMI patients, long-term survival rates for these patients have seen little improvement [14].Epidemiological research indicates that high levels of low-density lipoprotein (LDL), which transports cholesterol in the blood and measures 20-25 nm, are major contributors to atherosclerosis. Atherosclerosis, a condition affecting arteries, often leads to coronary heart disease (CHD), resulting in myocardial infarction and cerebrovascular disease, which can lead to strokes and other complications [15]. The progression of atherosclerotic diseases relies significantly on the existence, severity, and duration of various risk factors, including high-fat diets, smoking, hypertension, and a family history of heart diseases or diabetes [16-18]. Experimental studies have identified oxidized low-density lipoprotein (Ox-LDL), endothelial dysfunction, and oxidative stress as key risk factors driving atherosclerosis [19-21].

Age-standardized rates of CVD deaths (per 100,000) show low figures in developed nations, such as Canada (120) and Britain (180), while higher rates are noted in Brazil (320), China (280), India (405), Pakistan (400), Nigeria (410), and Russia (680). This demonstrates that middle-aged individuals (30–69 years) in developing countries face disproportionately high death rates. In India, a transition is occurring where non-communicable diseases are now prevalent, indicating a complete epidemic shift. Compared to previous years, there has been a reversal in socioeconomic disparities related to the prevalence of coronary risk factors and CVDs, particularly CHD, in the country, making these conditions no longer exclusive to affluent populations [22].

AIM:
To analyse pattern of lipid abnormailties and other risk profiles in young st-elevation myocardial infarction patients (≤40years) in a industrial city and to compare with coronary angiographic pattern

OBJECTIVE
1. To study and comapre lipid profile and its various abnormalities in young stemi
2. To study other cardiac risk profiles
3. To compare lipid profile with coronary angiographic pattern

STUDY DESIGN:-
Single centre prospective cross-sectional study

STUDY PERIOD:-
April 2023 to January 2025

STUDY SETTINGS:-
Emergency department ,Sri Chandra Sekara Hospital,Tertiary care Hospital,Hosur,Tamilnadu

STUDY POPULATION:
Inclusion criteria
Patient with age group less than or equal to 40 years who was diagnosed as CAD-ACS ST elevation MI

Exclusion criteria
- A patient with age more than 40 years
- Any history of a previous myocardial infarction or coronary intervention, and any contraindication to CMR examination (pacemaker, claustrophobia, orbital foreign body, cerebral aneurysm clip, or known or suggested contrast agent allergy to gadolinium).

- Patient who was a known case of atherosclerotic cardiovascular disease or hypercholesteremia on statins
- A patient who left against medical medical advice within 24 hours of ICU admission were excluded from the study

METHOD OF STUDY

Clinical profile of the patients during hospital stay was studied and was observed for any complications of STEMI
The baseline lipid profile (after 12 hours fasting) was done in all young patients age 40 years or below within first 24 hours of ICU admission.

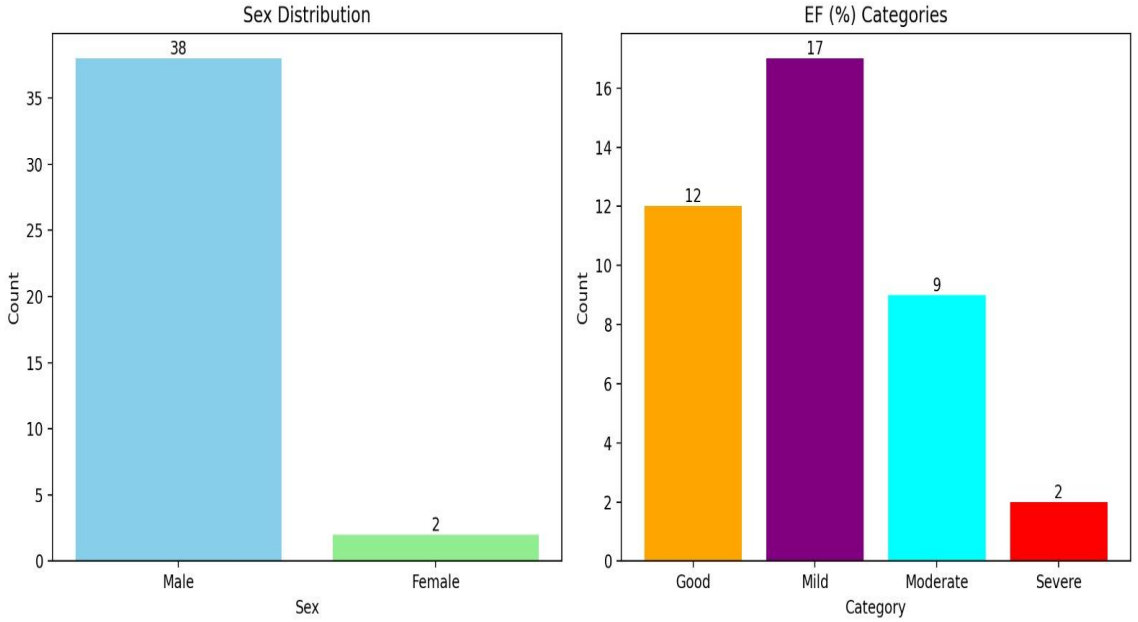
Patient having abnormality in any of lipid profile component as indicated by AHA guidelines was taken as dyslipidaemia.

The patients were further studied in two groups of dyslipidaemia patient and those with normal lipid profile. These patients were compared in their cardiovascular risk profile and major acute coronary events (mace) during hospital stay. Details of cag findings - site and number of diseased vessels, location, morphology and pattern of lesion were studied and compared with dyslipidaemia patient and those with normal lipid profile

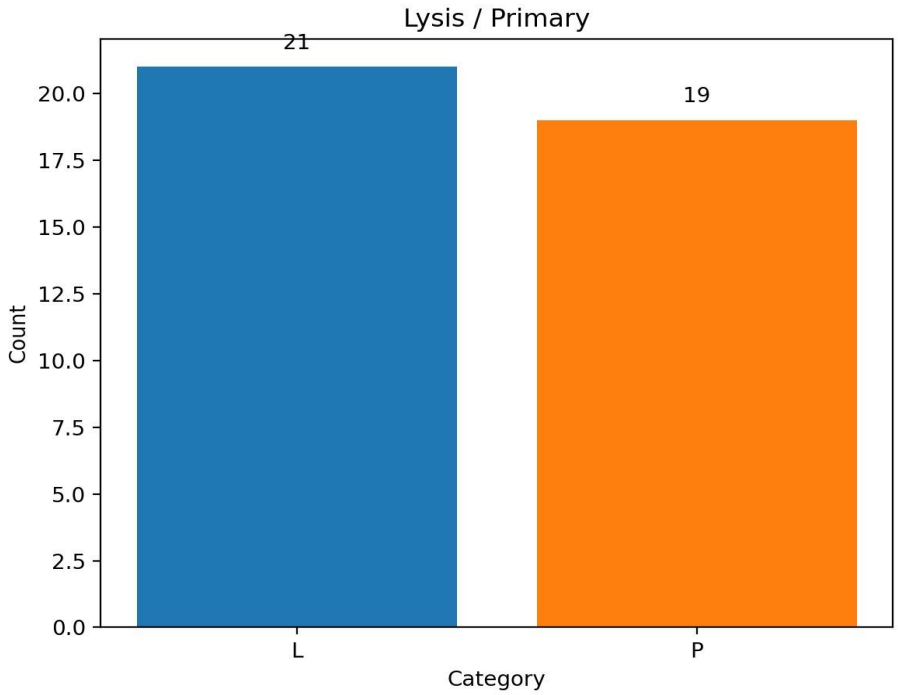
RESULTS

Patient Characteristics and Clinical Data

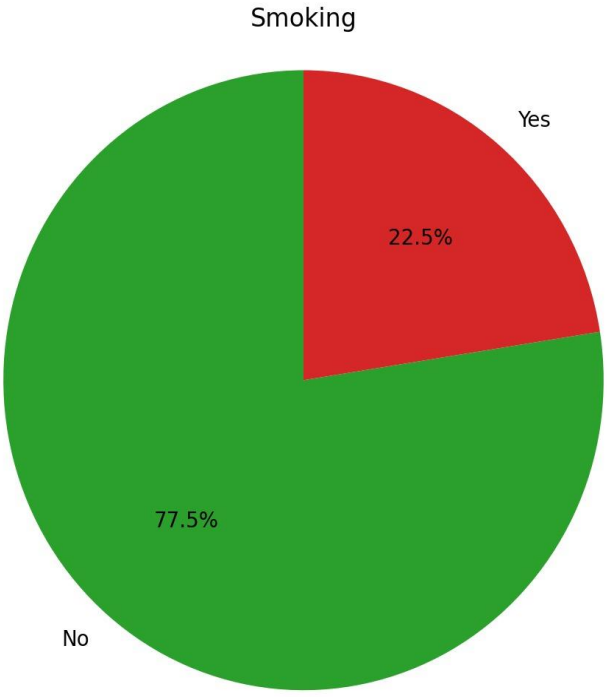
No.	Variable	Category	Frequency	Percent
1	**Sex**	Male	38	95.0
		Female	2	5.0
2	EF (%)	**Good**	**12**	**30.0**
		Mild	17	42.5
		Moderate	9	22.5
		Severe	2	5.0



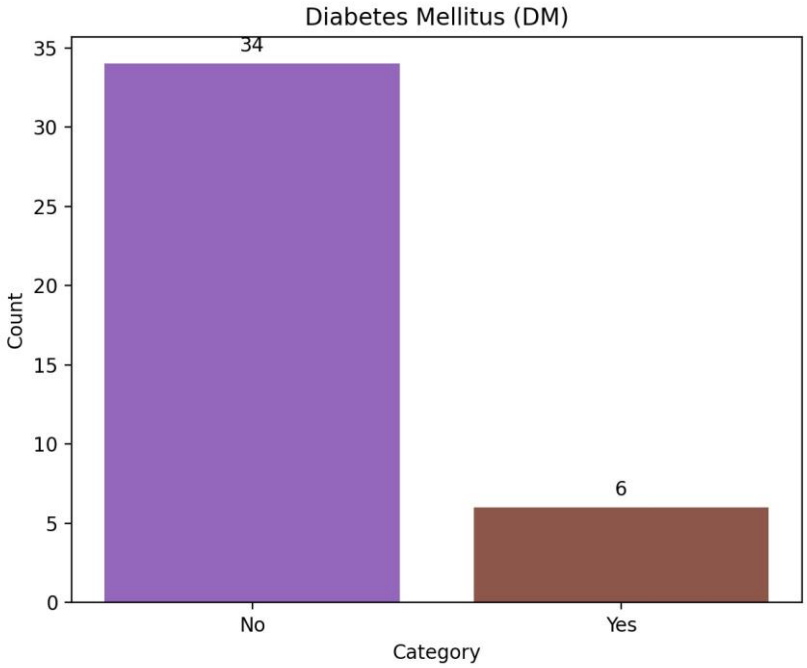
3	Lysis / Primary	**L**	**21**	**52.5**
		P	19	47.5



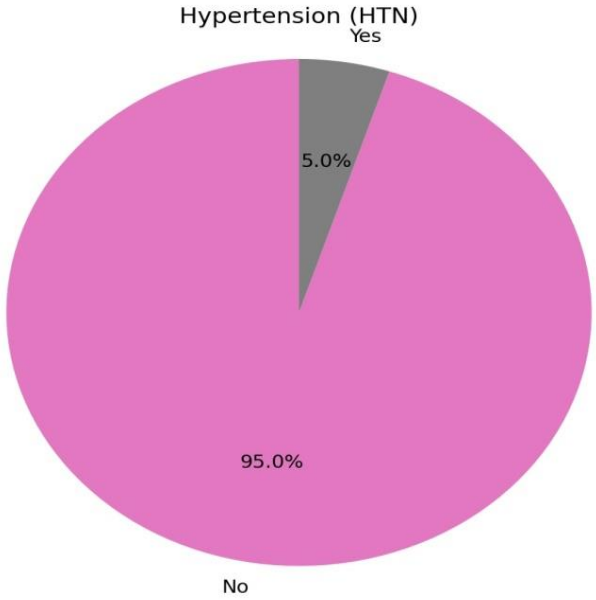
4	Smoking	**No**	**31**	**77.5**
		Yes	9	22.5



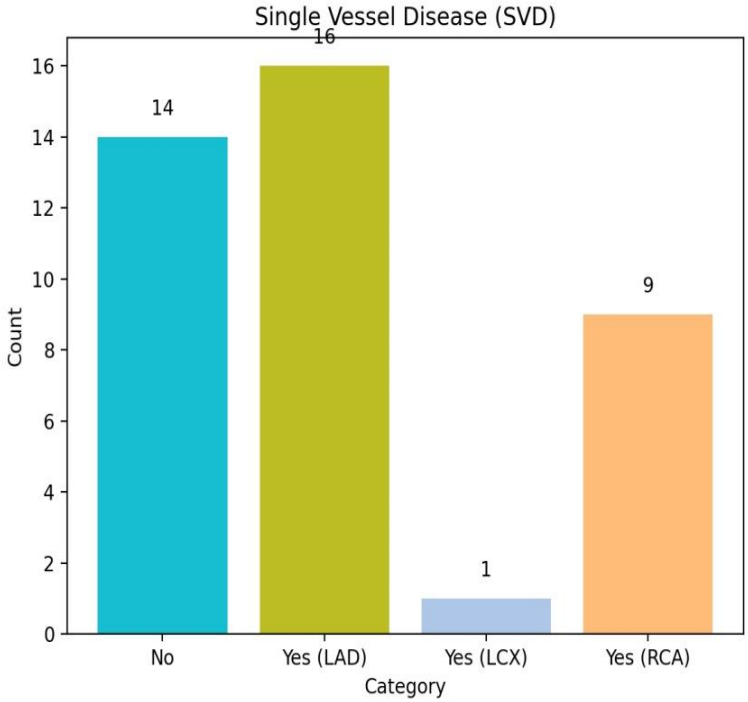
5	Diabetes Mellitus (DM)	**No**	**34**	**85.0**
		Yes	6	15.0



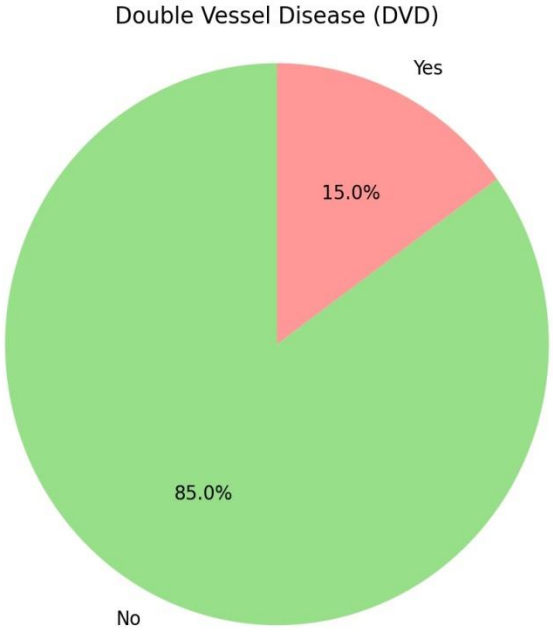
6	Hypertension (HTN)	**No**	**38**	**95.0**
		Yes	2	5.0



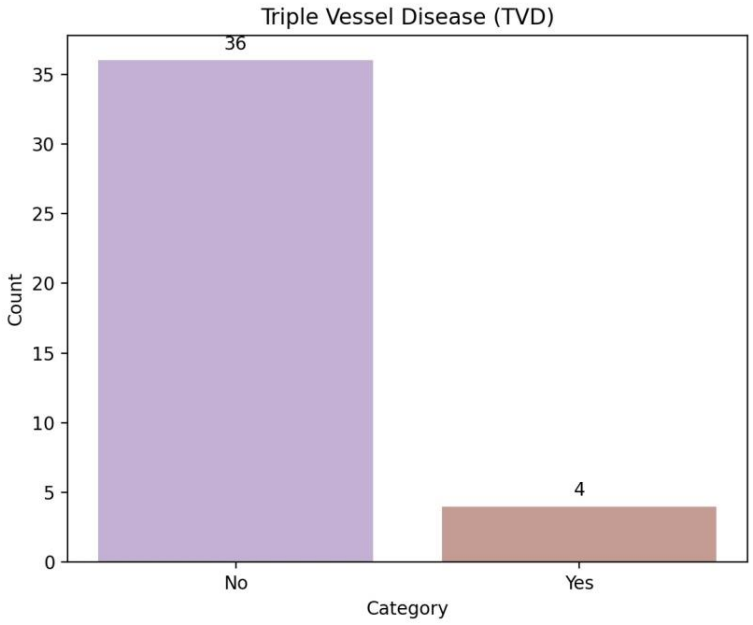
7	Single Vessel Disease (SVD)	**No**	**14**	**35.0**
		Yes (LAD)	16	40.0
		Yes (LCX)	1	2.5
		Yes (RCA)	9	22.5



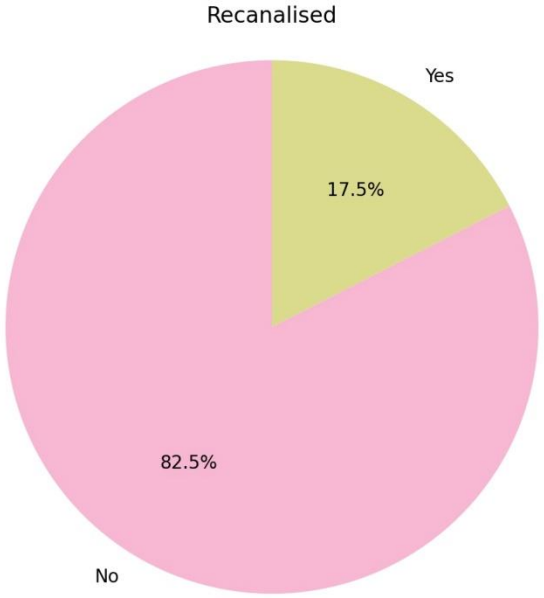
8	Double Vessel Disease (DVD)	**No**	**34**	**85.0**
		Yes	6	15.0



9	Triple Vessel Disease (TVD)	**No**	**36**	**90.0**
		Yes	4	10.0



10	Recanalised	**No**	**33**	**82.5**
		Yes	7	17.5



The table presents the distribution of key demographic and clinical variables in the study population (N=40).

- **Sex Distribution:** The majority of participants were male (95.0%), with only 5.0% being female.
- **Ejection Fraction (EF %):** Among the patients, 30.0% had a good EF, 42.5% had mild dysfunction, 22.5% had moderate dysfunction, and 5.0% had severe dysfunction.
- **Lysis vs. Primary PCI:** A slightly higher proportion of patients (52.5%) underwent thrombolysis (L), while 47.5% underwent primary PCI (P).
- **Smoking Status:** Most participants (77.5%) were non-smokers, while 22.5% were smokers.
- **Diabetes Mellitus (DM):** A significant majority (85.0%) did not have diabetes, whereas 15.0% were diabetic.
- **Hypertension (HTN):** Hypertension was present in only 5.0% of patients, while 95.0% did not have hypertension.
- **Coronary Artery Disease (CAD):** The prevalence of single-vessel disease (SVD) was highest in the LAD (40.0%), followed by RCA involvement (22.5%), with 2.5% having LCX involvement. Double-vessel disease (DVD) was present in 15.0% of cases, while triple-vessel disease (TVD) was found in 10.0%.

- **Recanalization Status:** A majority (82.5%) of patients did not have recanalization, whereas 17.5% showed recanalization.

Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age (years)	40	22	40	35.28	5.228
Total Cholesterol (mg/dL)	40	86	294	181.35	50.951
LDL (mg/dL)	40	27	189	111.93	37.513
Non-LDL (mg/dL)	40	50	242	137.25	46.808
Triglycerides (mg/dL)	40	74	352	142.42	67.698
HDL (mg/dL)	40	27	63	42.23	9.161

The table presents the descriptive statistics for key clinical and biochemical parameters of the study population (N=40), including the range, mean, and standard deviation.

- **Age:** The participants ranged from 22 to 40 years, with a mean age of 35.28 years (±5.228).
- **Total Cholesterol (mg/dL):** The cholesterol levels varied between 86 and 294 mg/dL, with a mean of 181.35 mg/dL (±50.951).
- **Low-Density Lipoprotein (LDL) (mg/dL):** The LDL levels ranged from 27 to 189 mg/dL, with an average value of 111.93 mg/dL (±37.513).
- **Non-LDL Cholesterol (mg/dL):** The non-LDL cholesterol levels spanned from 50 to 242 mg/dL, with a mean of 137.25 mg/dL (±46.808).
- **Triglycerides (mg/dL):** Triglyceride levels varied significantly from 74 to 352 mg/dL, with a mean of 142.42 mg/dL (±67.698).
- **High-Density Lipoprotein (HDL) (mg/dL):** The HDL levels ranged between 27 and 63 mg/dL, with a mean of 42.23 mg/dL (±9.161).

Sl. No	Variable	Category	Frequency	Percent (%)
11	**Outcome**	OMT	11	27.5
		PTCA	26	65.0
		CABG	3	7.5
12	**Elevated TC (Total Cholesterol)**	No	26	65.0
		Yes	14	35.0
13	**Elevated LDL**	No	29	72.5
		Yes	11	27.5
14	**Elevated TG (Triglycerides)**	No	27	67.5
		Yes	13	32.5
15	**Abnormal HDL**	No	22	55.0
		Yes	18	45.0
16	**Dyslipidemia**	No	9	22.5
		Yes	31	77.5

The table presents the frequency and percentage distribution of key clinical outcomes and lipid profile abnormalities among the study population.

- **Outcome:** The majority of patients (65.0%) underwent Percutaneous Transluminal Coronary Angioplasty (PTCA), while 27.5% were managed with Optimal Medical Therapy (OMT), and 7.5% required Coronary Artery Bypass Grafting (CABG).
- **Total Cholesterol (TC):** 35.0% of participants had high total cholesterol, while 65.0% had normal levels.
- **Low-Density Lipoprotein (LDL):** 27.5% of patients had elevated LDL levels, while 72.5% were within normal limits.
- **Triglycerides (TG):** 32.5% of participants had hypertriglyceridemia, whereas 67.5% had normal triglyceride levels.
- **High-Density Lipoprotein (HDL):** 55.0% of participants had higher (normal) HDL levels, while 45.0% had relatively lower HDL values.
- **Dyslipidemia:** 77.5% of the study population exhibited dyslipidemia, indicating a high prevalence of lipid abnormalities, which may contribute to cardiovascular risk. If anyone of the 4 parameters (TC,LDL,TG,HDL) was found abnormal, the person was deemed as dyslipidemic

CROSS-TABULATION OF VARIABLES WITH OUTCOME

1. EF (%) and Outcome

EF (%)	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
Good	3 (25.0%)	8 (66.7%)	1 (8.3%)	**7.766**	**6**	**0.256**
Mild	4 (23.5%)	13 (76.5%)	0 (0.0%)			
Moderate	4 (44.4%)	3 (33.3%)	2 (22.2%)			
Severe	0 (0.0%)	2 (100.0%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

2. Lysis/Primary and Outcome

Lysis/Primary	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
Lysis (L)	11 (52.4%)	7 (33.3%)	3 (14.3%)	**19.487**	**2**	**0.000***
Primary (P)	0 (0.0%)	19 (100.0%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

3. Smoking and Outcome

Smoking Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
Non-Smoker (0)	11 (35.5%)	18 (58.1%)	2 (6.5%)	**4.415**	**2**	**0.110**
Smoker (Y)	0 (0.0%)	8 (88.9%)	1 (11.1%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

4. Diabetes Mellitus (DM) and Outcome

DM Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	10 (29.4%)	23 (67.6%)	1 (2.9%)	**6.827**	**2**	**0.033**
Yes (Y)	1 (16.7%)	3 (50.0%)	2 (33.3%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

5. Hypertension (HTN) and Outcome

HTN Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	11 (28.9%)	24 (63.2%)	3 (7.9%)	**1.134**	**2**	**0.567**
Yes (Y)	0 (0.0%)	2 (100.0%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

6. Single Vessel Disease (SVD) and Outcome

SVD Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	5 (35.7%)	6 (42.9%)	3 (21.4%)	**8.645**	**6**	**0.195**
LAD	3 (18.8%)	13 (81.2%)	0 (0.0%)			
LCX	0 (0.0%)	1 (100.0%)	0 (0.0%)			
RCA	3 (33.3%)	6 (66.7%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

7. Double Vessel Disease (DVD) and Outcome

DVD Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	10 (29.4%)	21 (61.8%)	3 (8.8%)	**1.196**	**2**	**0.550**
Yes (Y)	1 (16.7%)	5 (83.3%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

8. Triple Vessel Disease (TVD) and Outcome

TVD Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	11 (30.6%)	25 (69.4%)	0 (0.0%)	**29.316**	**2**	**0.000**
Yes (Y)	0 (0.0%)	1 (25.0%)	3 (75.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

9. LDL and Outcome

LDL Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	11 (37.9%)	18 (62.1%)	0 (0.0%)	**12.221**	**2**	**0.002**

Yes (Y)	0 (0.0%)	8 (72.7%)	3 (27.3%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

10. HDL and Outcome

HDL Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	11 (32.4%)	21 (61.8%)	2 (5.9%)	**1.382**	**2**	**0.501**
Yes (Y)	0 (0.0%)	5 (100.0%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

11. Total Cholesterol and Outcome

Total Cholesterol Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	11 (32.4%)	21 (61.8%)	2 (5.9%)	**1.382**	**2**	**0.501**
Yes (Y)	0 (0.0%)	5 (100.0%)	0 (0.0%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

12. Dyslipidemia and Outcome

Dyslipidemia Status	OMT (n, %)	PTCA (n, %)	CABG (n, %)	Chi-Square (χ^2)	df	p-value
No (0)	3 (33.3%)	6 (66.7%)	0 (0.0%)	**1.020**	**2**	**0.601**
Yes (Y)	8 (25.8%)	20 (64.5%)	3 (9.7%)			
Total	**11 (27.5%)**	**26 (65.0%)**	**3 (7.5%)**			

This table presents the association between various clinical and biochemical parameters with treatment outcomes (OMT, PTCA, CABG) among the study population.

1. **EF (%) and Outcome:** No significant association was found between ejection fraction and treatment outcome ($p = 0.256$). However, patients with severe EF impairment were more likely to undergo PTCA (100%).
2. **Lysis/Primary and Outcome:** A highly significant association was observed ($p < 0.001$), where all patients who underwent primary PCI received PTCA, while a higher proportion of those who received lysis were managed conservatively with OMT or underwent CABG.
3. **Smoking and Outcome:** Although not statistically significant ($p = 0.110$), a higher percentage of smokers (88.9%) underwent PTCA.
4. **Diabetes Mellitus (DM) and Outcome:** A significant association was observed ($p = 0.033$), with diabetic patients showing a higher likelihood of undergoing CABG (33.3%).
5. **Hypertension (HTN) and Outcome:** No significant association was observed ($p = 0.567$), though all hypertensive patients who required intervention underwent PTCA.
6. **Single Vessel Disease (SVD) and Outcome:** No significant association ($p = 0.195$), but patients with LAD involvement had a higher chance of PTCA.
7. **Double Vessel Disease (DVD) and Outcome:** No significant association ($p = 0.550$), though those with DVD were more likely to undergo PTCA.
8. **Triple Vessel Disease (TVD) and Outcome:** A highly significant association ($p < 0.001$), where 75% of patients with TVD required CABG.
9. **LDL and Outcome:** A significant association ($p = 0.002$), where those with high LDL were more likely to undergo CABG (27.3%).
10. **HDL and Outcome:** No significant association ($p = 0.501$), though all patients with low HDL who underwent intervention received PTCA.
11. **Total Cholesterol and Outcome:** No significant association ($p = 0.501$), but all patients with high total cholesterol who required intervention underwent PTCA.
12. **Dyslipidemia and Outcome:** No significant association ($p = 0.601$), but CABG was more common among patients with dyslipidemia (9.7%).

Overall, significant associations were observed between **lysis/primary PCI, diabetes, TVD, and LDL levels** with treatment outcomes, indicating their role in determining interventional strategies.

Chi-Square Test Results and Crosstab Summary – COMBINED TABLE

Sl. No	Variable	Category	Chi-Square (χ^2) Value	df	p-value	OMT (%)	PTCA (%)	CABG (%)
1	**EF (%)**	Good	**7.766**	**6**	**0.256**	25.0	66.7	8.3
		Mild				23.5	76.5	0.0
		Moderate				44.4	33.3	22.2
		Severe				0.0	100.0	0.0

2	**Lysis/Primary**	Lysis (L)	**19.487**	**2**	**0.000***	52.4	33.3	14.3
		Primary (P)				0.0	100.0	0.0
3	**Smoking**	Non-Smoker (0)	**4.415**	**2**	**0.110**	35.5	58.1	6.5
		Smoker (Y)				0.0	88.9	11.1
4	**Diabetes (DM)**	No	**6.827**	**2**	**0.033***	29.4	67.6	2.9
		Yes				16.7	50.0	33.3
5	**Hypertension (HTN)**	No	**1.134**	**2**	**0.567**	28.9	63.2	7.9
		Yes				0.0	100.0	0.0
6	**Single Vessel Disease (SVD)**	Absent (0)	**8.645**	**6**	**0.195**	35.7	42.9	21.4
		LAD				18.8	81.2	0.0
		LCX				0.0	100.0	0.0
		RCA				33.3	66.7	0.0
7	**Double Vessel Disease (DVD)**	Absent (0)	**1.196**	**2**	**0.550**	29.4	61.8	8.8
		Present (Y)				16.7	83.3	0.0
8	**Triple Vessel Disease (TVD)**	Absent (0)	**29.316**	**2**	**0.000***	30.6	69.4	0.0
		Present (Y)				0.0	25.0	75.0
9	**Total Cholesterol (TC)**	Normal (No)	**2.827**	**2**	**0.243**	34.6	61.5	3.8
		High (Yes)				14.3	71.4	14.3
10	**LDL Levels**	Normal (No)	**12.221**	**2**	**0.002***	37.9	62.1	0.0
		High (Yes)				0.0	72.7	27.3
11	**Triglycerides (TG)**	Normal (No)	**1.769**	**2**	**0.413**	29.6	66.7	3.7
		High (Yes)				23.1	61.5	15.4
12	**Dyslipidaemia**	Absent (No)	**1.020**	**2**	**0.601**	33.3	66.7	0.0
		Present (Yes)				25.8	64.5	9.7

Dyslipidemia and SVD

Dyslipidemia	SVD (No)	SVD (LAD)	SVD (LCX)	SVD (RCA)	Total	χ^2 (p-value)
No	2 (22.2%)	3 (33.3%)	0 (0.0%)	4 (44.4%)	9	3.447 (0.328)
Yes	12 (38.7%)	13 (41.9%)	1 (3.2%)	5 (16.1%)	31	
Total	14 (35.0%)	16 (40.0%)	1 (2.5%)	9 (22.5%)	40	

Dyslipidemia and Double Vessel Disease (DVD)

Dyslipidemia	DVD (Nil) (n, %)	DVD (YES) (n, %)	Chi-Square (χ^2), p-value
Nil	9 (100.0%)	0 (0.0%)	**2.049, 0.152**
YES	25 (80.6%)	6 (19.4%)	
Total	34 (85.0%)	6 (15.0%)	

Dyslipidemia and Triple Vessel Disease (TVD)

Dyslipidemia	TVD (Nil) (n, %)	TVD (YES) (n, %)	Chi-Square (χ^2), p-value
Nil	9 (100.0%)	0 (0.0%)	**1.290, 0.256**
YES	27 (87.1%)	4 (12.9%)	
Total	36 (90.0%)	4 (10.0%)	

Dyslipidemia and Recanalisation

Dyslipidemia	Recanalised (No)	Recanalised (Yes)	Total	χ^2 (p-value)
No	6 (66.7%)	3 (33.3%)	9	2.016 (0.156)
Yes	27 (87.1%)	4 (12.9%)	31	
Total	33 (82.5%)	7 (17.5%)	40	

1. Dyslipidemia and Single Vessel Disease (SVD)

This table examines the association between dyslipidemia and single vessel disease (SVD) involving different coronary arteries (LAD, LCX, RCA). Among individuals without dyslipidemia, 44.4% had RCA involvement, 33.3% had LAD involvement, and none had LCX involvement. In contrast, among those with dyslipidemia, 41.9% had LAD involvement,

16.1% had RCA involvement, and 3.2% had LCX involvement. The chi-square test ($\chi^2 = 3.447$, $p = 0.328$) suggests that there is no statistically significant association between dyslipidemia and SVD distribution.

2. Dyslipidemia and Double Vessel Disease (DVD)
This table evaluates the relationship between dyslipidemia and double vessel disease (DVD). None of the individuals without dyslipidemia had DVD (0.0%), while 19.4% of those with dyslipidemia had DVD. The chi-square test ($\chi^2 = 2.049$, $p = 0.152$) indicates that this association is not statistically significant.

3. Dyslipidemia and Triple Vessel Disease (TVD)
This table investigates the link between dyslipidemia and triple vessel disease (TVD). None of the individuals without dyslipidemia had TVD (0.0%), whereas 12.9% of those with dyslipidemia had TVD. The chi-square test ($\chi^2 = 1.290$, $p = 0.256$) shows that the relationship between dyslipidemia and TVD is not statistically significant.

4. Dyslipidemia and Recanalization
This table assesses the association between dyslipidemia and recanalization. Among individuals without dyslipidemia, 33.3% underwent recanalization, compared to 12.9% of those with dyslipidemia. The chi-square test ($\chi^2 = 2.016$, $p = 0.156$) suggests that dyslipidemia is not significantly associated with recanalization outcomes.

CONCLUSION

Although there are differences in the distribution of coronary artery disease patterns among individuals with and without dyslipidemia, none of the observed associations reach statistical significance. This suggests that while dyslipidemia may contribute to disease progression, its direct impact on specific vessel involvement or recanalization outcomes is not clearly established in this sample study.

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