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Original Research Article.

Evaluation of the Pattern of Dyslipidemia in Patients of Acute Myocardial Infraction

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ABSTRACT

Introduction: One of the major causes of acute myocardial infraction is Dyslipidemia which cause presence of abnormal amount of lipid in blood. Recently Bangladesh is more susceptible to this disease.

Objective: In this study our main goal is to evaluate pattern of dyslipidemia in patients of acute myocardial infraction and their treatment outcome in southern part of Bangladesh.

Methods: This observational study was conducted at coronary care unit (CCU) of Gazi Medical College Hospital from July 2017 to July 2018 where 40 patients were studied. Study subjects were collected from admitted patient in CCU referred from emergency department and also from in-patient department of the respective discipline with acute coronary syndrome. Statistical analysis will be carried out by using the Statistical Package for Social Sciences version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA).

Result: This study find out that treatment outcome of the patients is improved and discharged immediately.

Conclusion: We can conclude that patterns of dyslipidemia for prevalence of risk factors for acute myocardial infraction is high in Bangladesh, especially in urban areas. Further research, in particular longitudinal studies, is needed for better outcome.

Keyword: Acute Myocardial Infraction, Dyslipidemia, Coronary Syndrome.

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INTRODUCTION

Dyslipidemia is an abnormal amount of lipids (e.g. triglycerides, cholesterol and/or fat phospholipids) in the blood. In developed countries, most dyslipidemias are hyperlipidemias; that is, an elevation of lipids in the blood. This is often due to diet and lifestyle. Prolonged elevation of insulin levels can also lead to dyslipidemia. Dyslipidemia is divided up into primary and secondary types. Primary dyslipidemia is inherited. Secondary dyslipidemia is an acquired condition. That means it develops from other causes, such as obesity or diabetes. Dyslipidemia is a primary, widely established as an independent major risk factor for coronary artery disease (CAD). Coronary artery disease (CAD) particularly myocardial infarction secondary to atherosclerosis of coronary arteriesremains the leading cause of morbidity and mortality worldwide. Atherosclerosis is a chronic, multifocalimmuno-inflammatory; fibroproliferative disease of medium sized and large arteries mainly driven by lipid accumulation. Elevated levels of total and low-density lipoprotein cholesterol (TC and LDL-C), elevated levels of triglycerides (TG) and low levels of high-density lipoprotein cholesterol (HDL-C) are important risk factors for CAD. LDL-C is considered as 'bad cholesterol' since too high level of this cholesterol is associated with an increased risk of coronary artery disease and stroke. Dyslipidemia is a primary, widely established as an independent major risk factor for coronary artery disease (CAD) and may even be a prerequisite for CAD, occurring before other major risk factors come into play. Studies have reported higher prevalence of lipid abnormalities among Asians compared with non-Asians.[1,2]

Low HDL cholesterol and high TG concentrations have been implicated as possible independent predictors of CVD and the combination of these two conditions are called as atherogenic dyslipidemia.

Asian Indian has a higher prevalence of low HDL cholesterol and lower prevalence of high cholesterol than non-Asian Indians, which suggests impaired reverse cholesterol transport.

Coronary artery disease (CAD) is an increasingly important medical and public health problem, and is the leading cause of mortality in Bangladesh. Like other South Asians, Bangladeshis are unduly prone to develop CAD, which is often premature in

onset, follows a rapidly progressive course and angiographically more severe. In this study our main goal is to evaluate pattern of dyslipidemia in patients of acute myocardial infraction.

OBJECTIVE

- To evaluate pattern of dyslipidemia in patients of acute myocardial infraction.

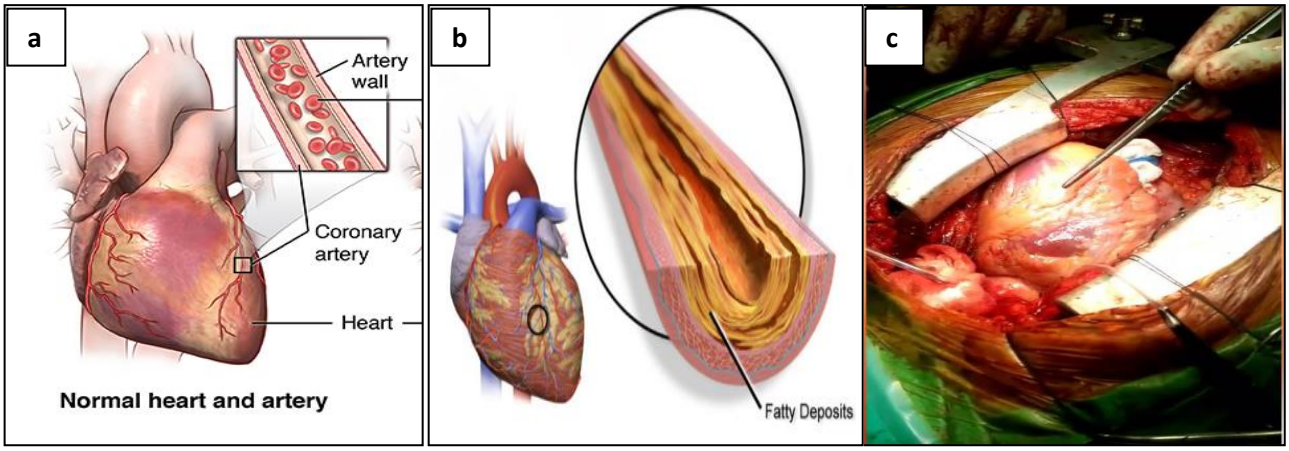


Figure 1(a,b, c): Dyslipidemia and surgery of acute myocardial infraction[3]

METHODOLOGY

Study Type

This study was a prospective observational study.

Place & Period of the Study

This study was conducted at coronary care unit (CCU) of Gazi Medical College Hospital from July 2017 to July 2018.

Inclusion Criteria

- Patients of acute ST elevation myocardial infarction who admitted within 24 hours after chest pain.
- Patients of NSTEMI who admitted within 24 hours after chest pain.

Exclusion Criteria

- chronic stable angina
- unstable angina
- non-cardiac chest pain
- congenital or valvular cases
- shortness of breath

Method

During the study period 40 consecutive patients, aged 40-75 years suffering from acute myocardial infraction were examined. Study subjects were collected from admitted patient in CCU referred from emergency department and also from in-patient department of the respective discipline with acute coronary syndrome. After that fasting lipid profile in next morning of admission was done and assess the pattern and differences of all parameter of lipid in two types of MI. Dyslipidemia was considered according to ATP III guideline with Serum Total cholesterol > 200 mg/dl, TG>150 mg/dl, LDL >100 mg/dl, HDL.

Data Analysis

Statistical analysis will be carried out by using the Statistical Package for Social Sciences version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA).The quantitative observations will be indicated by frequencies and percentages. Chi-Square test with Yates correction will be used to analyze the categorical variables, shown with cross tabulation. Student t-test will be used for continuous variables. P values <0.05 will be considered as statistically significant.

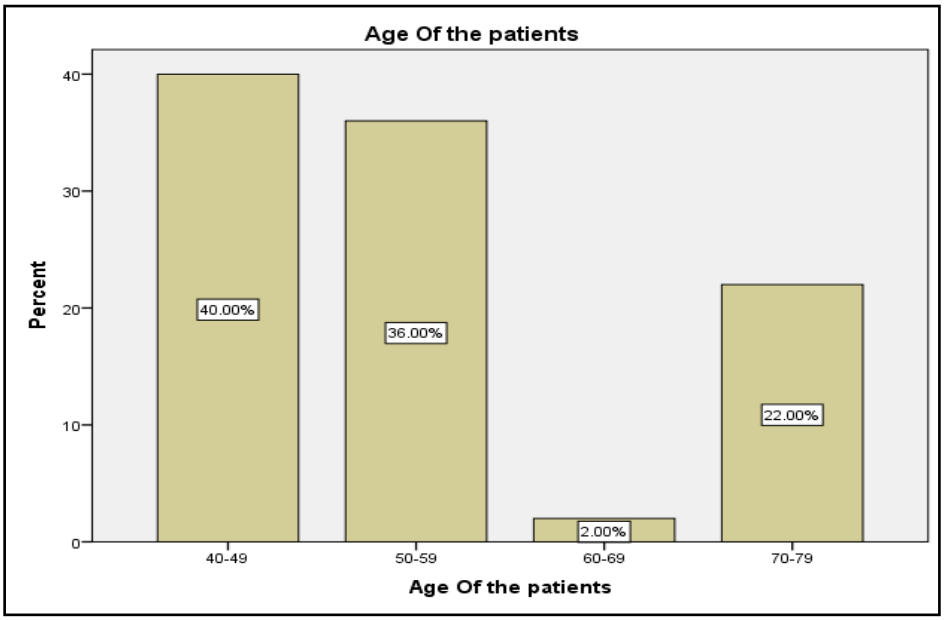


Figure-1: Age distribution of patients

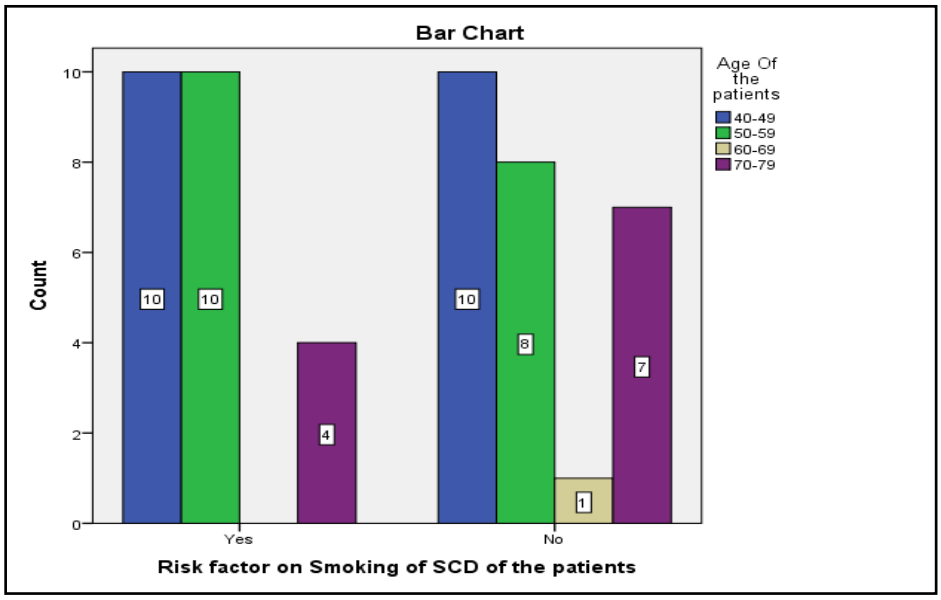


Figure-2: Risk factor on smoking of SCD of the patients

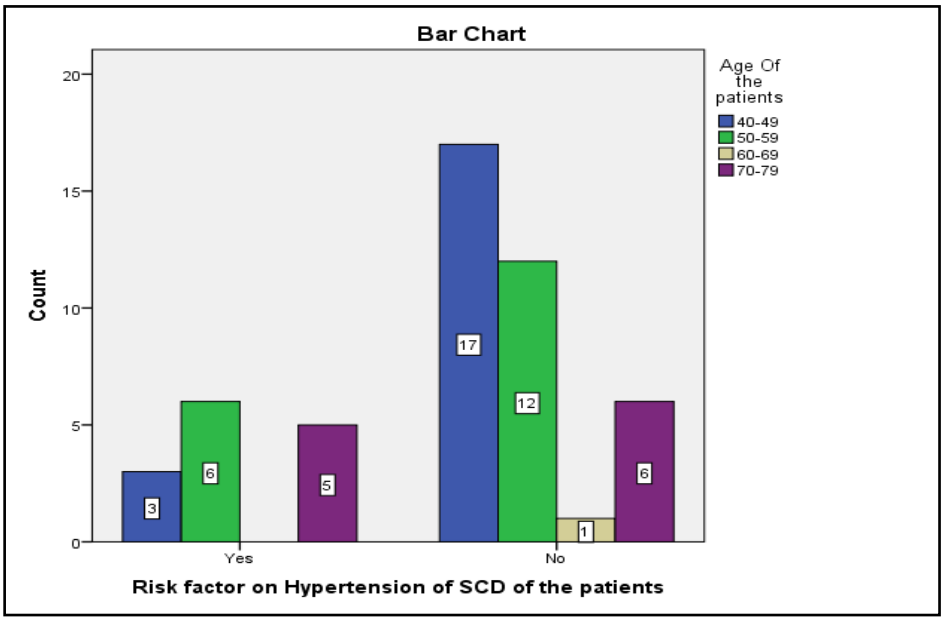


Figure-3: Risk factor on hypertension of SCD of the patients

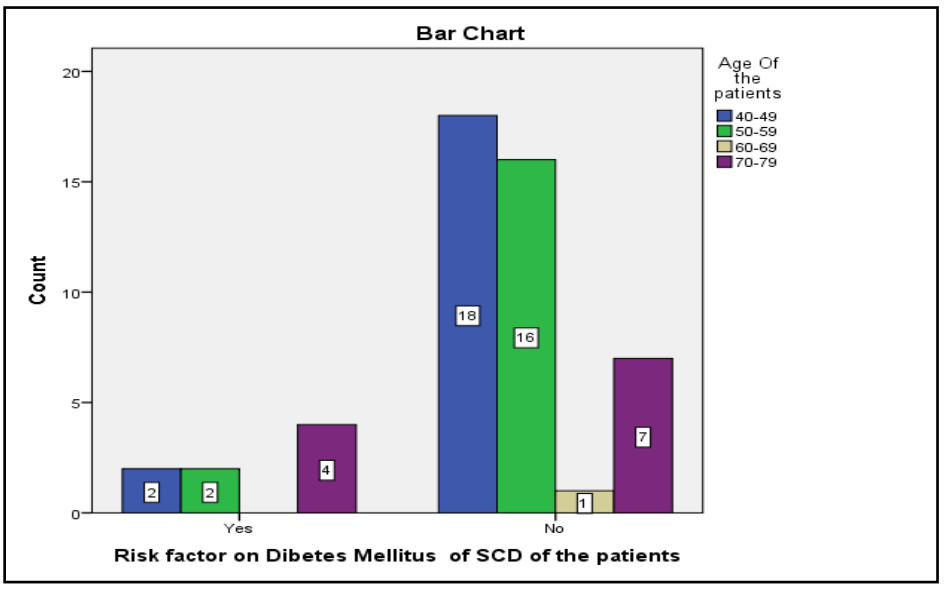


Figure-4: Risk factor on Diabetes mellitus of SCD of the patients

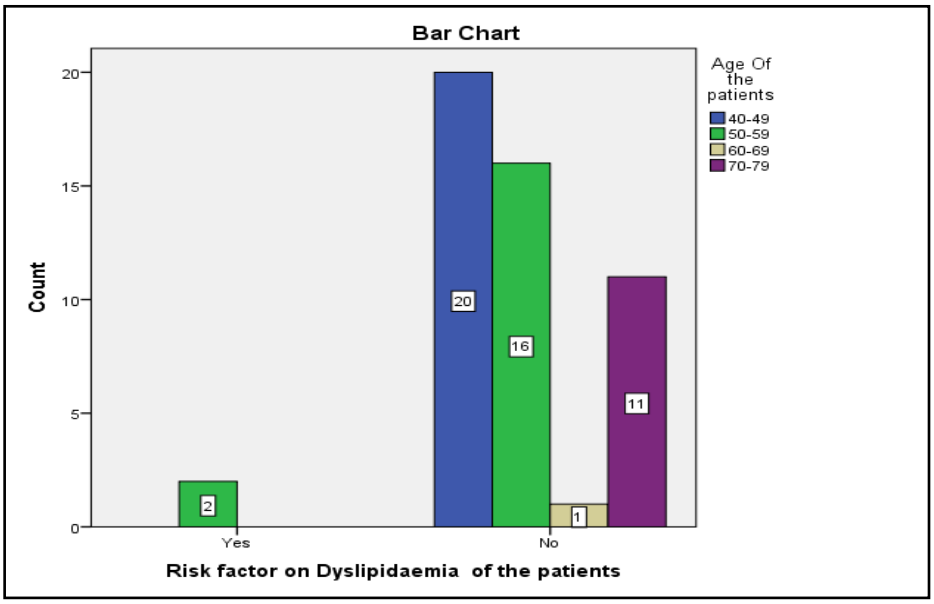


Figure-5: Risk factor on Dyslipidemia of the patients

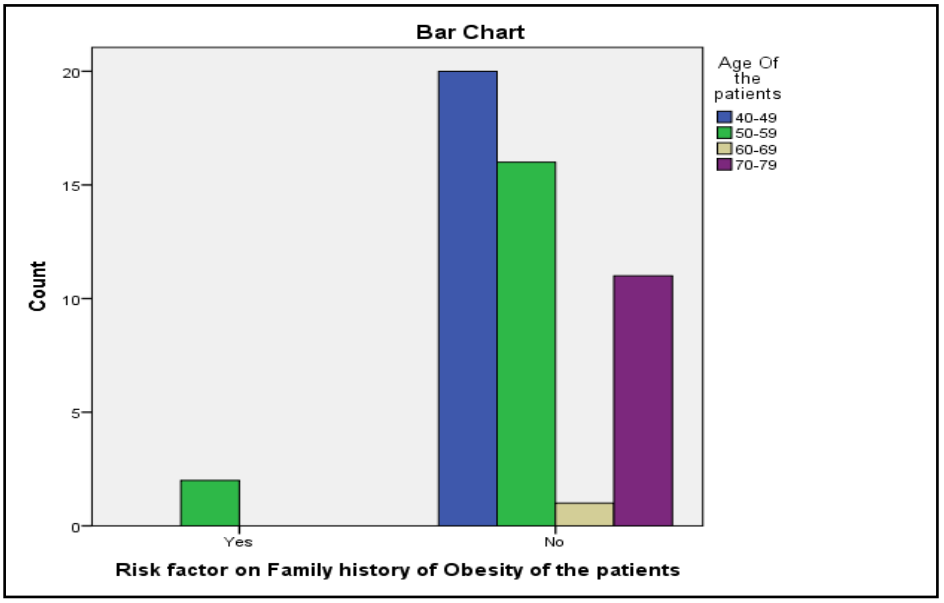


Figure-6: Risk factor on family history of obesity of the patients

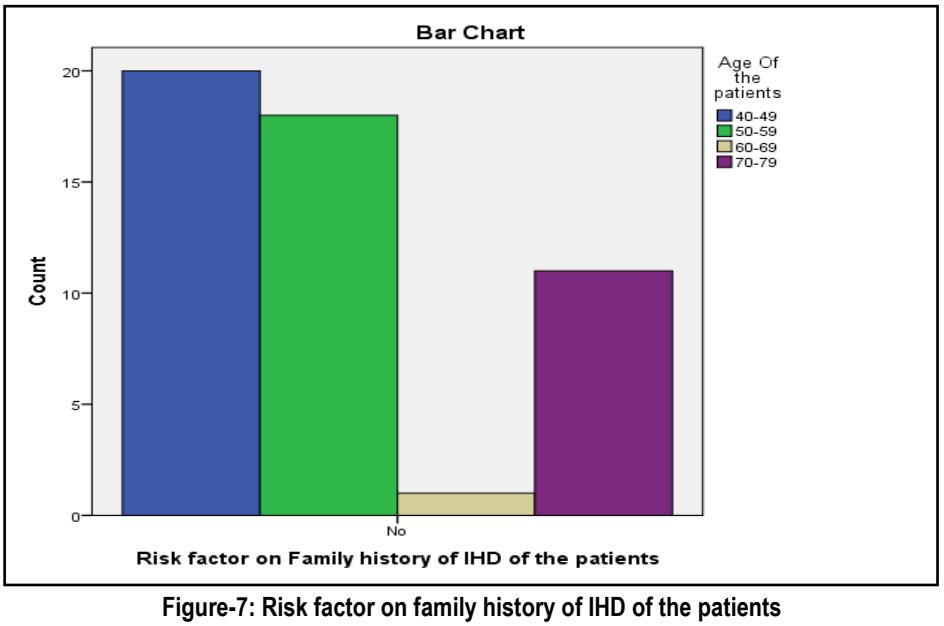


Figure-7: Risk factor on family history of IHD of the patients

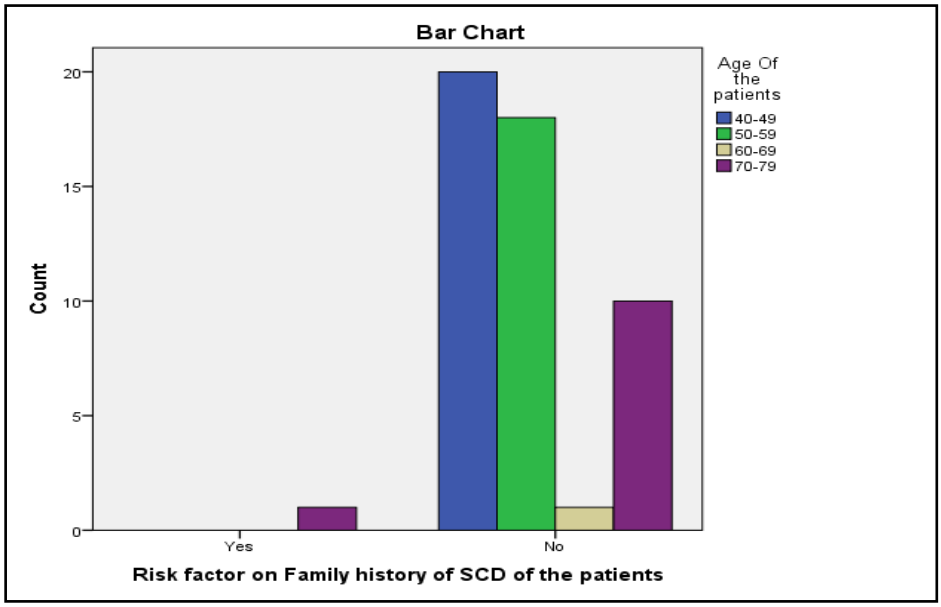


Figure-8: Risk factor on family history of SCD of the patients

Table 1: Gender of the patients

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	49	83.1	98.0	98.0
	Female	1	1.7	2.0	100.0
	Total	50	84.7	100.0	

Table 2: Clinical profile for Anemia of the patients

Anemia		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	6	10.2	12.0	12.0
	Negative	26	44.1	52.0	64.0
	Absent	14	23.7	28.0	92.0
	Mild	4	6.8	8.0	100.0
	Total	50	84.7	100.0	

Table 3: Clinical profile for Heart Rate of the patients

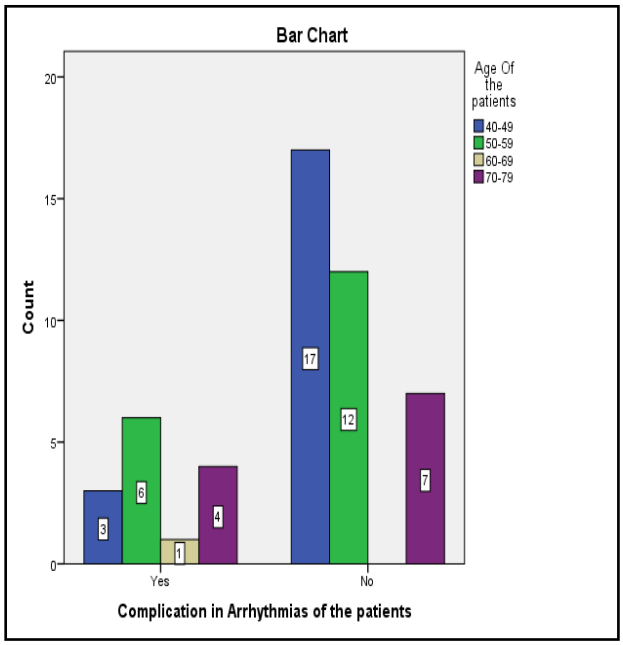
Heart Rate		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	(41-60)/min	22	37.3	44.0	44.0
	(61-70)/min	8	13.6	16.0	60.0
	(71-80)/min	13	22.0	26.0	86.0
	(81-90)/min	4	6.8	8.0	94.0
	(91-100)/min	1	1.7	2.0	96.0
	(111-120)/min	2	3.4	4.0	100.0
	Total	50	84.7	100.0	

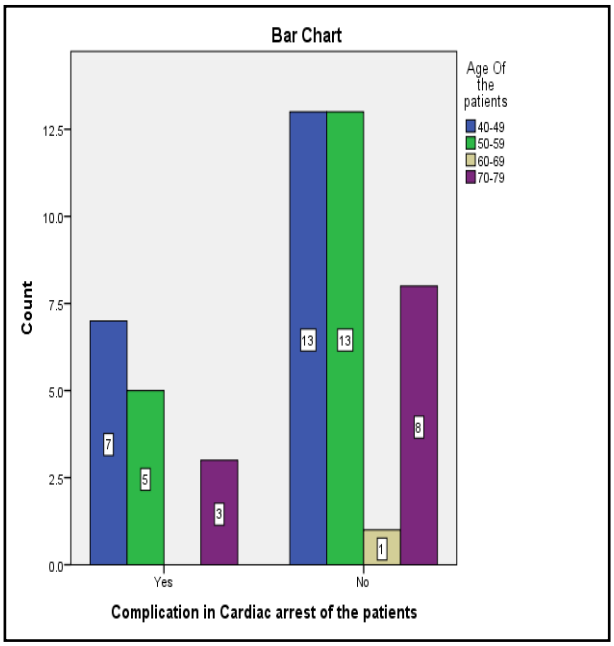
Table 4: Clinical profile for Blood pressure of the patients

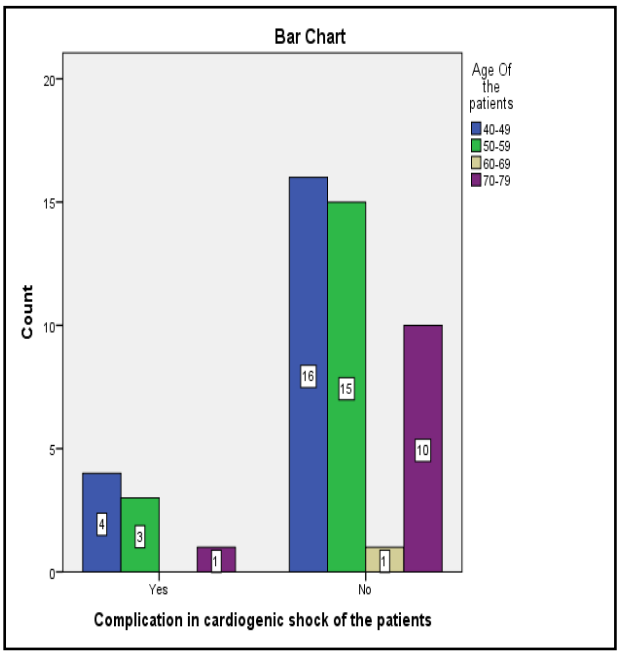
Blood pressure		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	(100/65)mmHg	15	25.4	30.0	30.0
	(110/70)mmHg	10	16.9	20.0	50.0
	(120/80)mmHg	12	20.3	24.0	74.0
	(130/80)mmHg	6	10.2	12.0	86.0
	(140/90)mmHg	7	11.9	14.0	100.0
	Total	50	84.7	100.0	

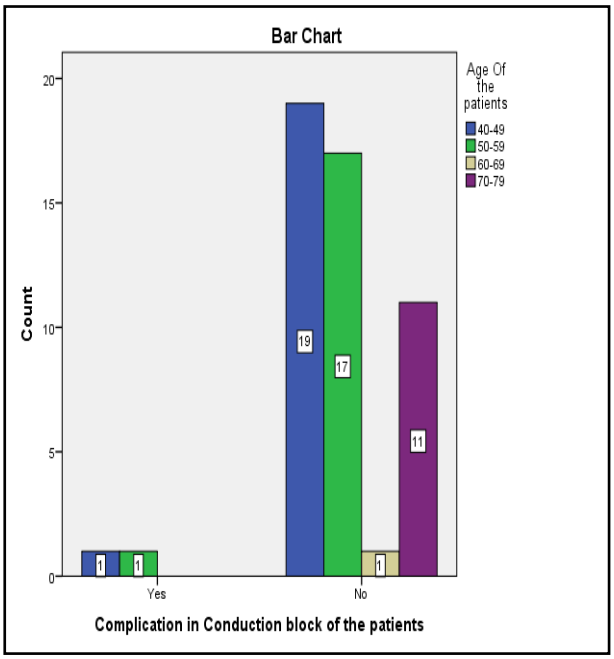
Table 5: Clinical profile for Neck vein of the patients

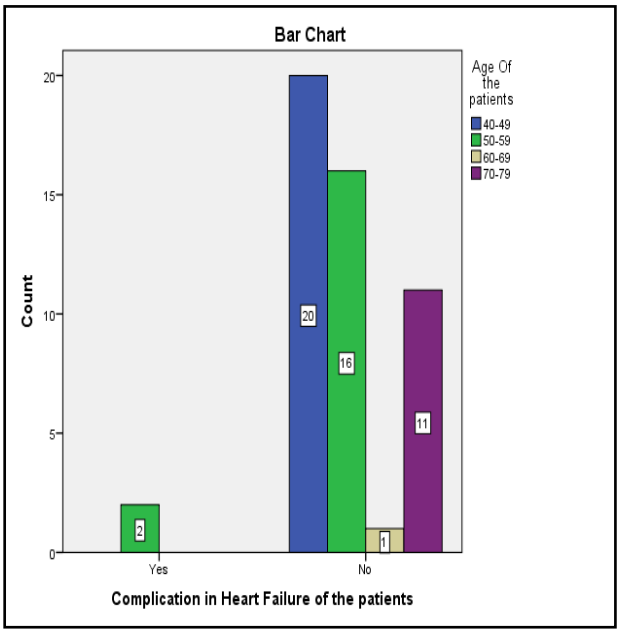
Neck vein		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not raised	50	84.7	100.0	100.0

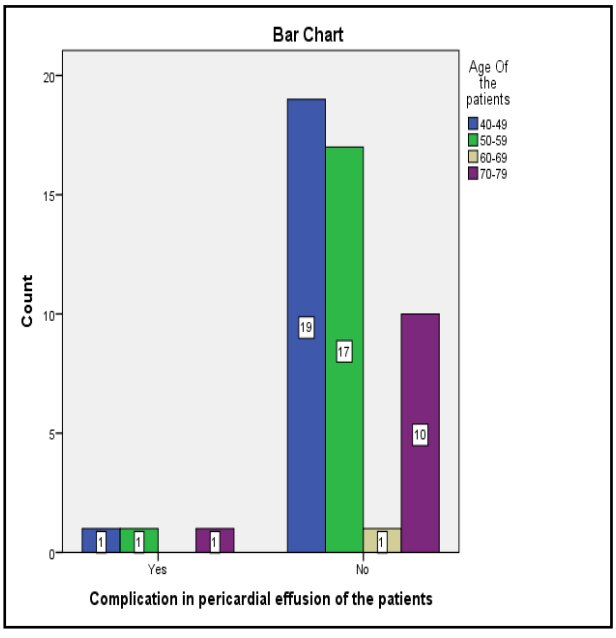

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in Arrhythmias of the patients

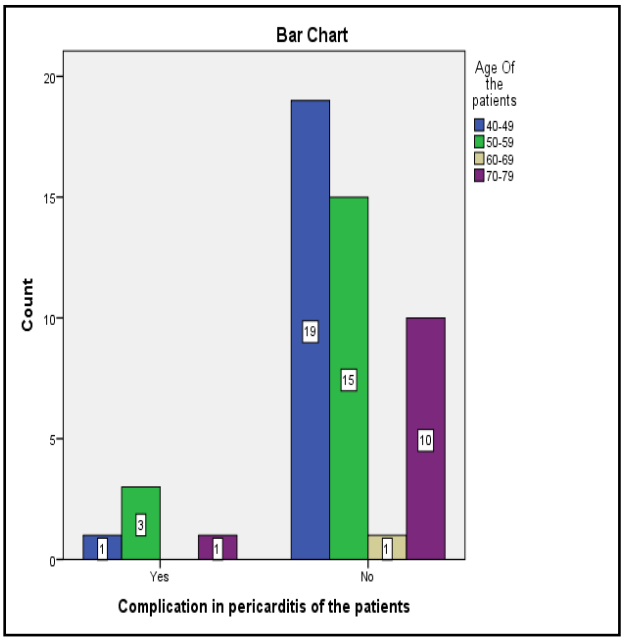

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in Cardiac arrest of the patients

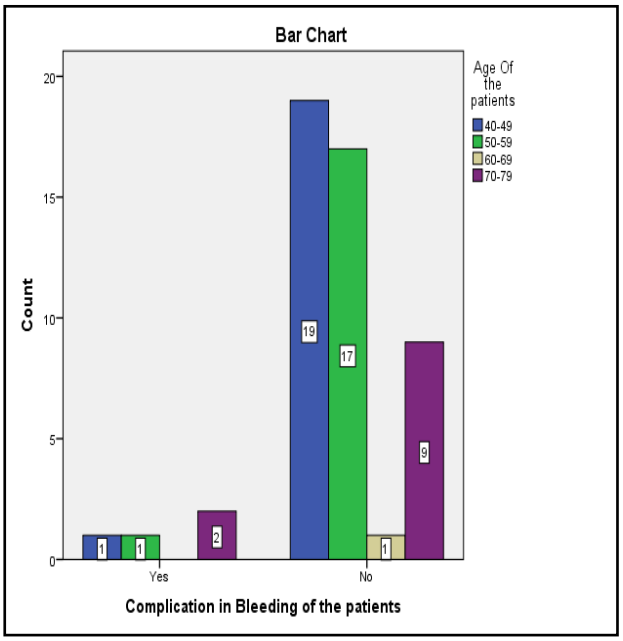

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in cardiogenic shock of the patients

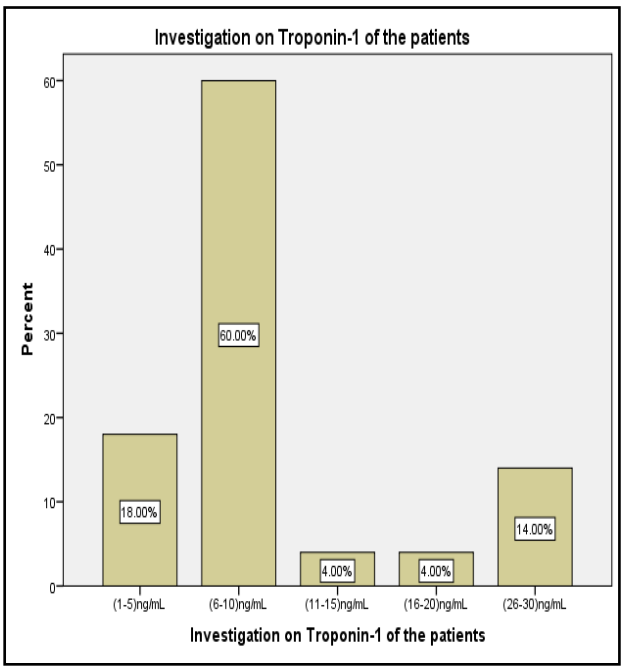

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in Conduction block of the patients

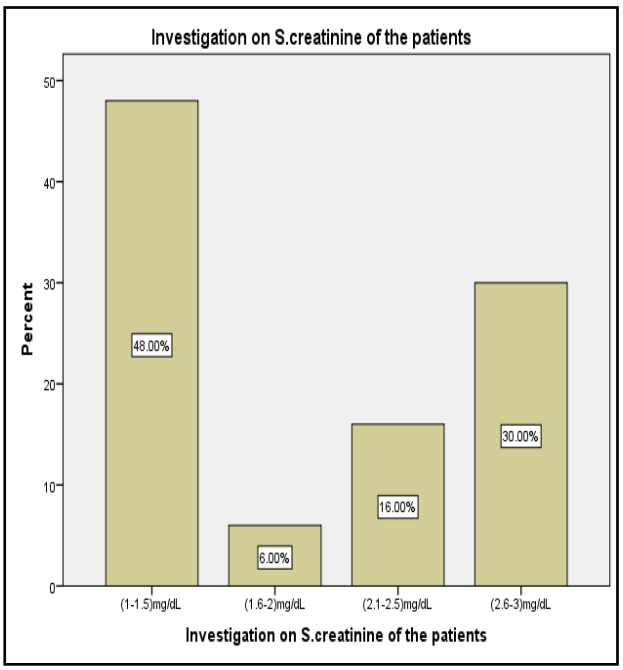

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in Heart Failure of the patients

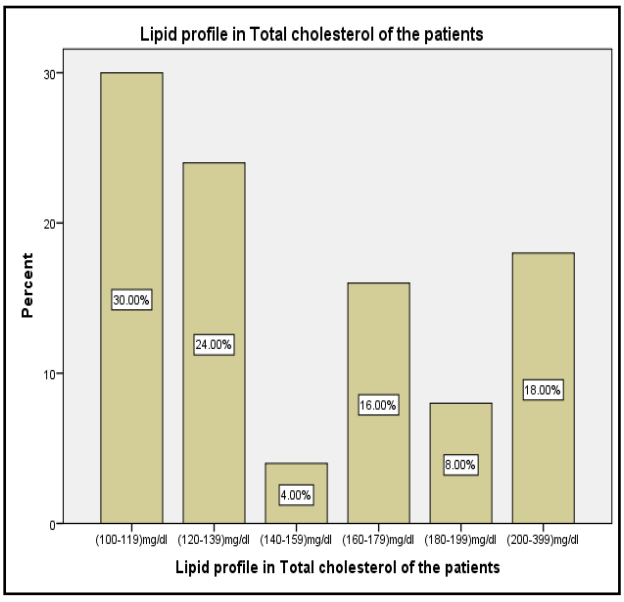

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in pericardial effusion of the patients

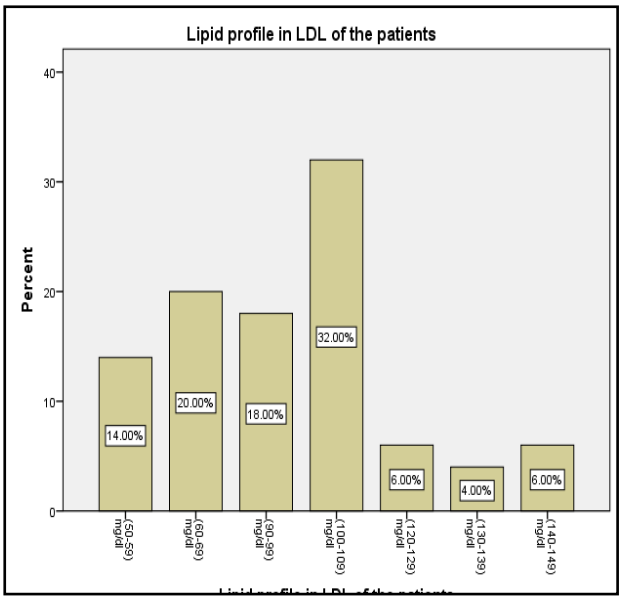

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in pericarditis of the patients

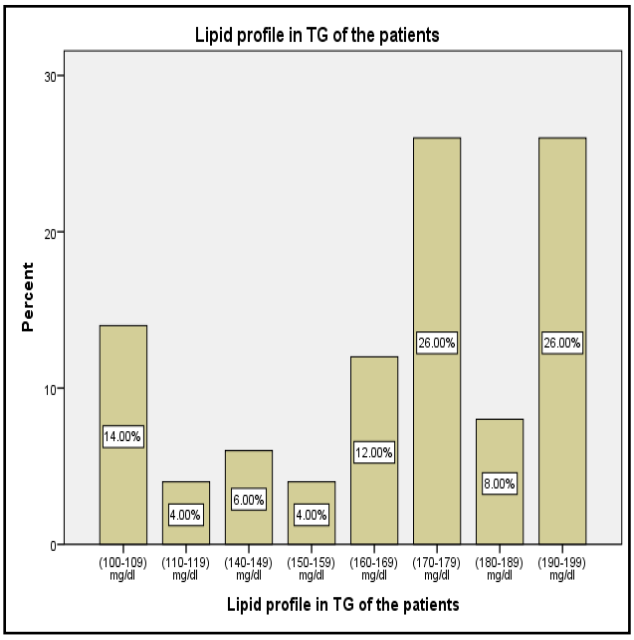

Bar Chart
Age Of the patients
40-49
50-59
60-69
70-79
Count
Yes
No
Complication in Bleeding of the patients

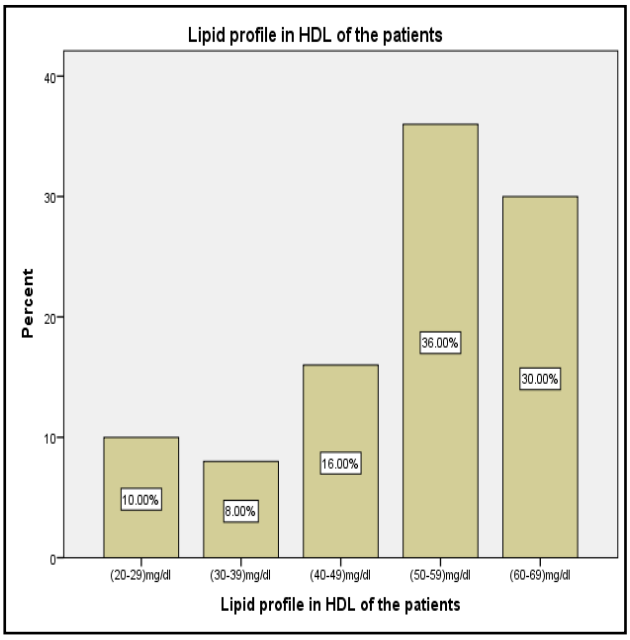

Investigation on Troponin-1 of the patients
Percent
18.00%
60.00%
4.00%
4.00%
14.00%
(1-5)ng/mL
(6-10)ng/mL
(11-15)ng/mL
(16-20)ng/mL
(26-30)ng/mL
Investigation on Troponin-1 of the patients

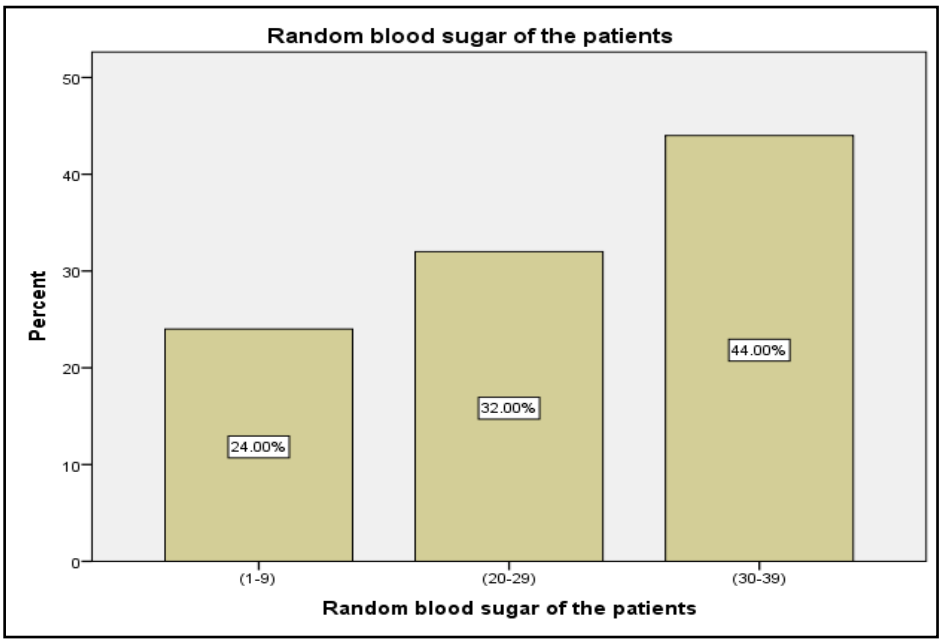

Investigation on S.creatinine of the patients
Percent
48.00%
6.00%
16.00%
30.00%
(1-1.5)mg/dL
(1.6-2)mg/dL
(2.1-2.5)mg/dL
(2.6-3)mg/dL
Investigation on S.creatinine of the patients

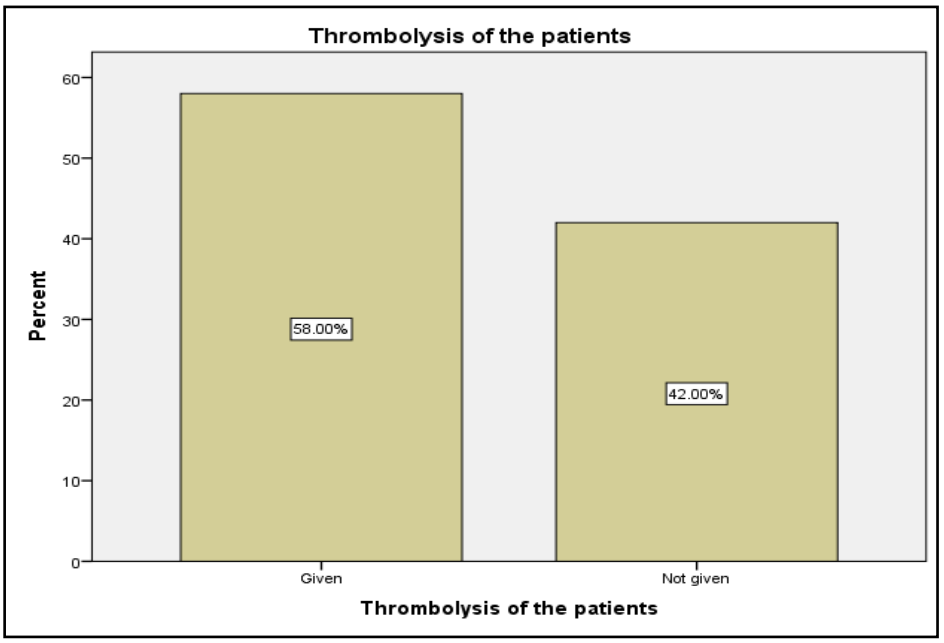

Lipid profile in Total cholesterol of the patients
Percent
30.00%
24.00%
4.00%
16.00%
8.00%
18.00%
(100-119)mg/dl
(120-139)mg/dl
(140-159)mg/dl
(160-179)mg/dl
(180-199)mg/dl
(200-399)mg/dl
Lipid profile in Total cholesterol of the patients

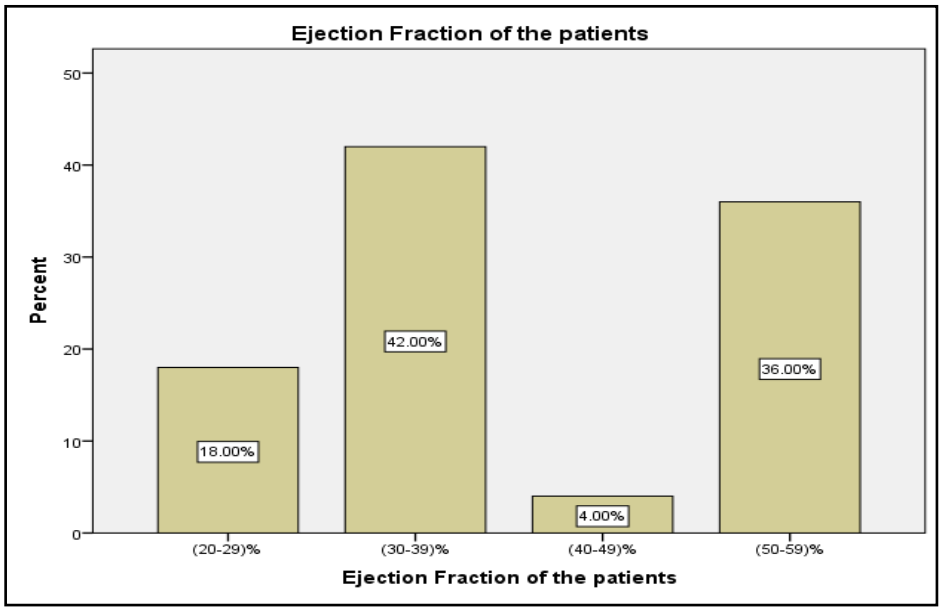

Lipid profile in LDL of the patients
Percent
14.00%
20.00%
18.00%
32.00%
6.00%
4.00%
6.00%
(50-59) mg/dl
(60-69) mg/dl
(90-99) mg/dl
(100-109) mg/dl
(120-129) mg/dl
(130-139) mg/dl
(140-149) mg/dl


Lipid profile in TG of the patients
Percent
30
20
10
0
14.00%
4.00%
6.00%
4.00%
12.00%
26.00%
8.00%
26.00%
(100-109) mg/dl
(110-119) mg/dl
(140-149) mg/dl
(150-159) mg/dl
(160-169) mg/dl
(170-179) mg/dl
(180-189) mg/dl
(190-199) mg/dl
Lipid profile in TG of the patients


Lipid profile in HDL of the patients
Percent
40
30
20
10
0
10.00%
8.00%
16.00%
36.00%
30.00%
(20-29)mg/dl
(30-39)mg/dl
(40-49)mg/dl
(50-59)mg/dl
(60-69)mg/dl
Lipid profile in HDL of the patients


Random blood sugar of the patients
Percent
50
40
30
20
10
0
24.00%
32.00%
44.00%
(1-9)
(20-29)
(30-39)
Random blood sugar of the patients


Thrombolysis of the patients
Percent
60
50
40
30
20
10
0
58.00%
42.00%
Given
Not given
Thrombolysis of the patients



RESULTS AND DISCUSSION

Dyslipidemia is recognized as a prominent risk factor for acute myocardial infraction. In one article reported that about 10 mg/dl lower mean LDL-C levels in Asians compared with non-Asians, a greater proportion of Asian had LDL-C ≤ 100 mg/dl, HDL-C levels were slightly lower among Asians compared with non-Asians. There was low HDL-C among South Asians in comparison to rest of Asia. Among South Asians, changes in apoA1 predicted risk better than HDL-C. ApoB/apoA1 showed the strongest association with the risk of acute myocardial infarction (AMI). In another study said that Bangladesh is one of top 10 countries that make-up two-thirds of the world population of smokers and association between smokeless tobacco use and CAD is inconclusive.[4,5]

LIMITATION

Sample size was very small in this study.

CONCLUSION

After many examinations we can concluded that patterns of dyslipidemia for prevalence of risk factors for acute myocardial infraction is high in Bangladesh, especially in urban areas. Ageing of the population may be a factor but urbanization seems to have an influence, possibly related to changes in dietary and physical activity patterns also we can recommend to pay more attention to serum lipids for prevention of acute for acute myocardial infraction. Further research, in particular longitudinal studies, is needed to explore the complex interaction of these factors and to inform policies and programs for the prevention and management of CVDs in Bangladesh.

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Conflict of Interest: None Declared.

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