STATUS OF LIPID PARAMETERS IN ACUTE CORONARY VACULAR DISEASE PATIENTS WITH NO OTHER COMPLEMETNARY DISEASE

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ABSTRACT

Objective: To find out the status of lipid profile in acute coronary vascular disease (acute myocardial infarction) patients.

Material& Method: This was a cross-sectional descriptive study conducted at Pathology Department Bacha Khan Medical Complex Swabi. The duration of this was one year from February 2019 to January 2020. Total one hundred& twenty patients were enrolled for this study. Lipid profile (total cholesterol, triglyceride, LDL-C) were performed by auto-chemistry analyzer and the relevant data was entered in the predesigned Proforma.

Results: One hundred and twenty (120) patients were included in this study. The data was entered into the software SPSS-VERION 22 for statistical analysis. Descriptive statistic was used for age, gender and profession. Male were 63.3% and female were 36.6%. Age ranges from 26 to ≥ 70 with mean ± 12.3. Occupational wise 16.6% were jobless, 38.3% were government servant, 25% were business class and 20% were house wives. Fifty nine (49.1%) patients have raised total cholesterol level with a p-value < 0.001 and LDL-C was elevated in 60 (50) patients while HDL-C was decreased in 55(45.8%) patients with p-value >0.0.5

Conclusion: From the results it has been concluded that deranged lipid profile contributes to the major risk factors for acute myocardial ischemic/infarction attack.

Key words: Acute coronary disease, total cholesterol, triglyceride, LDL-C

INTRODUCTION

Coronary heart disease is a major cause of death in developed countries. Hyperlipidemia plays a major role in causing coronary heart disease. Treatment of hyperlipidemia at earlier stages provides significant benefits.[1] In the United States (US) ischemic heart disease (IHD) is one of the leading cause of death, in which acute myocardial infarction is very important. Approximately 1.5 million people in the US suffer from myocardial infarction annually and about one third of them die. The resultant severity of IHD and mortality can be decreased by controlling modifiable risk factors. It reduces the risk of morbidity and mortality of coronary artery disease.[2, 3]

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Acute phase response which is associated with inflammation induces a series of changes in body metabolism. These changes are common reactions and not related to specific disease which is called acute phase reaction. Various changes like leucocytosis, increased cortisol concentration, hematopoietic, Neurendocrine changes, metabolic changes and increased protein catabolism are related to acute phase responses. These proteins are defined as acute phase proteins. [1, 4, 5]

C-reactive proteins, fibrinogen, serum amyloid, complement, hepatoglobin, ceruloplasmin are positive acute phase proteins, their concentration in the blood is increased while like albumin, transferin, fetoprotein and factor XII are called negative phase proteins, their concentration in the blood is reduced.[6] During acute phase reaction metabolism of lipid is deteriorated. Plasma triglyceride (TG), Very low density lipoprotein (VLDL), low density lipoprotein (LDL) level is increased while level of high density lipoprotein (HDL) is decreased.[7, 8]

It has been estimated by WHO that approximately 17.3 million people have died from coronary vascular disease in 2016 and that this number may will reach up to 23.3 million by 2030. At present pharmacological drugs like lipid lowering drugs, statins, anti-platelets agents and angiotensin- converting enzyme inhibitors play a good role in the

secondary prevention of cardiovascular disease (CVD).[2, 8]

There are so many studies have been conducted which demonstrates the role of lipids in causing CVD. Elevated level of total cholesterol (TC) and triglyceride (TG) level could affect the constriction and abstraction of the cardiac vessels which are significantly associated with the risk of coronary artery disease (CAD). High level of low density lipoprotein cholesterol induces atherosclerosis due to accumulation of LDL-C in the tunica intima and media of vessels which then leads to thromboctyopoiesis. On the other hand increased level of HDL-C decreases the risk of CVD.[9]

There is controversial role of lipid profile in clarifying its relationship with prognosis and CVD. Therefore we made an attempt on large cohort to find out the association of lipid profile acute coronary vascular disease.

MATERIAL AND METHOD

This was a cross-sectional descriptive study. One hundred and fifty patients were taken with acute myocardial infarction. The sample size was calculated by open epi software with 95% confidence interval and 5% margin of error. The duration of study was one year from February 2019 to January 2020. After approval from the institutional ethical committee, study was conducted at pathology department Bacha khan medical complex swabi. Exclusion criteria: known cases of coronary artery diseases, old MI, Diabetes mellitus and those patients who were taking anti-platelets and anti-coagulants medicines were excluded from the study. Only the newly diagnosed patients of MI were enrolled for this study.

After aseptic measures 3-5ml blood was taken from the median cubital vein. The blood was centrifuged for 3000rpm and the serum was stored in freezer for lipid profile analysis. Lipid analysis was done by ERBA machine auto - chemistry analyzer. The data was recorded for statistical analysis.

RESULTS: One hundred and twenty (120) patients were included in this study. The data was entered into the software SPSS-VERION 22 for statistical analysis. Descriptive statistic was used for age, gender and profession. Their frequencies were calculated as in table-1. Male were 63.3% and female were 36.6%. Age ranges from 26 to ≥ 70 with mean ± 12.3. Occupational wise 16.6% were jobless, 38.3% were government servant, 25% were business class and 20% were house wives.

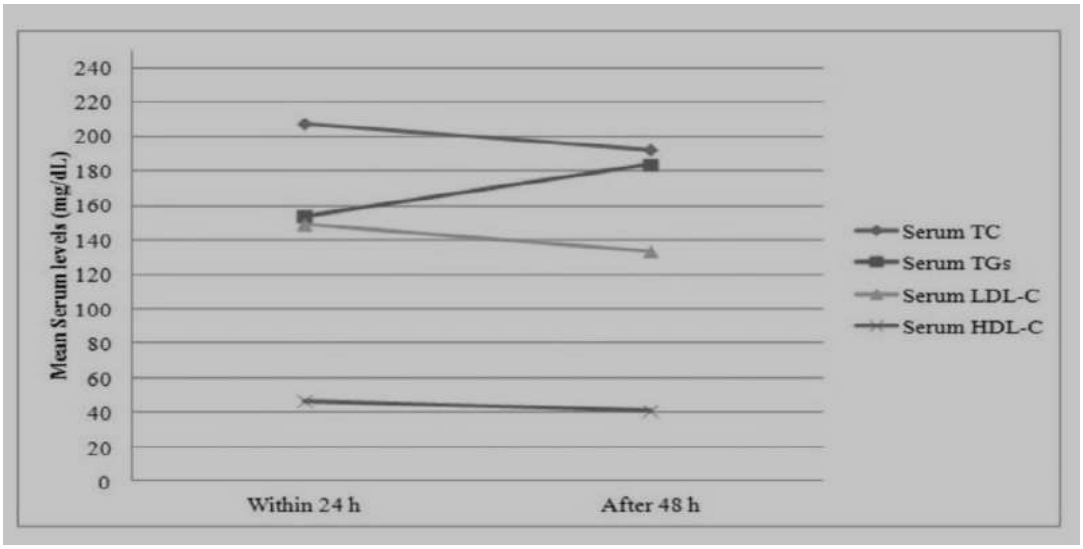
In table -2 fifty nine (49.1%) patients have raised total cholesterol level with a p-value < 0.001 and LDL-C was elevated in 60 (50) patients while HDL-C was decreased in 55(45.8%) patients with p-value >0.0.5

Table-1: Demographic profile of the patients (n=120)

Gender	**Frequency**
Male	76 (63.3 %.)
Female	44 (36.6 %)
Age in year	**Frequency**
26-40	19 (15.8%)
41-59	41 (34.1%)
60-69	34 (28.3%)
≥ 70	26 (21.6%)
Mean ± SD	51.6 ±12.3
Profession	
Jobless	20 (16.6 %)
Servant	46 (38.3%)
Business class	30 (25%)
House wife	24 (20%)

Table-2: lipid parameters in patients with acute coronary artery disease

Name of variable	Mean ± SD in mg/dl	Elevated	Not elevated	p-value
Total cholesterol	206.4± 20.5	N= 59	61	<0.001
Triglyceride	156.5± 10.5	N=71	49	<0.05
LDL-C	139± 40.2	N= 60	60	<0.001
HDL-C	43.5± 9.4	N= 65	55	>0.05



DISCUSSION

A lot of research has been conducted over the decades to know about the severity, intensity, extent and fatality of the cardiovascular disease to manage its effects and prevent mortality. 31% deaths occurs from the cardiovascular events is the major cause worldwide. One of the most common associations of cardiovascular diseases is with life style and dietary habits. Intake of high fat diet, laziness, stress, lack of physical activity and sedentary life style these all are related to cardiovascular incidents. This study highlights the variation in lipid parameters commonly triglyceride.

Few studies conducted in Rawalpindi and Karachi concluded that there is high prevalence of elevated triglyceride level and decreased HDL-C level in acute myocardial infarction patients. These factors plays major role in the mechanism of atherosclerosis in the people of Pakistan. Similarly findings have been seen in the studies conducted in India, china and Saudi Arabia. These findings are likely with our study.

Most of the clinicians and researches have consensus on the trend of lipid profile in acute MI like that serum LDL-C, HDL-C and total cholesterol increase and serum triglycerides level fall immediately after acute myocardial attack. The extent of change is still known that in how much time the changes reaches to the maximum and then return to baseline. Majority of these changes are determined by the severity of infarction, tissue damage and lipid levels before the incident. Jafar etal and ali etal conducted a study in which they determined that every 4th middle aged adults in urban area of Pakistan have coronary vascular disease and its frequency (30%) is more in woman than men (24%) which approximately similar to our study.

CONCLUSION: From the results it has been concluded that variation in lipid profile contributes as major risk factors for acute coronary vascular heart disease.

CONFLICT OF INTEREST: No conflict of interest

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