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ORIGINAL ARTICLE

Lipid profile in newly diagnosed patients of acute myocardial infarction with no other concomitant disease, in tertiary care hospital, Peshawar.

Zain ul Abideen[1], Najmush Shakireen[2], Rabeea Ihtesham[3], Afia Ihtesham[4], Farzana Salman[5]

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ABSTARCT… Objective: To see lipid profile in patients of AMI having no other concomitant disease. **Study Design:** Cross Sectional study. **Setting:** Coronary Care Unit, Lady Reading Hospital Peshawar. **Period:** July 2016 to January 2017. **Material & Methods:** One hundred newly diagnosed cases of AMI, admitted in coronary care unit, Lady Reading Hospital, Peshawar as emergency and 100 normal subjects were included in the study. Sampling technique was Convenient sampling. Lipid profile was measured by using Cobas Chemistry analyzer, Roche, in Pathology Department, LRH, Peshawar. Results were analyzed by independent t-test. **Results:** There were 100 patients and 100 normal individuals included by consecutive sampling in the study. Out of 100 patients 85 (85%) were male and 15 (15%) were female. Age ranged from 26-80 years (50.87 ± 11.02). It was observed that 82% of the AMI patients had cholesterol levels less than 200mg/dl while LDL was less than 100mg/dl in all of the patients. However, HDL which is protective lipoprotein was found to be less than 40mg/dl. It was also observed that 82% of the patients had normal Blood Pressure whereas only 18% had high blood pressure. The working conditions of most of the patients (85%) were sedentary. **Conclusion:** In majority of the cases, blood pressure was normal. However HDL-C was less than 40 mg/dl in cases which is alarming. Besides, Sedentary Life style was found to be the major factor contributing to AMI.

Key words: Acute Myocardial Infarction, Lipid Profile.

INTRODUCTION

Acute Myocardial Infarction (AMI) is the major contributor to mortality throughout the world and is much higher in the developing countries especially South Asian countries.[1,2] The rate of coronary artery disease in Pakistan is very high. In a study carried out in two tertiary care hospitals of Karachi and Rawalpindi in Pakistan, High level of triglycerides and low HDL-cholesterol level were found to be contributing a major role in the development of atherosclerosis in patients of AMI along with diabetes mellitis.[3] In another study carried out in North Punjab, Pakistan, it was shown that the AMI subjects living in the urban areas, had a high level of risk factors contributing to AMI as compared to those who were living in rural areas.[4]

It has been officially estimated that CAD causes more than 100,000 deaths every year.[4] In much large scale trials have shown that lipid lowering agents are associated with reduced mortality due to coronary CAD.[5] This favors to determine the lipid profile status in these patients to reduce risk of more coronary events.

In a study carried out in UK it was found that the death rates in Pakistani men from heart disease are 100% higher as compared to white population and 150% higher among Pakistani women.[6] In a study carried out in NICVD, Pakistan, it was found that there is no significant difference between diameters of coronary arteries in south Asian and Caucasians and factors predisposing to increased mortality in South Asian may be other than the diameter of coronary arteries.[7] In the WHO report it has been mentioned that dyslipidemia is one of the major risk factor for coronary heart disease

1. MBBS, M.Phil, (Physiology), Associate Professor Physiology, Institute of Medical Sciences, Kohat.
2. MBBS, TMO, PGMI, Peshawar.
3. MBBS, TMO, HMC.
4. MBBS, Lecturer, PMC.
5. MBBS, M.Phil, Professor Physiology, Peshawar Medical College.

Correspondence Address:
Dr. Zain ul Abideen
Department of Physiology
KIMS, Kohat.
pioneerzain@gmail.com

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which can be modified.[8] In a study carried out it was found that people in Pakistan develop CAD at a much lower level of cholesterol.[9] In another study carried out in Diabetics it was found that rise in lipoprotein(a) are mostly correlated with occurrence of CAD.[10] In another study carried out in only female patients of Peshawar, it was found that unstable angina was the most common in female patients presented with acute coronary syndrome (ACS) and the conventional risk factors commonly seen were lack of physical activity, diabetes mellitus and high blood pressure. It was also noted in these patients that the frequency of risk factors increased with increasing age.[11]

There is hardly any published data on status of lipid profile in patients of Khyber Pukhtonkhwa with AMI having no other concomitant disease. The present study was carried out to see the lipid profile in patients of AMI having no other concomitant disease visiting tertiary care hospital, Peshawar, Pakistan.

MATERIAL & METHODS

It was a cross sectional study. One hundred newly diagnosed patients of AMI, admitted in CCU, Lady Reading Hospital, Peshawar as emergency were included in the study. Control group included normal individuals having no disease. Patients were collected by convenient sampling. And duration of the study was approximately six months (from July 2016 to Jan. 2017).

Myocardial infarction was diagnosed according to the WHO criteria if two (probable) or three (definite) of the following were present:[12]

1. History of typical ischemic type chest pain which lasted for more than 20 minutes
2. Ischemic Changes present in serial ECG recorded
3. Changes in serum cardiac biomarkers

Exclusion criteria was that Known cases of Diabetes mellitus, coronary artery disease, old MI, bleeding and platelet disorders and also the patients already receiving antiplatelet drugs or anti coagulants were excluded from the study. Approval of the Ethical & Research Committee of Peshawar Medical College was obtained. Consent of the subjects was obtained from all individuals. Specially designed History Performa was completed for all subjects. Blood sample was obtained from patients at the time of admission in cardiology unit, Lady Reading Hospital Peshawar. The following Lipid profile was measured by using Cobas Chemistry analyzer, Roche, in Pathology Laboratory, Lady Reading Hospital, Peshawar.

1. Total Cholesterol
2. HDL – Cholesterol
3. LDL – Cholesterol
4. Triglycerides

Dyslipidemia was considered if serum cholesterol was >200 mg/dl, serum triglycerides was >150 mg/dl, serum LDL was >150 mg/dl and serum HDL was <40 mg/dl.
Independent T-test was applied for comparison. $P<0.05$ was taken as significant.

RESULTS

There were 100 patients and 100 normal individuals included in the study. Out of 100 patients 85 (85%) were male and 15 (15%) were female. Age ranged from 26-80 years (50.87 ± 11.02).

Descriptive median statistics was applied on age, gender and occupational data and it was observed that AMI was more common in middle aged men. The affected males were usually shopkeepers /business man (85%) showing that sedentary life style was major contributor to AMI. (Table-I)

It was observed that about 82% of the AMI patients had cholesterol levels less than 200mg/dl while Triglyceride level was less than 200 mg/dl in 100% cases. LDL (C) was less than 100mg/dl in all of the patients. However, HDL (C) which is one of the protective lipoprotein was found to be less than 40mg/dl which is alarming (Table-II).

It was also observed that 82% of the patients had normal Blood Pressure and only 18% had high blood pressure.

When compared with controls, there was significant rise in cholesterol and triglycerides levels as compared to controls whereas HDL (C) was significantly less than controls. However LDL(C) was not significantly different form controls (Table-III).

Occupation	Frequency (%)
Serviceman	15 (15%)
Businessman/Shopkeepers	60 (60%)
Jobless /at home	10 (10%)
Housewife	15 (15%)

Table-I. Occupation of the patients with AMI.

Name of Parameter	Level (mg/dl)	Frequency n=100 (%)
Cholesterol	<200 200-239 >240	82 (82%) 16 (16%) 02 (02%)
Triglyceride	<200	100 (100%)
HDL- (C)	<40	100 (100%)
LDL- (C)	<100	100 (100%)

Table-II. Lipid profile in patients of AMI.

Name of Parameter	Cases(mg/dl) Mean+SD	Controls Mean+SD	P-Value
Cholesterol	179.48±24.50	152.79±40.96	<0.001
Triglyceride	174.56±72.35	156.32±43.0	<0.05
HDL (C)	39 .23±10.45	48.63±8.92	<0.001
LDL (C)	99.54±24.62	101.47±29.49	>0.05

Table-III. Comparison of lipid profile in patients and controls.

DISCUSSION

Coronary artery disease (CAD) is the major cause of death throughout the world, responsible for more than 31% of all deaths.[6] The major proportion is from low and middle-income countries, such as Pakistan. In studies carried out by Jaffar et al and Ali et al it has been found that every fourth middle-aged adults in urban area of Pakistan is having coronary artery disease (CAD) and it is more prevalent in women (30%) than in men (24%) which is contrary to our study. However mean age of 40 and younger patients association with dyslipidemia observed in two studies goes in favor of our study.[13,14]

There are many risk factors identified such as obesity, high blood pressure, diabetes mellitus, life style, smoking and dyslipidemia by different research workers contributing to CAD.

Studies carried out in tertiary care hospitals of Rawalpindi and Karachi showed that high prevalence of increased level of triglyceride and low HDL-cholesterol in AMI patients were found as factors playing a main role in the pathogenesis of atherosclerosis in subjects of Pakistan.[15] The same findings were observed in a study carried out in India, Saudi Arabia and China in patients of AMI in first 24 hours after admission[16,17,18] These findings are in consistent with our study.

In another study carried out in only female patients of Peshawar, it was found that lack of physical activity followed by hypertension and diabetes are the major risk factors contributing to AMI.[19] This goes in favor of our study which also shows association of sedentary life style with AMI but majority of patients in our study were male. However in our study no association of hypertension with AMI was found as majority of patients were normotensive.

In a study conducted in Karachi, a sedentary life style (65%), obesity (52%), Hypertension (39%) was the main risk factor found.[20] Pakistani people develop CAD at a much lower level of HDL cholesterol[17] which goes in favor of our study.

CONCLUSION

Blood Pressure was normal in Majority of the cases in our study. Lipid profile was significantly changed in patients as compared to controls in our study specially HDL (C) which was less than 40mg/dl. Sedentary Life style was found to be the major factor contributing to AMI.

Despite its high prevalence, Knowledge about CAD and factors predisposing to AMI is an important pre-requisite for prevention of CAD which seems to be deficient in our society.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Zain ul Abideen	Conception of idea, Study desing, data collection, literature review and script writing.	
2	Najmush Shakireen	Data collection, analysis & tabulation.	
3	Rabeea Ihtesham	Statsitical analysis and results writing.	
4	Afia Ihtesham	Literature review.	
5	Farzana Salman	Critical review & Final approval.