



ORIGINAL RESEARCH PAPER

General Medicine

A STUDY OF LIPID PROFILE IN CHRONIC KIDNEY DISEASE PATIENTS ATTENDED IN A TERTIARY CARE HOSPITAL IN A SUB URBAN POPULATION

KEY WORDS: CKD, ESRD, HDL-C, GFR

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ABSTRACT

Hyperlipidaemia, one of the important risk factor of atherosclerosis, is an abnormality commonly encountered in patients with chronic kidney disease. The increased risk of atherosclerotic cardiovascular disease may be due to hyperlipidaemia. Other risk factors predisposing to cardiovascular disease in chronic kidney disease patients include diabetes, hypertension, obesity and smoking. This study highlights the importance of delivery of early management of such infraction gives good prognosis. AIM- To estimate various lipid profile abnormalities in Chronic Kidney Disease patients and to identify the predominant lipid pattern in chronic kidney disease patients and to estimate the prevalence of Left Ventricular Hypertrophy and Ischemic Changes in patients with chronic kidney disease. This study was conducted in 50 patients with chronic kidney disease and 50 normal healthy persons. All the patients in this study group were selected from the outpatient department. The controls were selected from the outpatient department who were accompanying the patients SPSS 24 was used for statistical analysis. In our study majority of patients were of male gender and significant correlation was seen between chronic kidney disease patients and abnormal lipid values

INTRODUCTION

In India, with a population of one billion and an estimated incidence of ESRD of 100 per Million Population, approximately 100,000 patients develop ESRD each year. The pathophysiology of CKD involves two broad sets of mechanisms of damage (1) Initiating mechanisms specific to underlying aetiology (Immune complexes and mediators of inflammation in certain type of glomerulonephritis, or toxin exposure in certain diseases of the renal tubules and interstitium) and 2) a set of progressive mechanisms involving hyperfiltration and hypertrophy of the remaining viable nephrons, that are a common consequence following long term reduction of renal mass, irrespective of underlying etiology. Dyslipidemia is empirically defined as plasma lipids that are associated with adverse outcomes such as cardiovascular disease.^{1,2}

Hyperlipidaemia, one of the important risk factor of atherosclerosis, is an abnormality commonly encountered in patients with chronic kidney disease.³ The increased risk of atherosclerotic cardiovascular disease may be due to hyperlipidaemia. Other risk factors predisposing to cardiovascular disease in chronic kidney disease patients include diabetes, hypertension, obesity and smoking. Dyslipoproteinemia is an additional risk factor for the progression of renal insufficiency. It has been shown in a large population of patients with chronic kidney disease that the rate of progression was significantly higher in hyperlipidaemia patients compared with normolipidemic patients.^{5,6} Our study puts a light into the lipid profile values in chronic kidney patients there by giving an idea on importance of early identification of dyslipidaemia in CKD patients.

Need For The Study:

It highlights the importance of checking lipid values in chronic kidney disease patients and also scarcity of studies on lipid profile and its relationship in chronic kidney disease patients

Aims & Objectives of the study- To estimate various lipid profile abnormalities in Chronic Kidney Disease patients. To identify the predominant lipid pattern in chronic kidney disease patients and to estimate the prevalence of Left Ventricular Hypertrophy and Ischemic Changes in patients with chronic kidney disease.

MATERIALS AND METHODS:

This was a cross sectional study. After getting necessary permission. This study was conducted in 50 patients with chronic kidney disease and 50 normal healthy persons. All the patients in this study group were selected from the outpatient department. The controls were selected from the outpatient department who were accompanying the patients SPSS 24 was used for statistical analysis study. For statistical convenience people were divided into diagnostic group. Statistical analysis was done using SPSS24.

RESULTS:

Table 1 and Table 2 – Patients showed abnormal HDL levels (<40 mg/dl) were 25 (50%). Its mean value was 42.82 and standard deviation was 12.25. Among the control groups, the lowest value of HDL was 46 mg/dl and the highest was 65 mg/dl. Their mean was 54.20 and standard deviation was 4.18. Mean deviation and standard error of difference between two means were calculated. Actual difference between two mean was 8.07 and the standard error of difference between two means was 1.83. This was statistically significant since the actual difference was two times higher than the standard error of difference between two means. T value was calculated using student's t test. It was 6.2169. P value (<0.05) was statistically significant. It showed that there was a significant reduction in HDL-C levels in patients with CKD than that of controls. TGL value in our study group ranged between 95 mg/dl to 350 mg/dl. Range of TGL value in control group was 90mg/dl to 122mg/dl. TGL levels were abnormal in 24 patients (>200mg/dl). Mean and standard deviation of study group were 171.2 and 86.45 respectively. In controls, the mean and standard deviation were 102.2 and 7.75. Student't' test was performed and t value was calculated (t=5.6212). P value was significant (P < 0.05)

Table 3- Standard error of difference between two means was 3.61. Actual difference between two means was 19.2 which were (20%) two times greater than the standard error of difference between two means. Student t value was calculated (t=4.6813) and P value was (< 0.05) significant.

Table 1 - Ckd Patients With Lvh Showing Lipid Abnormalities

Type of lipid Disorders	Number of Patients (out of 15)	Percentage
Elevated Cholesterol	3	20%
Elevated Triglycerides	4	27%
Decreased HDL	10	67%
Increased LDL Cholesterol	10	67%

Table 2 Ckd Patients With Ischemia Showed The Following Lipid Disorder

Type of lipid Disorders	Number of Patients (out of 10)	Percentage
Elevated Cholesterol	3	30%
Elevated Triglycerides	7	70%
Decreased HDL	6	60%
Increased LDL Cholesterol	6	60%

Table 3 -mean And Standard Deviation Of Lipid Fractions In 50 Ckd Patients And 50 Controls

CASE	Total Cholesterol mg/dl	TG mg/dl	LDL mg/dl	HDL mg/dl
Mean	209.3	171.2	131.7	42.82
Std Deviation	42.9	86.45	25.71	12.25
CONTROL Mean	185.2	102.2	112.5	54.20
Std Deviation	15.2	7.75	13.42	4.18

DISCUSSION:

The study population included data of the patients who presented in outpatient department as cases and controls were the bystanders of the patients. In our study it was observed majority of the patients belonged to male gender 34(68%) and females and most belonged to 26 to 35 years. Hypertriglyceridemia was observed in 48% of patients. Triglyceride levels were significantly elevated in our study than control group. Abnormal triglyceride values were found in 48% of patients in our study. **Shah et al**⁵ & most western studies demonstrated that similar values. Total cholesterol levels were significantly elevated in our study group. We observed the same findings in the study by **Diana Lee M et al**.⁶ The low HDL levels in patients with chronic kidney disease in our study were consistent with **Diana M Lee LG et al**⁷ who studied the lipid profile in CRF patients. This low HDL cholesterol levels were also an independent risk factor for the development of CKD in the Framingham off spring study.

This study highlights the importance of delivery of early management of such abnormal lipid values in CKD patients gives good prognosis. The limitation is that it was done in a short period and sample size is small.

CONCLUSION:

In our study it was observed HDL-C levels were lower and triglycerides, total cholesterol and LDL-C levels were higher in the study group compared to controls. All were statistically significant. Predominant lipid abnormality was reduced HDL-C levels. The study highlights the importance of lipid profile examination of patients with chronic kidney disease.

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