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General Medicine

# A STUDY OF LIPID PROFILE IN ELDERLY PATIENTS WITH CHRONIC KIDNEY DISEASE

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**ABSTRACT** **Context :**Dyslipidemia is recognized common cardiovascular risk factor in the general population and CKD patients. This cardiovascular risk factor commonly occurs in patients with CKD. Dyslipidemia is linked to a fast decrease in renal function and commencement of Renal Replacement Therapy (RRT) in CKD patients. Methods & Material : This research was conducted on 50 CKD patients admitted to the IP unit of General Medicine. Around 100 patients got admitted into NRI Medical College during the study period in the General Medicine unit with various renal problems. **Population size:** 100 **Statistical analysis :** Statistical analysis was done using statistical software named Statistical Package for the Social Science version 23.0.0 (SPSS Inc., Chicago, Illinois, USA). All categorical variables are expressed in percentage. In the current study, we included 50 CKD patients with various stages of CKD aged above 60 years. **Conclusions :** Dyslipidemia is a common cardiovascular risk factor in CKD, especially in males and older CKD patients and recommends early evaluation in CKD and management with both lifestyle and therapeutic intervention.

**KEYWORDS :** Dyslipidemia / Elderly patients / Chronic kidney disease

## INTRODUCTION

Cardiovascular disease (CVD) is the primary reason for hospitalization and death in patients with chronic kidney disease (CKD) Dyslipidaemia is a recognized common cardiovascular risk factor in the general population and CKD patients.2,3 This cardiovascular risk factor commonly occurs in patients with CKD. Dyslipidaemia is linked to a fast decrease in renal function and commencement of Renal Replacement Therapy (RRT) in CKD patients.

Mesangial cells bind and take up oxidized LDL, which then causes injury to mesangial, epithelial, and endothelial cells by favoring the recruitment of macrophages that release cytokines, and growth factors.This causes glomerulosclerosis.7 increased cholesterol and triglycerides cause podocyte injury which leads to glomerulosclerosis.

## AIM & OBJECTIVE

**To assess:**

1. The lipid profile in elderly with CKD
2. Differences in lipid profile in HTN, DM, HD patients.

## CASE STUDY :

This is a cross-sectional, prospective study conducted at NRI Medical College & Hospital.

**DURATION OF STUDY :** 2 years from January 2021 To June 2022.

## INCLUSION CRITERIA:

Patients with CKD regardless of other co-existing diseases. Patients with age above 60 Years

## EXCLUSION CRITERIA:

Patients who underwent Renal Transplantation.
Patients taking Anti Hyperlipidemia Drugs.
Patients with Familial Hyperlipidemia Syndromes.

## RESULTS :

1. Age distribution of patients :

| AGE in years | No of patients | % of patients |
|---|---|---|
| 60 to 65 | 3 | 6% |
| 66 to 70 | 13 | 26% |
| 71 to 75 | 14 | 28% |
| 76 to 80 | 18 | 36% |
| Above 80 | 2 | 4% |

| CKD Stage | No of patients | % of patients |
|---|---|---|
| Stage 1 | 4 | 8% |
| Stage 2 | 3 | 6% |
| Stage 3 | 14 | 28% |
| Stage 4 | 21 | 42% |
| Stage 5 | 8 | 16% |

| Mean values of lipid levels | Skin markers present | Skin markers absent | P value |
|---|---|---|---|
| Total cholesterol | 235.66±51.8 | 239.1± 47.8 | 0.84 |
| Serum triglycerides | 168 ±25.5 | 178.3± 30.5 | 0.35 |
| LDL levels | 31.1 ±5.34 | 31.3 ±4.55 | 0.90 |
| HDL levels | 92.33 ±36.0 | 88.1± 37.5 | 0.75 |

| Gender | No of patients | % of patients |
|---|---|---|
| M | 34 | 68% |
| F | 16 | 32% |

| Presence of Diabetes | No of patients | % of patients |
|---|---|---|
| DM | 35 | 70% |
| No DM | 15 | 30% |

| Mean values of lipid levels | Skin markers present | Skin markers absent | P value |
|---|---|---|---|
| Total cholesterol | 235.66±51.8 | 239.1± 47.8 | 0.84 |
| Serum triglycerides | 168 ±25.5 | 178.3± 30.5 | 0.35 |
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| HDL levels | 92.33 ±36.0 | 88.1± 37.5 | 0.75 |

## DISCUSSION:

This study is a prospective, observational study that included 50 patients with CKD. The cases were collected over two years.

GFR calculation was done using the Cockroft- Gault formula, and staging of CKD was done.A complete medical history, including co-morbid illnesses, was obtained from the patients.

They were tested for hyperlipidemia indicators such as xanthelasma, tendon xanthomas, and eruptive xanthomas.

After an overnight fast, the serum lipid profile was examined.

The reason for using CG formula was it more closely related to the actual creatinine clearance compared to MDRD.

Among the 50 patients, who presented with CKD, the age for most of the study participants was 66 to 80years.

which indicated that elderly males have more CKD incidence than females.

In this study, many patients had stage 4 CKD. 70% had DM, 78% had HTN and 34% were on hemodialysis in this study.

Among these patients, only 37% had markers for hyperlipidemia, indicating that most CKD patients may not have skin markers of hyperlipidemia.

For 50% of CKD patients, the serum sodium levels are within the range of 136 to 145 meq/l-normal.

For 62% of CKD patients, the serum potassium levels are within the range of 3.6 to 5.5 meq/l-normal.

None of the patients had blood urea levels below 20mg/dl.

In the current study, seven patients had traces of urine albumin levels, and three had no urine albumin levels- 20% of the patient pool. In contrast, 80% had more urine albumin levels, indicating microalbuminuria.

It is a term to describe a moderate increase in urine albumin level.

It happens when the kidney leaks small amounts of albumin into the urine due to high permeability for albumin in the glomerulus. Usually, the kidneys filter albumin, so if albumin is found in the urine, it is a kidney disease marker. The term microalbuminuria is now replaced by Kidney Disease Improving Global Outcomes to moderately increased albuminuria.

The mean values of the lipid profile showed increase of TC.
Serum triglycerides, HDL, and LDL, were almost within the normal range for all patients.

There was no significant difference in the lipid profile of the patients with and without diabetes mellitus and hypertension.

There was no relation between the lipid profile and the skin markers of dyslipidemia.

There was no relation in the lipid profile between patients who received hemodialysis and conservative treatment.

| Parameters | Oluseyi's study | Current study |
|---|---|---|
| No of patients | 210-105 cases, 105 controls | 50 cases |
| Type of study | Case control | Observational, prospective |
| Mean age of cases | 46.98±16.81 years | (46.98±16.81) |
| Male female ratio | 1.7/1 | 2.1/1+ |
| Prevalence of dyslipidemia | 60% | 72% |
| AIP | Evaluated | Not done |

**CONCLUSION :**

CVD is a major reason for deaths in CKD patients. Statin usage was safe and effective in lowering high lipids in CKD patients.

They help to reduce various CVD events.
Dialysis patients may not benefit much with statins.
But, the dose should be adjusted as per patient's GFR.

In patients who cannot tolerate or have contraindications to statin Niacin, fibrates or PCSK9 inhibitors may be used.

In conclusion, dyslipidemia is a common cardiovascular risk factor in CKD, especially in males and older CKD patients. Some lipid abnormalities such as reduced HDL-C elevated TG and atherogenic risk increase with worsening renal function.

So, we recommend early evaluation of CKD patients for dyslipidemia and cardiovascular risk using the ratio of lipid components at all stages with the aim of management with both lifestyle modification and therapeutic intervention.

The current study identified lipid profile in fifty CKD patients.
The study is self-sponsored.
There are no conflicts of interest.

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