



ORIGINAL

DYSLIPIDEMIAS & CHRONIC RENAL FAILURE

PROF-654

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ABSTRACT

Causes of chronic renal failure include diabetes mellitus, glomerulonephritis, hypertension, polycystic kidney disease and tubulointerstitial diseases. Same holds true for Pakistan. Among many derangements that occur in chronic renal failure, disturbances in serum lipids is an important one. Interestingly lipids also contribute towards progression of renal failure. To find out the prevalence and magnitude of this problem in our population of chronic renal failure patients, this study was conducted. 60 patients suffering from chronic renal failure not on dialysis as yet had the lipid patterns checked using the standard precautions. Interesting lipids patterns were observed as compared to international literature. The reason for this difference is not very clear.

INTRODUCTION

Etiology of chronic renal failure is same throughout the worlds¹. Hyperlipidemia is not only a common problem in nephrotic syndrome, chronic renal failure and renal transplantation but its presence is also perhaps a contributing factor in progression of renal failure². The other factors responsible for progression of renal failure being hypertension, protein and phosphorus intake, coagulation disorders, prostaglandins and thromboxane². Intervention at specific stage of disease has a beneficial effect in progression of disease³. The mechanism of dyslipidemias is thought to be on the basis of abnormal activity of enzymes. Lipid abnormalities are also thought to be one of the contributing factors responsible for coronary artery disease which is an almost integral part of chronic renal failure contributing to its morbidity and mortality⁴.

Several studies have found a strong association between renal disease progression and dyslipidemias. Lipid abnormality in chronic renal failure was initially recognized as hypertriglyceridemia without an increase

in total cholesterol⁵⁻⁷. The specific character of lipid abnormalities has been further defined. There is an increase in VLDL, HDL and LDL whereas HDL has usually been found to be decreased^{8,9}.

The effects of inadequate protein and energy consumption that results in malnutrition have a major impact on morbidity and mortality in patients on maintenance dialysis¹¹. This effect is reflected in several studies that observed that low serum levels of cholesterol are associated with an increased risk of death and that in general higher levels of cholesterol are associated with decreased risk of death^{12,13}. This study was undertaken to find out lipid abnormalities in our chronic renal failure patients and compare it with international literature.

MATERIAL & METHODS

Patients with chronic renal failure having stable GFR between 10-25 ml/min not on dialysis were included in this study. They had lipid profile performed observing the standard precautions.

RESULTS

Table-I

Total No of patients	60
Male	40
Female	20
Age	18-80 years
Diabetes	16
Hypertension	28
GFR	10-25 ml/min

Table-II

Disease	No of Patients
Diabetes mellitus	16
Diabetic patient with hypercholesteremia	7
Diabetic patients with hypertriglyceridemia	9

In this study there were total 60 patients out of which 40 were males and 20 were females. The age of the patients ranged from 18-80 years. Out of the total 60 patients, 16 were suffering from diabetes mellitus and 28 were hypertensive whereas only 7 patients out of 16 diabetics

had raised blood pressure as shown in table I.

Out of the 16 patients who were diabetic, 7 patients had hypercholesteremia whereas 9 patients had hypertriglyceridemia as shown in table II.

Out of 60 patients included in this study 49 patients had different lipid abnormalities, total lipids were increase in 9 out of 60 patients. 31 out of 60 patients had hypertriglyceridemia. 18 out of 60 patients had hypercholesteremia, 3 out of 60 patients had increased level of LDL whereas in 35 out of 60 patients HDL was decreased, 25 patients however had normal HDL as shown in table II.

Table-III

Total lipids	Increased in 9/60
Tryglyceridsemias (< 150 mg/dl)	Increased in 31/60
Cholesterol (150-200 mg/dl)	Increased in 18/60
LDL (< 150 mg/dl)	Increased in 3/60
HDL (> 45 mg/dl)	Decreased 35/60

The comparison of the present study with international literature is shown in table IV.

Table-IV. Comparison of present study with international literature

Normal values (mg/dl)	Total lipids 400-1000	Triglycerides <150mg/dl)	Total cholesterol 150-200 mg/dl	LDL <150mg/dl	HDL >45mg/dl
International literature	Normal	Increased in majority	Increased in rare	Increased in majority	Decreased in majority
Present study	increased in 9/60	increased in 31/60	increased in 18/60	increased in 3/60	decreased in 35/60
%age	15%	51.6%	30%	5%	58.3%

DISCUSSION

The majority of patients treated for chronic renal failure die from cardiovascular complications. It is thought that lipid abnormalities contribute to this high mortality rate. Dyslipidemias are not only frequently observed in patients of chronic renal failure but are also seen in patients on continuous ambulatory peritoneal dialysis

and on hemodialysis. The cause of dyslipidemias in patients of chronic renal failure is multi-factorial. Many short term and long term studies have shown abnormalities of cholesterol, triglycerides, LDL and HDL. Not only dyslipidemias occur due to chronic renal failure but lipid abnormalities have also been postulated to contribute to renal insufficiency by a mechanism analogous to athrogenesis. This study was

conducted to find the pattern of lipid abnormalities in our patients of chronic renal failure and compare it with international literature.

Amongst the 60 patients included in this study, interesting lipid abnormality pattern were observed as shown in table III. The prevalence of triglyceride abnormalities is same in diabetics and non diabetics (9 out of 16 and 22 out of 44 respectively) while that of hypercholesterolemia is different (7 out of 16 and 11 out of 44 respectively). In international literature^{8,9} triglycerides are found to be elevated in vast majority of the patients whereas present study showed this abnormality in only just 31 patients i.e it was normal in 29 out of 60 patients.

Total cholesterol is usually normal according to international studies the classical pattern in chronic renal failure is type IV hyperlipidemia¹⁰, but 18 out of 60 patients in present study showed it to be high despite the fact that protein intake is generally low in Pakistan and serum albumin is inversely related to serum cholesterol level. LDL is elevated in majority of patients with chronic renal failure according to international studies while it was true only in minority of patients in present study. Similar observations were made with HDL. HDL, which has a protective role as far as coronary artery disease is concerned, is usually decreased and problem worsens with worsening renal failure according to international literature² but in our study it was low in only in 35 out of 60 patients i.e 25 patients (42%) had values normal or high.

What is the effect of different patterns of lipid abnormalities in CRF population in Pakistan or what role intervention will play remains to be determined. If intervention does become necessary, the drug possessing both triglyceride as well as cholesterol lowering property will be needed. What factors are responsible for these different lipids patterns, is it a

reflection of different population, environment and diet remains elusive. The observation is nevertheless interesting.

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