



Effect of Haemodialysis on Elevated Serum lipid profile in cases of Chronic Kidney Disease

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ABSTRACT

Alteration in the lipid metabolism has been reported to occur in subject of uraemia. 50 cases of chronic kidney disease were included for study. Patients were put in regular haemodialysis and effects of haemodialysis on serum lipid were studied. After 3 months of regular haemodialysis there was statistically significant increase in serum triglyceride & total cholesterol.

INTRODUCTION

Lipid abnormalities become important in view of the increased incidence of atherosclerosis and its complication. Cardiovascular disease is reorganized as predominant cause of death in uremia. Advancement of renal replacement therapy and growing awareness of opportunity to live longer with renal replacement therapy is encouraging more and more people to opt for haemodialysis. Though many metabolic abnormalities improve with maintenance haemodialysis, the lipid abnormalities generally persist or even worsen with haemodialysis.

MATERIAL AND METHODS

Patient in variable stages of chronic kidney disease were selected. The study was conducted in Department Of Medicine. PMCH Patna. A total of 50 cases of non - nephritic chronic uremia and 50 healthy controls of comparable age sex and socio-economic status were studied.

METHOD OF STUDIES WERE DONE

- Measures to establish the diagnosis of underlying disease and severity of uremia
- A detailed clinical examination to find out evidences for atherosclerosis.
- An account was taken of the important factors that influence serum lipid like physical activity, obesity, smoking, diet, blood sugar level and family history of hypertension, diabetes mellitus or coronary artery disease.
- Serum lipid profile: serum triglycerides, total cholesterol, LDL-C and HDL-C were estimated.

OBSERVATION**Table 1** The age and sex distribution of patients and controls

Age (years)	Control		TOTAL	Chronic uraemics		Total
	Male	Female		Male	Female	
>21	1	1	2	2	0	2
21-30	7	6	13	7	4	11
31-40	9	7	16	10	5	15
41-50	5	8	13	12	6	18
>50	5	1	6	2	2	4
total	27	23	50	33	17	50

Table 2 Serum lipid profile in controls and chronic renal disease patients.

Serum lipid	Control		CRD Patients		Z	P	Significance
	Range	Mean= SD	Range	Mean = SD			
Triglycerides (mg/dl)	46-158	723=20.0	92-300	160.6=45.0	12.63	<0.001	H.S
Total Cholesterol (mg/dl)	100-300	175.5=34.6	128-360	231.9=52.6	6.33	<0.001	H.S
HDL-C (mg/dl)	20- 46	33.7=5.6	15-52	30.9=7.8	1.99	<0.05	S
LDL-C (mg/dl)	60-254	127.9=33.9	82-262.8	168.9=47.2	4.98	<0.001	H.S

Table 3 Serum lipids before and 3 months after haemodialysis

Serum lipid	Mean+ SD		t	dt	p
	Before	After			
Triglycerides (mg/dl)	193.1 + 29.1	197.2 + 29.5	6.2	13	<0.001
Total Cholesterol (mg/dl)	235.0 + 38.9	235.2 + 38.4	9.0	13	<0.001
HDL-C (mg/dl)	30.5 + 5.4	30.7 + 5.1	1.11	13	>0.05
LDL-C (mg/dl)	165.8 + 37.8	164.9 + 37.7	6.8	13	<0.001

DISCUSSION

The present study was undertaken to estimate the serum lipid in chronic kidney disease and to evaluate the effect of haemodialysis on serum lipids. The majority of uremic patients taken up in this study had elevated plasma triglyceride levels which were significantly higher than those of the normal subject of similar age, sex and socioeconomic status ($p < 0.001$). Almost similar findings have been reported by majority of workers (Badgade et al 1963; Gupta et al 1991; Das et al 1984; Wanner C, 2000)

Serum total Cholesterol level and LDL-C in chronic uremic in this study were significantly higher than those of normal control subjects. Similar results were reported by other workers (Vigitolglu MR, 1997; Harrisk et al 1994; Wanner C, 2001)

The serum level of HDL – Cholesterol in uremics was significantly less in comparison to normal subject in this study. Similar findings were observed by other workers (Manzani G, et al 1994; Kaysen GA 1991; Pannu HS, Singh DS).

SUMMARY AND CONCLUSION

There was a significantly increased level of serum triglyceride in chronic uremics as compared with healthy controls. Mean serum triglyceride level was $72.3 + 20\text{mg/dl}$ in healthy controls as compared with $160.6 + 45.0\text{mg/dl}$ in chronic uremic. There was a significant increase in serum triglyceride, total cholesterol during three months of haemodialysis ($P < 0.001$). There was significant decrease in LDL-C during same period ($P < 0.001$). No significant change in HDL-C was noted.

Thus, alteration occurs in the serum lipid in chronic uremic patient. During 3 months of haemodialysis hypertriglyceridemia is further aggravated. A favourable change in the form of decrease in LDL-C was also noted. For control of lipid profile other conservative measures should be taken along with haemodialysis.

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