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VARIATIONS OF LIPOPROTEINS IN PATIENTS OF CHRONIC RENAL DISEASES

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ABSTRACT

The present study is concerned with the determination of HDL & LDL (Lipoproteins) in the serum of patients with chronic renal disease. Fifty (50) patients with chronic renal disease and fifty (50) healthy controls were included in this study. The results obtained show a significant increased level of serum LDL levels whereas decreased HDL levels in patients with chronic renal disease patients as compared with control group.

Keywords: Lipoproteins, HDL, LDL, Chronic Renal Disease.

INTRODUCTION

Chronic renal disease (CRD) is fast emerging as a major public health problem in the 21st century. The CRD population is predisposed to adverse infectious events because of overwhelming uremia, which is associated with alterations in primary host defense mechanisms and increases the risk of bacterial infections. Patients with chronic kidney disease (CRD) are at an increased risk for cardiovascular disease and have a higher prevalence of increased level of LDL than the general population [1,2]. The risk of cardiovascular disease (CVD) varies depending on the type of lipid abnormalities, the target population, the cause of renal disease and the degree of reduction in glomerular filtration rate (GFR). In patients with pre-existing CVD, the presence of CRD is associated with an increased risk of recurrent cardiovascular events [3]. Conversely; most patients with CRD do not develop kidney failure. The majority (58%) of patients die from cardiovascular causes, making CVD the leading cause of death in patients with CRD [4]. Indeed, even mild renal insufficiency has been shown to be associated with increased rates of cardiovascular events. [5]. Therefore, it is important to screen all patients with CRD for lipoproteins and treat them appropriately as they are considered a very high-risk group for CVD [2].

Variations in lipoproteins independently or in

combination with elevated blood pressure, can cause deterioration in renal function. Abnormalities in lipid metabolism and dyslipidemia are known to contribute to glomerulo-sclerosis and are common in renal disease [6, 7].

MATERIAL & METHODS

Venous blood samples were collected from 50 healthy controls in fasting condition and similar conditions were maintained while taking the blood samples of patients with chronic renal disease 05 ml of blood was collected and made to clot before serum was separated by centrifuging at 5000 r.p.m for 20 min. This supernant serum sample was collected in separate test tubes and stored at -40o C prior to analysis. Determinations of high density lipoprotein Cholesterol (HDL), low density lipoprotein Cholesterol (LDL) were using kit method on MICROLAB 300.

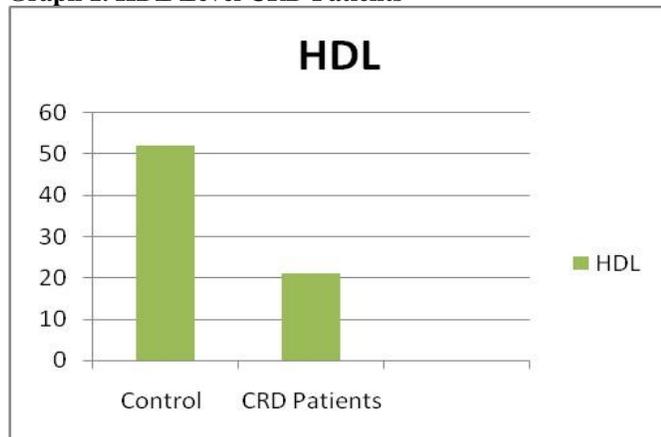
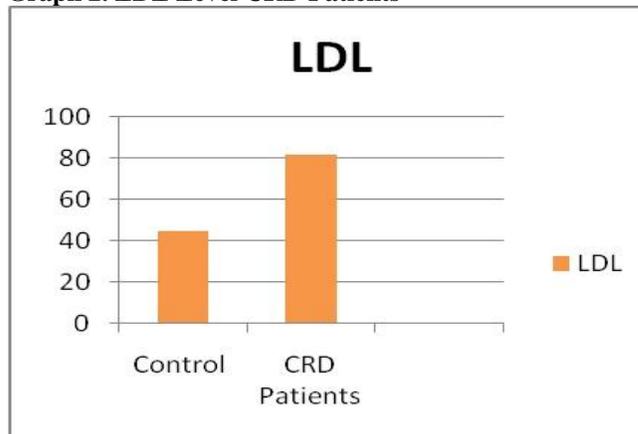
RESULTS

Table 1 and Graph No: 01, 02, respectively shows serum levels of LDL(p< 0.01) are highly significant in CRD patients while HDL(p< 0.001) levels significantly decreased in patients with chronic renal disease as compared with the controls.

Table 1. Comparison of HDL & LDL b/w Chronic Renal Disease (CRD) patients & controls

Lipoproteins	Control	CRD
HDL (mg/dl)	52.2±5.17	21.2±5.40***
LDL (mg/dl)	45.13 ±9.3	82.4±11.2**

(*** = p< 0.001, ** = p<0.01)

Graph 1. HDL Level CRD Patients**Graph 2. LDL Level CRD Patients**

DISCUSSION

Chronic renal disease a worldwide health problem and is the leading cause of morbidity and mortality in the developed world. Patients with CRF are at high risk for CVD and cerebrovascular disease, (CBVD), and they are more likely to die of CVD than to develop ESRD. Chronic kidney disease is associated with premature atherosclerosis and increased incidence of cardiovascular morbidity and mortality. Several factors contribute to atherogenesis and cardiovascular disease in patients with CRF, the notably among all is dyslipidemias [8]. Chronic kidney disease primarily affects the metabolism of (HDL) and (LDL) lipoproteins [9]. Patients with chronic renal disease with and without hemodialysis are at greater risk of development of dyslipidemias, characterized by elevated LDL and decreased HDL levels. Hemodialysis can effectively reduce the accumulation of nitrogenous waste products but fails to clear dyslipidemias generated during the course of CRF. But still the patients on hemodialysis are still exposed to several of the metabolic consequences of renal failure. On the basis of the findings of the present study, it is further suggested that prescribing lipid lowering treatment in chronic renal patients with dyslipidemias for preventing future incident of cardiovascular events could help and will also preserve renal function. A strict monitoring of lipid profile and lipoproteins can reduce the morbidity and mortality rate and will also improve the quality of life of CRF patients [10].

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Low density lipoprotein (LDL) carries Cholesterol from the liver to cells. It is a harmful buildup of LDL. This lipoprotein can be elevated the risk for blocking arteries [11]. Experts say high density lipoprotein (HDL) prevents arterial infarctions and it is a very important for the body to provide extra energy and, it is fat requirement of the body. HDL does the opposite of LDL - HDL has an important function to perform as it takes the cholesterol away from the cells and back to the liver [12].

In the present study results show that serum LDL highly significant in CRD patients whereas HDL levels decreases significantly in patients with chronic renal disease as compared with the controls. It is documented that Cardio Vascular Disease being in the preliminary stages of Chronic Kidney Disease. The present study emphasizes the need for prompt assessment of the patients with chronic renal disease for serum lipoproteins abnormalities as early treatment may prevent cardiovascular complications in future because progression of renal disease.

CONCLUSION

It is concluded that monitoring of lipid profile in CRD patients must be necessary for prevention from CVD in future because disturbed lipid profile is one of the important factor to develop coronary artery diseases.

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