INTRODUCTION

Chronic renal failure (CRF) is a permanent and significant reduction in glomerular filtration rate, or chronic irreversible destruction of kidney tissue. It is characterised by a wide variety of biochemical disturbances and numerous clinical symptoms and signs. The alteration includes haematologic abnormalities, cardiovascular problems, gastrointestinal disturbances, neurologic disorder, osteodystrophy, skin disorder and altered sexual function.

Lipoprotein metabolism is altered in most patients with renal insufficiency. Dyslipidaemia develops early in renal failure. The imbalance between lipoprotein synthesis and degradation in prolonged renal disease results in a pronounced dyslipidaemia. Patients with renal disease commonly develop dyslipidaemia. This was contrary to Kunle et al (1997) and Sharma’s (1988) findings, which showed no hyperlipidemia in CRF patients. Alteration in lipid profile (which include TG, TC, VLDL-C, LDL-C and HDL-C is implicated in development of coronary heart disease (CHD).

A large proportion of patients with CHD had high plasma triglyceride levels but in prospective studies when other major factors (e.g. HDL –C and LDL-C) were considered, TG levels appeared to lose their power to predict cardiovascular disease. High level of LDL-C and low level of HDL-C were implicated in development of atherosclerosis which could result in cardiovascular disease and the higher the ratio of LDL-C to HDL-C the higher the risk of developing cardiovascular disease (CVD).

The high incidence of renal failure in Nigeria as reported by James (2006) and Alebiosu et al (2006) prompted this study to evaluate the development of cardiovascular disease through the estimation of lipid profile among the CRF patients on dialysis.
MATERIALS AND METHODS

A total of 100 adult subjects were used for this study. Fifty of them (30 males and 20 females) who were apparently healthy were used as control while the remaining 50 (30 males and 20 females) were patients with chronic renal failure on dialysis treatment. 5ml of blood sample collected from each subject at fasting state (in the morning) was used to estimate the level of serum total cholesterol, triglyceride, HDL-C, LDL-C, and VLDL-C using enzymatic method with Human Diagnostic test kit.\textsuperscript{18}

The subjects were grouped into 4, thus; Group 1- healthy males. Group 2- healthy females. Group 3 – males with chronic renal failure. Group 4 – females with chronic renal failure.

STATISTICAL ANALYSIS

The data collated after biochemical analysis were subjected to statistical calculation using statistical software (Megastat). The mean, standard deviation/ standard error of mean (s.e), F-distribution test were obtained. Critical value or test of probability less than 0.05 (p< 0.05) was regarded significant.

RESULTS

The results obtained are presented in the tables below.

Table 1: The means ± s.e TC, TG, HDL-C, LDL-C, and VLDL-C of the male subjects.

\begin{tabular}{|c|c|c|c|c|c|}
\hline
GROUPS & TC mmol/l & TG mmol/l & HDL-C mmol/l & LDL-C mmol/l & VLDL-C mmol/l \\
\hline
GROUP 1 & 4.22±0.6 & 1.15± 0.2 & 1.82± 0.3 & 1.95±0.5 & 0.52± 0.1 \\
GROUP 3 & 5.96±0.79 & 1.55±0.09 & 1.34±0.04 & 3.93±0.19 & 0.70±0.2 \\
P-Value & p<0.05 & p <0.05 & p<0.05 & p<0.05 & p<0.05 \\
\hline
\end{tabular}

Table 2: The ratios of TC/HDL-C and LDL-C/HDL-C of the male subjects.

\begin{tabular}{|c|c|c|}
\hline
GROUPS & TC/HDL-C & LDL-C/HDL-C \\
\hline
GROUP 1 & 2.39 & 1.07 \\
GROUP 3 & 4.45 & 2.90 \\
\hline
\end{tabular}

Table 3: The means ± s.e TC, TG, HDL-C, LDL-C, and VLDL-C of the female subjects.

\begin{tabular}{|c|c|c|c|c|c|}
\hline
GROUPS & TC mmol/l & TG mmol/l & HDL-C mmol/l & LDL-C mmol/l & VLDL-C mmol/l \\
\hline
GROUP 2 & 4.03±0.13 & 1.10± 0.3 & 1.70± 0.04 & 1.85±0.5 & 0.50± 0.01 \\
GROUP 4 & 5.70±0.80 & 1.46±0.40 & 1.40±0.2 & 3.50±0.2 & 0.67±0.2 \\
P-Value & p<0.05 & p <0.05 & p<0.05 & p<0.05 & p<0.05 \\
\hline
\end{tabular}
Table 4: The ratios of TC/HDL-C and LDL-C/HDL-C of the female subjects

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>TC/HDL-C</th>
<th>LDL-C/HDL-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 2</td>
<td>2.40</td>
<td>1.09</td>
</tr>
<tr>
<td>GROUP 4</td>
<td>4.07</td>
<td>2.50</td>
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**DISCUSSION**

The results show that TC, TG, HDL-C, LDL-C, and VLDL levels of the CRF patients were significantly (p<0.05) altered in both sexes when compared with their counterparts in control group. The cardiovascular risk indices TC/HDL-C, and LDL-C/HDL-C of the chronic renal failure patients were higher than that of the control groups.

Lipoprotein metabolism is altered in most patients with renal insufficiency. Chan et al (1981) 19 and Riepponen et al (1987) 4 said that dyslipidaemia develops early in renal failure and it becomes more pronounced as the renal disease progresses because of imbalance between lipoprotein synthesis and degradation. In this study it was observed that all the lipid parameters estimated except HDL-C in chronic renal failure patients were significantly (p<0.05) higher than those of normal subjects irrespective of the sex. Cardiovascular risk indices, TC/HDL-C and LDL-C/HDL-C indicated in both sexes that cardiovascular risk is higher in CRF patients. Fuh et al (1990) 20 demonstrated that plasma TG, VLDL-C were significantly higher while HDL-C was significantly lower in CRF patients and this associated with decreased synthesis of Apo A1 /ADC.

Ekonoyan (1998) 5 said that reduced catabolism of lipoprotein rich in TG is an early fundamental disturbance of lipoprotein metabolism in renal disease but clinical evidence suggested that this is not necessarily linked to increased plasma concentration of TG. In this study it was observed that TG rich lipoprotein (VLDL and LDL-C) and TG itself were significantly higher (p<0.05) in CRF in both males and females. This suggested that renal disease (CRF) affects the metabolism of TG, VLDL-C and LDL-C, and this predisposes the patient to cardiovascular disease. Though Kunle et al (1997) 12 and Sharma (1980) 13 observed no hyperlipidaemia in patients with CRF, Gupta, Gupta (1991) 21 Das et al (1984) 22, Zoccoli (2000) 23 and Chan et al (1988) 19 observed lipid abnormalities.

In conclusion, the significant higher (p<0.05) levels of TG, VLDL-C, LDL-C, and lower HDL-C level (p<0.05) among patients place them at risk of developing cardiovascular disease. This risk is also evident in the higher ratio of cardiovascular risk indices, TC/HDL-C and LDL-C/HDL-C in both sexes.

**REFERENCES**

REFERENCES (Continued)


