ABSTRACT

Background: Chronic Kidney Disease (CKD) is a significant health problem worldwide with adverse outcomes of end stage renal disease (ESRD), cardiovascular disease (CVD) and premature death. Dyslipidemia is one of the major risk factors for this amongst DM and hypertension. Although there may have been much progress in reducing the prevalence of dyslipidemia in developed worlds, the same cannot be said in certain parts and hence may reduce the import of seeking and managing dyslipidemia in CKD patients in these areas.

Objectives: The main aim of the study was to determine the prevalence and pattern of dyslipidemia among chronic kidney disease patients at the University of Benin Teaching Hospital, Benin City. The specific aims were to determine the association between dyslipidemia and progression of CKD; the relationship between the level and pattern of dyslipidemia and the degree of proteinuria and to determine the relationship between the level and pattern of dyslipidemia and the aetiology of CKD.

Materials and Methods: This was a cross sectional case control study carried out at the University of Benin Teaching Hospital, Benin City between July 2012 and May 2013. One hundred and sixty patients and an equal number of age and sex matched controls in a ratio 1:1 were recruited for this study. They all had their renal function assessed by serum creatinine using the Cockcroft-Gault formula. They also had their total Cholesterol, HDL-cholesterol and Triglycerides measured using the Cholesterol Oxidase method, Phosphotungstate/Mq – Chol. Oxidase/Peroxidase method and Glycerol phosphate oxidase/ peroxidase reaction respectively. LDL-cholesterol was calculated using Friedwald formula. Urinalysis using the 9 parameter multistix was carried out to assay for proteinuria. These were compared with that of age and sex matched controls.

Result: A hundred and sixty CKD patients participated in this study, of which 3 each (1.9%) were in stages 1 and 2, 52 (32.5%), in stage 3, 81 (50.6%) in stage 4 and 21 (13.1%) in stage 5.
The mean age of the patients was 44.49 ± 15.75 years and 41.76 ± 14.65 years for controls. There were more males (63.1%) than females (36.9%) in the cases.

The prevalence of dyslipidemia was 94.4% amongst cases and 46.9% amongst controls with median serum total cholesterol, HDL-cholesterol, LDL cholesterol and triglyceride, being 168mg/dl (IQR - 61), 30.0mg/dl (IQR -12), 108.1mg/dl (IQR - 47) and 157mg/dl (IQR - 40) respectively amongst cases and 146.5mg/dl (IQR - 56), 69.8mg/dl (IQR - 31), 87mg/dl (IQR - 56) and 67.4mg/dl (IQR - 112) respectively amongst controls. There was a statistically significant difference in the prevalence between cases and controls (p<0.01).

The most common pattern of dyslipidemia was the combination of reduced HDL and elevated triglycerides occurring in 50 (33.1%) of cases. The prevalence of dyslipidemia increased as CKD worsened (p<0.01).

There were 113 (70.6%) dialyzing cases. A reduction in HDL-cholesterol was the commonest dyslipidemia in both dialysing and non-dialysing cases; with no significant difference in the mean levels of the different lipid profile component between them (p<0.867).

Body mass index (BMI) was the only significant predictor of dyslipidemia in this study (p = 0.016; OR – 1.480).

**Conclusion:** Dyslipidemia as an important traditional risk factor for CVD is highly prevalent in CKD patients. The earliest component of the lipid profile affected in CKD is HDL cholesterol, with the most common combination of dyslipidemia being a reduced HDL cholesterol and elevated triglycerides. The presence of dyslipidemia in CKD was not associated with the aetiology of CKD and surprisingly nor the presence of proteinuria, however BMI is an independent predictor of dyslipidemia.