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**Mineral Bone Disease in Chronic Kidney Disease Patients (CKD-MBD) and its Associated Factors at Muhimbili National Hospital in Dar as Salaam, Tanzania: A Cross-sectional Study**

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**Abstract**

**Background**: Mineral bone disease in chronic kidney disease patients is associated with high morbidity and mortality, and it has been reported to start early in the course of the disease and worsen as the kidney damage progresses. However, the prevalence and factors associated with mineral bone disease in chronic kidney disease patients in our setting has not been established, so we aimed to determine the prevalence and factors associated with mineral bone disease among patients with chronic kidney disease at a tertiary Muhimbili National Hospital in Dar es salaam, Tanzania so as to help physicians recognize the patients at risk, diagnose the problem and prevent complications sooner.

**Methods**: This was a hospital based cross-sectional study involving adult patients with chronic kidney disease attending renal unit Muhimbili National Hospital, a tertiary referral center in Dar es Salaam, Tanzania. In this study, CKD-MBD was defined basing on the abnormality of serum calcium, phosphate or parathyroid hormone level. Data analysis was done using the SPSS version 23.0 software.

**Results**: A total of 300 participants with chronic kidney disease stage 3 and above were included in this study. Majority were male, 198 (66.0%), with a mean age of 53 years. The prevalence of mineral bone disease was found to be 75.0%. The most common form of mineral bone disease was hyperparathyroidism 196 (87.1%), followed by hypocalcemia 174 (77.3%) and hyperphosphatemia 82 (36.4%), which was the least common. Factors which were found to be significantly associated with CKD-MBD were the use of calcium supplements, use of phosphate binders, being on dialysis, a calcium rich diet and a low phosphate diet. Conclusion: Mineral bone diseases are common in patients with CKD at Muhimbili National Hospital. Patients with CKD should undergo serial assessment of phosphate, calcium and parathyroid hormone level, considered together, so as to diagnose mineral bone disease early and treat those patients who will be found to have persistently or prolonged abnormalities in these bone mineral biomarkers

**Keywords**: Mineral bone disease; chronic kidney disease; hyperparathyroidism; hypocalcemia, hyperphosphatemia