P233

P233 -Cardiovascular events in early chronic kidney disease and their association with markers of mineral bone disease

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Background: Chronic Kidney Disease (CKD) is associated with increased risk of cardiovascular events (CVEs) but this association is not well characterised in early CKD. Markers of mineral bone disease (MBD) and in particular FGF23 and serum phosphate, have been reported to be associated with a higher risk of CVEs in persons with CKD. However, it is not clear whether similar associations exist in early CKD, when serum phosphate is normal and FGF23 only mildly elevated. We therefore sought to characterise CVEs in a population with CKD stage 3 recruited from primary care and investigated associations with biomarkers of MBD.

Methods: 1741 persons with estimated GFR 30-59mL/min/1.73m² were recruited and assessed at baseline, year 1 and 5. Serum biochemistry including 25-hydroxy Vitamin D, parathyroid hormone (PTH) and intact PTH was analysed at baseline. Data on all hospital admissions with CVEs (based on ICD-10 coding) and cardiovascular deaths between 2008 and 2015 were obtained from NHS Digital. Cox proportional hazards analysis was performed on the whole cohort, those with heart failure (HF) and those with atherosclerotic events to identify risk factors for CVEs.

Results: At baseline, mean age of the cohort was 72.9±9 years and mean estimated GFR 52.5±10.4ml/min/1.73m². 608 CVEs occurred during a mean observation period of 5.1±2.2 years, a rate of 6.8/100 participant years. The most frequent CVE was heart failure (345/608=57%) (Table 1). In the whole cohort age, male sex, HDL cholesterol, smoking status, estimated GFR and urinary albumin to creatinine ratio were confirmed as independent risk factors for CVEs. Among the MBD biomarkers, serum phosphate and parathyroid hormone predicted CVEs but intact FGF23 and vitamin D did not. There were some differences in risk factors for HF versus atherosclerotic events (Table 2).

Conclusion: We have identified HF as the most frequent CVE in persons with early CKD. In addition, we have identified serum phosphate and PTH as independent risk factors for CVEs even at an early stage of CKD, when there is only minor perturbation of these variables. Our findings suggest that trials of interventions to lower serum phosphate in early CKD are warranted.