## MO456 DOES PHOSPHORUS EXCRETION PER NEPHRON AFFECT THE PROGNOSIS OF CHRONIC KIDNEY DISEASE?

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**BACKGROUND AND AIMS:** Serum phosphorus is an important factor associated with mortality and cardiovascular disease in dialysis patients as well as in non-dialysis patients with chronic kidney disease (CKD) and healthy individuals. One observational study reported that elevated phosphorus is a risk factor for end-stage renal disease and is linked to reduced renal function, even within the normal range. Although the mechanism is unknown, an excessive load of phosphorus to the kidney is presumed to cause renal damage via phosphorus-containing nanoparticles. In this study, we examined the association between phosphorus excretion per nephron and the prognosis of CKD.

**METHOD:** A single-center, retrospective cohort study was conducted in 276 patients with CKD category G3 to G5 who were admitted to our hospital and received an inpatient educational program on CKD between June 2016 and November 2019 and who could be followed up for at least 1 year or started on dialysis within 1 year after hospitalization. Phosphorus excretion per nephron was defined as daily phosphorus excretion divided by creatinine clearance (Ccr), and its association with the annual rate of decline in estimated glomerular filtration rate (eGFR) was investigated for each CKD category. For statistical analysis, multiple regression analysis was performed using the following covariates: age, sex, presence/absence of diabetes mellitus, mean arterial blood pressure, amount of daily urine protein, serum phosphorus level, and use of a renin-angiotensin system inhibitor.

**RESULTS:** There were 108 patients with CKD G3, 106 patients with CKD G4, and 62 patients with CKD G5. Daily phosphorus excretion was 442 mg in G3, 350 mg in G4, and 350 mg in G5 patients. Phosphorus excretion per nephron was 8.4 mg/Ccr in G3, 14.0 mg/Ccr in G4, and 24.2 mg/Ccr in G5 patients. It increased with the progression of renal damage. In G4 patients, phosphorus excretion per nephron was significantly negatively correlated with the rate of decline in eGFR ($p = 0.004$); however, no correlation was found between the two in G3 and G5 patients ($p = 0.09$ and $p = 0.16$, respectively). Multiple regression analysis showed that phosphorus excretion per nephron was not a significant worsening factor for renal function in G3, G4, and G5 patients ($p = 0.09$, $p = 0.36$, and $p = 0.41$, respectively). On the other hand, serum phosphorus level was a significant worsening factor for renal function in G3 and G5 patients ($p = 0.03$ and $p = 0.01$, respectively).

**CONCLUSION:** No association was found between phosphorus excretion per nephron and the rate of the subsequent decline in renal function.