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**Evaluation of predictive performance of mineral and bone disorder markers for adverse outcomes in patients with chronic kidney disease**

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**Objectives:** Mineral and bone disorder markers (MBD markers) such as serum phosphate(P), calcium(Ca), PTH and FGF-23 have been highlighted as non-traditional risk factors to predict adverse outcomes in patients with chronic kidney disease (CKD). We compared the predictive performance of MBD markers for CKD progression, any cardiovascular events (CVEs), and all-cause death.

**Methods:** This study included 1822 patients from KoreaN cohort study for Outcome in patients With CKD (KNOW-CKD). The study outcomes were 1) a composite renal outcome of a  $\geq 50\%$  decrease in eGFR or the incident end-stage renal disease, and 2) a composite of the occurrence of CVEs or all-cause death. We constructed sequential Cox models. Basic model included traditional risk factors and renal parameters such as estimated glomerular filtration rate and proteinuria. Each of MBD markers was then separately added to basic model. We calculated the area under the receiver operator characteristic curve (AUROC), c-statistics, net reclassification improvement (NRI), and integrated discrimination improvement (IDI) to compare the predictive ability of the models.

**Results:** During median follow-up of 3.3years, the composite kidney outcome events and the composite events of CVEs or death occurred in 508 (27.9%) and 176 (9.7%) patients, respectively. In multivariable-adjusted Cox models, all MBD markers were independently associated with CKD progression. Nevertheless, adding MBD markers to basic model for predicting the kidney outcome did not increase the AUROC, c-statistics, NRI and IDI. In additional Cox models for the composite of CVEs or death, none of the markers was an independent predictor.

**Conclusions:** In this study, MBD markers did not provide additional predictive value for CKD progression compared with conventional factors.