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Age-specific estimated glomerular filtration rate for Mortality Prediction in Korean Population: a Retrospective Kangbuk Samsung Health Cohort study

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Objectives : With advance of the glomerular filtration rate (GFR) formula and the recognition of age-related variations, there is a concern regarding the need to reconsider/adapt distinct GFR equation for elderly. We conducted a comparative analysis of the predictive accuracy of CKD-EPI 2009, 2021 (race-free) and the European Kidney Function Consortium (EKFC) equation for mortality prediction across different age groups.
Methods : We analyzed 670,320 participants who underwent a comprehensive health examination, enrolled in Kangbuk Samsung Health Cohort from January 1, 2002 to December 31, 2019 and followed them up for mortality until December 2019. The age group was divided from 18 to 39, 40-64, and over 65 years old (group 1,2,3).
Results : The participants' median follow-up period was 8.8 years, mean age was 39.8 years old (minimum 18, maximum 97), and 53.6% were male. Mean eGFR using 2009 CKD-EPI was 95.1 ml/min/1.73m^2, 100.6 ml/min/1.73m^2 using 2021 CKD-EPI, 94.0 ml/min/1.73m^2 using EKFC. There was no difference between the equations in group 1. Discriminatory power for all-cause mortality prediction was the best when using EKFC in group 2 and group 3. Moreover, the EKFC showed better discriminatory power for CVD mortality in all age group.
Conclusions : The EKFC equation showed better prediction and explanation in middle age to elderly.