Performance of the European Kidney Function Consortium (EKFC) creatinine-based equation in American cohorts

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BACKGROUND

The new creatinine-based European Kidney Function Consortium (EKFC) equation has been developed and validated in datasets of European subjects. This equation is based on rescaled creatinine, with the rescaling factor (Q-value) which is the median normal value of serum creatinine in a given population. The EKFC equation performed well across the whole age spectrum. However, the validation was limited in Black and non-Black Americans.

METHODS

Cross-sectional analysis with separate pooled datasets for validation from 9 US research and clinical studies with measured GFR, age, sex, and self-reported race available. Two strategies were considered with population specific Q-values in Black and non-Black men and women (EKFCPS) or a race-free Q value (EKFCRF) which is the mean of the Q values obtained in Black and non-black populations. Performance (bias, precision and accuracy within 30% (P30) was compared with the CKD-EPI2021 equation.

RESULTS

In the whole adult population (n=12,854), the EKFCPS equation showed no statistical bias (0.14 [95%CI [-0.07;0.35]] mL/min/1.73m²), and the statistical bias of the EKFCRF (0.74 [0.51;0.94] mL/min/1.73m²) was closer to zero than the CKD-EPI2021 equation (1.22 [0.99;1.47]) mL/min/1.73m². The percentage of estimated GFR within 30% of measured GFR was similar for CKD-EPI2021 (79.2% [78.5%;79.9%]) and EKFCPS (80.1% [79.4%80.7%]) but improved with the EKFCPS equation (81.1% [80.5%81.8%]).

CONCLUSION

The EKFC-equation can be used in the USA to estimate GFR incorporating either self-reported race or unknown race at the patient’s discretion per hospital registration records. The performance of the EKFC equation is as at least good as the CKD-EPI2021 equation.

FINANCIAL DISCLOSURES

Nothing to declare

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