Comparison of concurrent complications of CKD by 2 risk categorization systems.

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Abstract

BACKGROUND: Using both estimated glomerular filtration rate (eGFR) and proteinuria to classify the severity of chronic kidney disease (CKD) has been proposed. The utility of a staging system incorporating both eGFR and proteinuria for guiding the evaluation of concurrent CKD complications is not known.

STUDY DESIGN: Cross-sectional analysis.


PREDICTORS: Classification system that uses both eGFR and proteinuria (alternative) and a system that primarily uses eGFR (NKF-KDOQI [National Kidney Foundation's Kidney Disease Outcomes Quality Initiative]).

OUTCOMES: Prevalence of anemia, acidosis, hyperphosphatemia, hypoalbuminemia, hyperparathyroidism, and hypertension.

MEASUREMENTS: GFR estimated from the CKD Epidemiology Collaboration (CKD-EPI) equation and proteinuria assessed using urine albumin- creatinine ratio.

RESULTS: Prevalences of hypoalbuminemia, hypertension, and hyperparathyroidism increased with more severe CKD using the NKF-KDOQI system. For example, the prevalence of hyperparathyroidism was 9.1%, 11.1%, 28.2%, and 72.5% for stages 1, 2, 3 and 4, respectively. Similarly, prevalences of anemia, acidosis, and...
hyperphosphatemia increased progressively from stage 2 through 4. With the alternative system, prevalences of anemia, hyperphosphatemia, hypertension, and hyperparathyroidism were lower in stage 3 than in stage 2. For example, the prevalence of hyperparathyroidism was 13.5%, 40.3%, 22.2%, and 63.4% for stages 1, 2, 3 and 4, respectively. Applying the alternative system, participants without each complication were more likely to be reclassified appropriately to lower stages (eg, overall net reclassification index of -6.5% for hyperparathyroidism). However, participants with complications (except for hypoalbuminemia) were more likely to be reclassified inappropriately to lower stages.

**LIMITATIONS:** Use of a single creatinine measurement to estimate GFR and single measurement to assess albumin-creatinine ratio. Small number of participants with CKD stage 4.

**CONCLUSIONS:** The NKF-KDOQI system may better identify patients with certain concurrent CKD complications compared with systems using eGFR and proteinuria.

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