Methods

National guidelines recommend a GFR threshold of ≤60 mL/min as abnormal if eGFR is calculated using the Modification of Diet in Renal Disease equation. A strategy of searching for metabolic complications of CKD is necessary to improve quality of life and prevent long-term complications in every adult with low eGFR or microalbuminuria.

Conclusions

- The following definitions were used for metabolic complications:
  - Elevation of serum phosphate:[phosphate] > 4.6 mg/dL
  - Hypokalemia:[potassium] < 3.5 mmol/L
  - Hyperparathyroidism:[parathyroid hormone] > 70 pg/mL
  - Anemia:[hemoglobin] < 11.0 g/dL
  - Metabolic acidosis:[bicarbonate] < 20 mmol/L

- The following thresholds were examined: eGFR < 60 and urinary ACR ≥30 in women, ≥20 in men. The point estimate for area under the ROC curve was 0.56.

- Analyses were performed with Stata and SUDAAN software. Population-weighted prevalence of the 6 metabolic abnormalities was calculated in normal kidney function and in individuals with eGFR < 60, and in those with normal eGFR and abnormal urinary ACR. The proportion of participants with ≥1 metabolic abnormality in those with eGFR < 60 was compared to those with normal eGFR. The predictive value of eGFR < 60 for detecting ≥1 metabolic abnormality was 0.13, 0.96, 0.34, and 0.86, respectively (Table 3). The sensitivity, specificity, positive predictive value, and negative predictive value of eGFR < 60 for detecting ≥1 metabolic abnormality were 0.13, 0.92, 0.24, and 0.86, respectively.

- The utility of such an approach is limited if abnormal ACR for detecting CKD is not normal. The sensitivity, specificity, positive predictive value, and negative predictive value of abnormal ACR for detecting CKD were 0.13, 0.96, 0.34, and 0.86, respectively.

- Microalbuminuria is a more sensitive test for detecting CKD and has been shown to have a greater impact on quality of life than eGFR thresholds. However, in this community sample, the sensitivity, specificity, positive predictive value, and negative predictive value of abnormal ACR for detecting CKD were 0.13, 0.96, 0.34, and 0.86, respectively.

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