

INFLUENCE OF MDRD AND/OR CKD-EPI FORMULA APPLICATION ON DETECTION AND EPIDEMIOLOGY OF CHRONIC KIDNEY DISEASE

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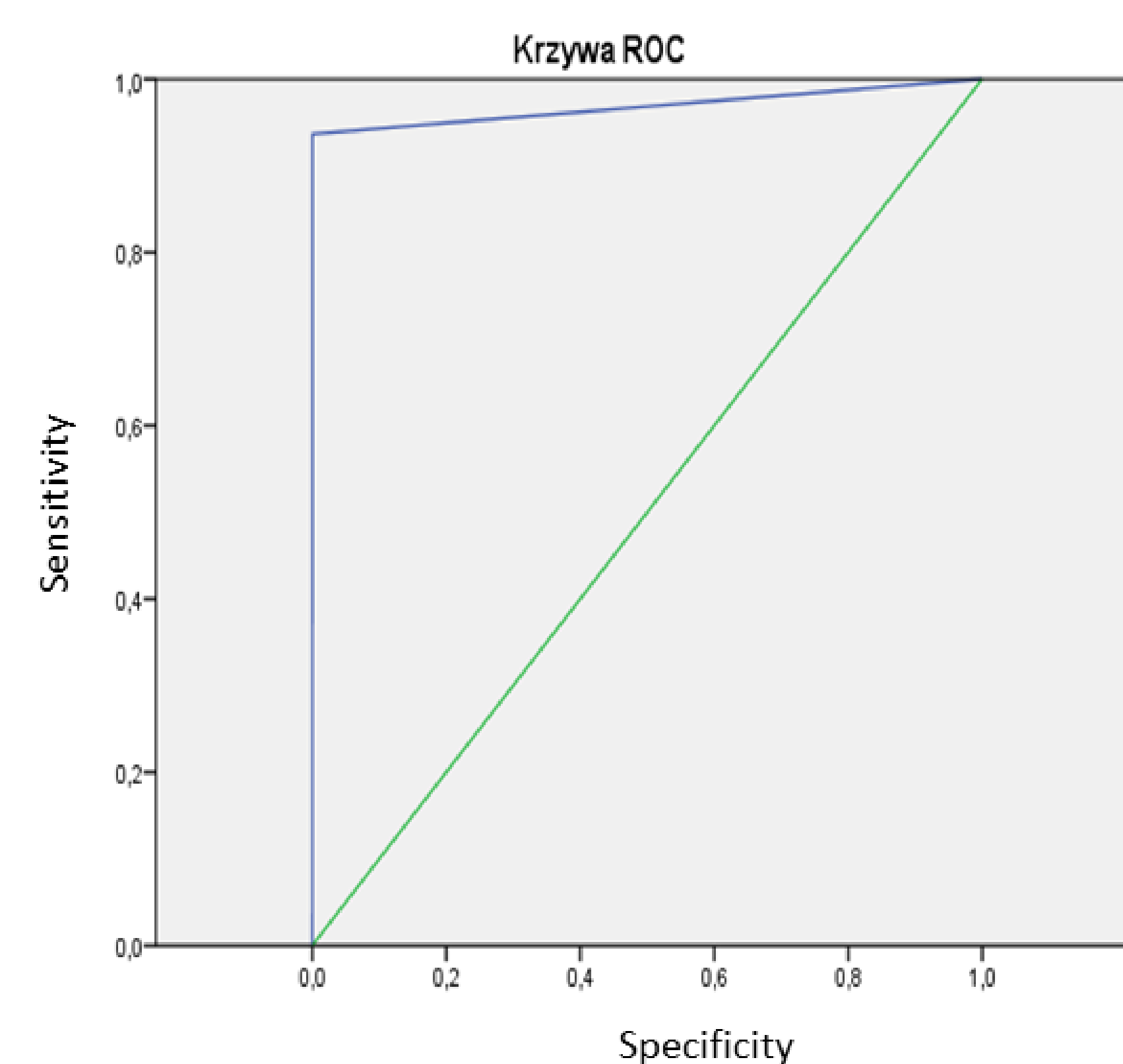
INTRODUCTION AND AIMS

Chronic kidney disease (CKD) is a risk factor of cardiovascular and general morbidity, end stage renal disease. Data on CKD prevalence is biased by formula used to estimate glomerular filtration rate (eGFR). The KIDIGO 2012 guidelines recommend use of CKD-EPI_{creat} instead of MDRD formula to calculate eGFR. The aim of this study was to assess the effect of application of different eGFR formulas on CKD prevalence among adult Polish citizens.

METHODS:

We studied data from two large population studies:

- 1) NATPOL 2011, which included data from 2413 participants (1245 females; 1168 males), aged 18 to 79, and
- 2) WOBASZ Senior, including data from 1013 participants (502 females and 511 males) aged above 75 years. Concentration of serum and urine creatinine in both studies was measured with an enzymatic method. Data on urine albumin concentration came only from NATPOL2011 study. Albuminuria was measured once in a morning urine sample with an immunoturbidimetric method. CKD was diagnosed for eGFR (estimated with abbreviated MDRD formula and the 2009 CKD-EPI_{creat} formula) < 60 ml/min/1,73 m² or eGFR ≥ 60 ml/min/1,73 m² with co-existing albuminuria (albumin-to-creatinine ratio ≥ 30 mg/g).



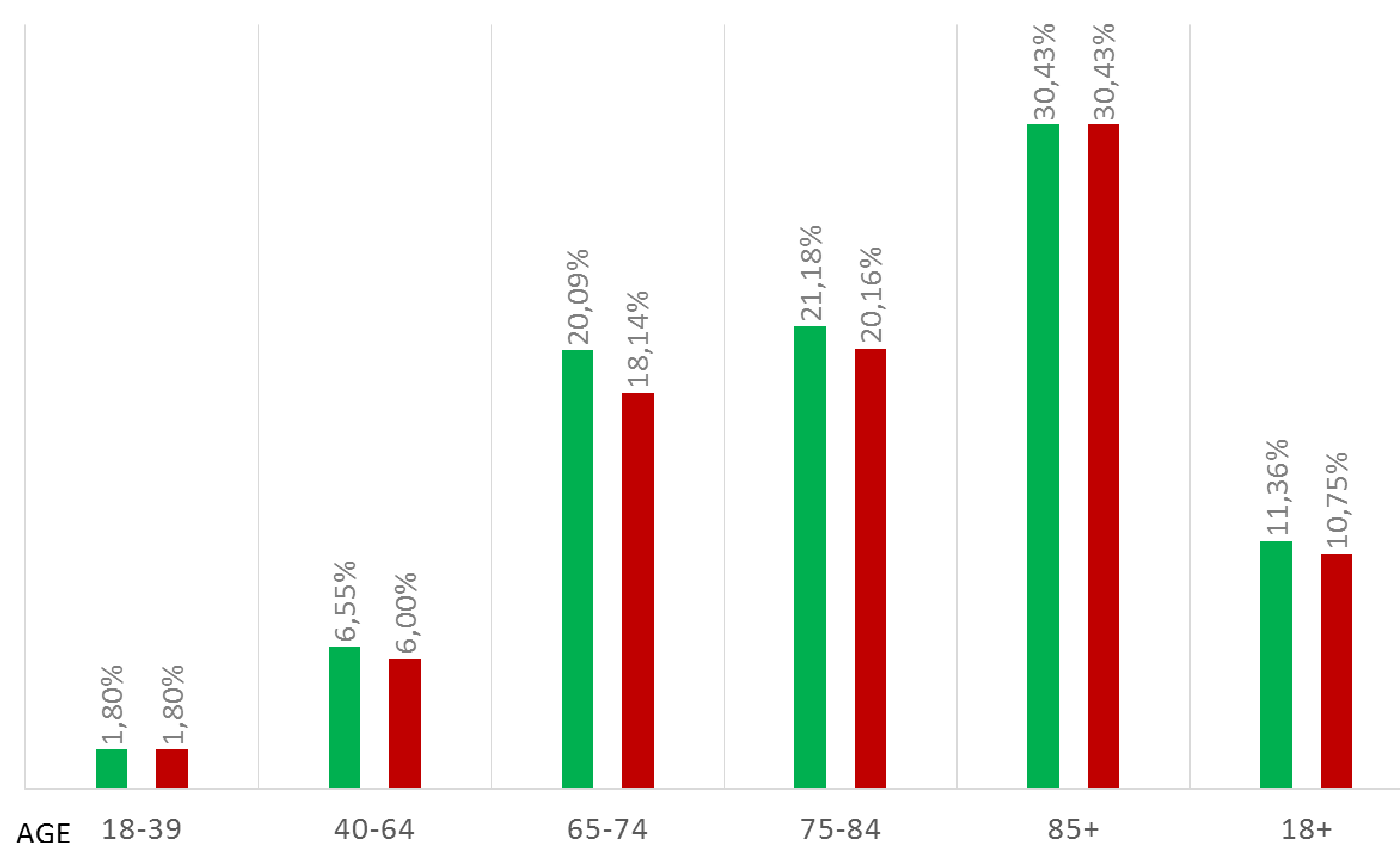
Area	Standard error	CI 95%	
		min	max
,968	,007	,954	,982

RESULTS

Prevalence of CKD in adults in Poland aged above 18 years for **MDRD based eGFR was 11,36%**, and **10,75% for CKD-EPI_{creat} based eGFR (p<0,001)**. It increased with age. Comparing the eGFR estimation by MDRD and CKD-EPI_{creat}, in the age group 18 to 39 CKD prevalence was equal by both methods and was 1,8%. In the age group 40 to 64 years - 6,55% and 6,00%, 65-74 years - 20,09% and 18,14%, 75-84 years - 21,18% and 20,16% respectively. The highest prevalence was observed in the age group above 85 years, where both methods gave result of 30,43%.

Calculated **kappa concordance coefficient for eGFR estimations by both methods was 0,966**. Area under the receiver operating characteristic curve (ROC) of specificity and sensitivity equals 0,968 (CI 95%: 0,954-0,982).

■ CKD prevalence ■ CKD prevalence



CONCLUSIONS

Prevalence of CKD in population of adults in Poland aged above 18 years is high and comparable with other countries in Europe and worldwide. Estimated CKD prevalence is lower when the CKD-EPI_{creat} formula is applied. This is because of elsewhere proven better performance of this formula in higher values of eGFR and earlier stages of CKD. The sensitivity of CKD detection is comparable for both methods of eGFR estimation (MDRD and CKD-EPI_{creat}).

