

IMPACT OF THE CREATININE-BASED EQUATIONS USED ON THE CHRONIC KIDNEY DISEASE CLASSIFICATION IN A LARGE LABORATORY DATABASE

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Introduction and Aims

Several equations using serum creatinine are used in clinical practice to estimate glomerular filtration rate (eGFR). The KDIGO guidelines recommend to use the Chronic Kidney Disease-Epidemiology (CKD-EPI) equation. Recently, a new equation has been proposed by an European group which could better fit thorough the whole age range: the Full Age Spectrum equation (FAS). In the current analysis, we studied concordance and discrepancies between CKD-EPI and FAS equations in a large laboratory database.

Methods

We conducted a monocentric retrospective study on all ambulatory adult patients (> 18 years) who benefited of serum creatinine measurements (with the IDSM standardized enzymatic method from Roche on Cobas) at our university hospital from January 2018 to November 2018. GFR was estimated by CKD-EPI and FAS equations. The CKD classification proposed by the KDIGO was used with the eGFR in mL/min/1.73m² obtained with CKD-EPI: stage 1: eGFR>90, stage 2: eGFR between 60 and 89, stage 3a: eGFR between 45 and 59, stage 3b: eGFR between 30 and 44, stage 4: eGFR between 15 and 29, stage 5: eGFR<15.

Results

A total of 58,366 subjects was considered (56.9% of women) with a mean age of 53±18 years old. Stage 1 represents 49.9 and 42% of the whole population according to CKD-EPI or FAS equations, respectively. Stage 2 represents 36.7 and 40%, stage 3a represents 7.7 and 11%, stage 3b represents 3.7 and 5%, stage 4 represents 1.4 and 1.6% and stage 5 represents 0.7 and 0.5%. Concordant classification was observed between CKD-EPI and FAS in 84% of the whole population. According to the different stages, concordance was 84, 85, 76, 91, 91 and 79% in stage 1, 2, 3a, 3b, 4 and 5, respectively. Concordance was not influenced by gender but well by age as we observed a concordance of 93, 95, 80, 71, and 52% in subjects aged between 18 and 30, 30 and 50, 50 and 70, 70 and 90, and over 90 years, respectively.

Repartition and concordance between CKD-EPI and FAS equations

	CKD-EPI repartition (%)	FAS repartition (%)	Concordance (%)
Stage 1	49.9	42	84
Stage 2	36.7	40	85
Stage 3a	7.7	11	76
Stage 3b	3.7	5	91
Stage 4	1.4	1.6	91
Stage 5	0.7	0.5	79
All stage			84

Conclusions

In this large laboratory database, the global concordance of FAS and CKD-EPI equations to classify patients in the CKD staging is 84%. Higher discrepancies are observed in elderly and in stage 3a and 5.

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