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Title: Estimation of the glomerular filtration rate in older individuals with serum creatinine-based equations: A systematic comparison between CKD-EPI and BIS1



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A concise and informative title

ESTIMATION OF THE GLOMERULAR FILTRATION RATE IN OLDER INDIVIDUALS WITH SERUM CREATININE-BASED EQUATIONS: A SYSTEMATIC COMPARISON BETWEEN CKD-EPI AND BIS1

• ESTIMATION OF THE GLOMERULAR FILTRATION RATE IN ELDERLY

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Highlights

- Renal function is assessed with the glomerular filtration rate (GFR)
- The evaluation of the GFR in older people is important to calculate drug doses and to diagnose chronic renal failure
- CKD-EPIcr (Chronic Kidney Disease Epidemiology Collaboration) and BIS1 (Berlin Initiative Study) are two serum creatinine-based formulae for the estimation of glomerular filtration rate (GFR).
- However, their comparative accuracy in older people had not been well established.
- BIS1 may be more accurate than CKD-EPIcr in older people.

ABSTRACT

Aim

CKD-EPIcr (Chronic Kidney Disease Epidemiology Collaboration creatinine) and BIS1 (Berlin Initiative Study) are two serum creatinine-based formulae for the estimation of glomerular filtration rate (GFR). However, their comparative accuracy in older people has not been well established. Our aim was to conduct a systematic comparative study of the accuracy of estimation of GFR in older people with these two formulae.

Methods

We conducted a systematic search in Pubmed, EMBASE and Central databases on the validity of the CKD-EPIcr and BIS1 formulae in people aged 60 or more years. The search ranged from 2009 and 2012 for CKD-EPIcr and BIS1, respectively, until May 2017. The validity criterion for comparing the formulae was to have a P30 accuracy level equal to or greater than 80%.

Results

Of 1295 identified studies, 16 met our inclusion criteria. Out of 16 studies reporting the accuracy of the CKD-EPIcr formula, only 5 (31.3%) had P30 scores $\geq 80\%$ (mean P30 was 77.1 ± 7.711 range 55.5 - 91.7), and out of 9 studies on accuracy using the BIS1 formula, 6 (66.7%) were $\geq 80\%$ (mean P30 was 83.88 ± 9.37 , range 67.0 - 95.8).

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