



# Correspondence to: Reliability of glomerular filtration rate estimating formulas compared to iohexol plasma clearance in critically ill children

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Dear Editor,

It was with great interest that we read the article by Dhont et al. regarding the reliability of glomerular filtration rate (GFR) estimating formulas in critically ill children [1]. They concluded that all estimated GFR (eGFR) formulas were largely inaccurate in the pediatric intensive care unit (PICU) population. In addition, performance of serum creatinine (SCr)-based equations was worst in children below 1 month of age ( $n = 18$ ), with absolute biases of  $-6$  and  $-118$  ml/min/1.73 m<sup>2</sup> and accuracy between 0 and 50%, depending on the chosen formula, indicating pronounced overestimation of GFR.

Importantly, none of the 12 SCr-based eGFR formulas used by Dhont et al. were developed or validated in children below 1 month of age. Recently, we proposed an adapted  $k$ -value (0.31) in neonates for the Schwartz bedside equation (eGFR (ml/min/1.73 m<sup>2</sup>) =  $k \times$  height (m) / SCr (mg/dL)), based on an individual patient data meta-analysis, including 881 neonates and 978 GFR measurements [2]. This  $k$ -value was additionally validated in a cohort of 43 critically ill neonates, demonstrating negligible bias (0.0 ( $-6.4$  to 5.2) ml/min/1.73 m<sup>2</sup>) and high accuracy (74.4%) compared to iohexol-based mGFR [3].

Due to the similarity of our cohorts with respect to disease severity, time of iohexol administration, and the

percentage of patients on vasoactive support and mechanical ventilation, we suggest the use of this  $k$ -value of 0.31 in (critically ill) neonates. By converting their reported median Schwartz eGFR ( $k = 0.413$ : 70 ml/min/1.73 m<sup>2</sup>) to eGFR based on a  $k$ -value of 0.31, this would lead to an eGFR of 52.5 ml/min/1.73 m<sup>2</sup>: perfectly in line with the median mGFR of 53 ml/min/1.73 m<sup>2</sup>. This illustrates that the use of our  $k$ -value may significantly improve the accuracy of GFR estimations in neonates, which can guide drug dosing and therapeutic interventions.

**Authors' contributions** NS wrote the manuscript, and SW and MS supervised the manuscript. All authors approved the final version of the manuscript.

## Declarations

**Ethics approval** Not applicable.

**Competing interests** The authors declare no competing interests.

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