Reviewer's report

Title: How to estimate glomerular filtration rate in sub-Saharan Africa: design and methods of the African Research into Kidney Diseases (ARK) study

Version: 1 Date: 04 Sep 2019

Reviewer: Pierre Delanaye

Reviewer's report:

I read with interest the article submitted by Kalyesubula and colleagues. The authors described the protocol of a future study. The goal is to study the accuracy of current equations to estimate GFR. The topic is certainly important and of interest, especially in this part of the world. I have the following remarks.

1) The main article on the topic is neither cited nor discussed by the authors: Justine B. Bukabau, Kidney Int, 2019, 95(4), p896.

2) In the mentioned article, 494 subjects (or patients) have been included. Even if this sample is lower than the predicted sample of the authors, I think that the following sentence should be tempered: "Previous studies using iohexol to measure GFR in sub-Saharan Africa have been relatively small and have included few people with impaired renal function".

3) I strongly recommend that the authors studied the performance of the Full Age Spectrum equations (Pottel H, Nephrol Dial Transplant, 2017, 32(3), p497+ see Bukabau JB, Kidney Int) and the Lund-Malmö/CAPA equations (Bjork J, Pediatr Nephrol, 2019, 34, p1087

4) The last timing is 240 minutes. I think a later timing would be of interest for patients with low GFR.

5) Regarding capillary sample, I suggest the authors to read the following reference: Luis-Lima S, Nephrol Dial Transplant, 2018, 33(9), p1597

6) The authors will measure serum creatinine with a Jaffe method. Even if the assay is claimed to be IDMS traceable, I recommend to consider an enzymatic method.

7) As for iohexol, I recommend creatinine and cystatin C to be measured in the central laboratory.

8) How will cystatin C be measured? Which assay? Standardization?

9) Description of statistics should be improved.
10) Iohexol will be measured in a central laboratory. Which method? An important question is to know if this laboratory is participating to the iohexol external control (by Equalis, Sweden).

11) The way of calculating GFR from iohexol results should be better explained.

Please confirm that you have included your review in the ‘Comments to Author’ box? As a minimum standard, please include a few sentences that outline what you think are the authors’ hypothesis/objectives, their main results, and the conclusions drawn. Your report should constructively instruct authors on how they can strengthen their paper to the point where it may be acceptable for publication, or provide detailed reasons as to why the manuscript does not fulfill our criteria for consideration. Please supply appropriate evidence using examples from the manuscript to substantiate your comments. Please break your comments into two bulleted or numbered sections: major and minor comments.

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