Reviewer's report

Title: Accuracy and limitations of equations for predicting of the glomerular filtration rate during follow-up of patients with non-diabetic nephropathies

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Reviewer: Vincent Rigalleau

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Rostoker et al performed serial GFR determinations (inulin) and estimations (Cockcroft, MDRD) in 126 patients with non-diabetic (mainly glomerular) renal diseases. 65 patients progressed, acceptably reflected by the estimations. 61 patients improved, which was underestimated by the estimations but it is not very important.

Main comment

The authors do have interesting data (126 serial GFR determinations), but their analysis is not appropriate because of first dichotomization of the population, and they do not explore the results sufficiently, so the reader is very frustrated:

1-The whole population (n=126) is not described (because dichotomized before description)
Please give for the whole 126: GFR (inulin) and its estimations at baseline.
Do they differ ? Are they well-correlated ? Please give r, absolute differences as %, and % values within 10,30,50% of measured GFR.

2-Progression is the main outcome. But we do not know whether the population progressed (because dichotomized as progressors/improvers before description)
Please give for the whole 126: GFR (inulin) and its estimations at the final evaluation.
Do they differ from baseline ?

3-The main question is: Are GFR estimates good (and similar) to estimate progression ? We do not know the answer, because their performances are analized separately for progressors and improvers. The clinician who does not have the opportunity to perform reference GFR measurements wants to know first whether GFR estimates are good and similar to estimate progression and discriminate progressors from improvers. Their performances in each of these subgroups are less interesting, as mentionned in the abstract.
Please give for the whole 126: measured and estimated GFR slopes.
Do they differ ? Do they correlate ? Are the estimations biased ? (Bland & Altmann plots would be fine)
As the studied population interestingly divides as ~half progressors vs improvers,
ROC curves could be performed to compare the performances of the estimations to discriminate progressors from improvers. In my view, this point is critical.

4-Other estimates are of interest.
Unfortunately, the authors do not seem to have cystatinC results; for this reason, it is not necessary to discuss CysC in the introduction and the discussion. But with serum creatinine they can calculate Mayo Clinic Quadratic estimates of GFR, (which may be of specific interest for the estimation of progression), and analyze its performances as for Cockcroft and MDRD.

5-The authors can surely provide the proteinuria of the patients, who had "mainly glomerular" diseases. This would be of interest: Does it influence progression? Does it influence the performances of the estimations?