Author’s response to reviews

Title: Factors associated with residual urine volume preservation in patients undergoing hemodialysis for end-stage kidney disease, in Kinshasa Short title: residual urine volume in hemodialysis

Authors:

Vieux Mokoli (vieumokoli@gmail.com)
Ernest Sumaili (sumailiernest2015@gmail.com)
François Lepira (lepslepira@yahoo.fr)
Fiston Mbutiwi (fmbutiwi@gmail.com)
jean Robert Makulo (jrmakulo@yahoo.fr)
Justine Bukabau (justinebuk@yahoo.fr)
Patrick Izeidi (patrickizeidi@yahoo.fr)
Jeannine Luse (jeannineluse@gmail.com)
Stéphane Mukendi (mukendisteph@yahoo.fr)
Désiré Mashinda (desiremashinda@yahoo.fr)
Nazaire Nseka (mnsekan@yahoo.fr)

Version: 1 Date: 31 Aug 2017

Author’s response to reviews:

Kinshasa, the 30th August 2017

To the Editor in Chief

BMC Nephrology

Concern: Re-Manuscript ≠ BNEP-D-16-00248 R1

Thank you so much for your letter of 29th June in which you requested modifications of our manuscript entitled « Factors associated with residual urine volume preservation in patients undergoing hemodialysis for end-stage kidney disease, in Kinshasa». Short title: Residual urine
volume in HD." (BNEP-D-16-00248). We thank you again and the two reviewers for their constructive criticisms which could help now improvement of the quality of our manuscript. We carefully reviewed the reviewer’s comments. We are thus pleased to resubmit the new version.

We addressed:

Reviewer ≠ 1

Although it is exact that several studies have been published on residual renal function or residual diuresis, none of these studies have focused on a sub-Saharan African population where people live in poverty. What is valid in the West is not necessary valid in the context of the developing countries and in a black population.

We agree that the limited sample size is likely to reduce the power of statistical testing. This is stressed within the limits of the study. Any time the number of patients with an evaluation of the RUV was 127 to 6 months and 77 to 12 months (please see first sentence of point 2 of the results), not 60 and 30 contrary to what you have pointed out.

Indeed, the method of selection of predictors based on the values of p value observed in univariate analysis is not acceptable. In this revised version, we careful selected set of variables according to what was published in the literature and limited their numbers according to the size of the sample.

If the residual urine volume does not perfectly reflect the residual kidney function and is influenced by the diuretics, it remains nevertheless, interdialytic urine volume may emerge as a pragmatic alternative to more cumbersome calculations of residual kidney function (as mentioned by AT Mathew et al. In Kidney Int (2016) 90, 262-271). In addition, the predictors of residual kidney function are practically the same as those for residual urine volume (Obi et al., J Am Soc Nephrol. 2016 Dec; 27 (12):3758-3768).

The revised version was edited for English language usage, grammar, spelling and punctuation by one or more native English-speaking editors at Nature Research Editing Service. The editors focused on correcting improper language and rephrasing awkward sentences, using their scientific training to point out passages that were confusing or vague.
Reviewer ≠ 2

We agree that the small sample size should limit the number of variables to be included in the model and that putting the variables in the models as a function of their p value is a bias. This is why we carefully selected a set of variables according to what was published in the literature and limited their numbers according to the size of the sample. Indeed, as you pointed out, it is the longitudinal data, with repeated measures of RUV on the same subjects in time. In these kinds of data, 250 subjects are not treated, but rather 454 repeated-measurements. Modeling with 3 logistic models, one at each evaluation time, is not appropriate, as the data are therefore correlated. The linear mixed effect model is one of the approaches to processing these data genres. As suggested, we considered RUV as a continuous variable and used a linear mixed-effects model to analyze the effect of covariates on the decline in urine volume.

The definition of volemia combined measurement of venous pressure, blood pressure and weight gain. For the evaluation of central venous pressure, we were first assessed clinically by placing the patient lying at 45 ° from the bed plane and appreciating the visibility of the jugular vein. Clinical estimation being 5-7 cm H2O. Patients with a value greater than 7 cm H2O benefited from the measure of central venous pressure. Hypovolemia was defined by a central venous pressure ≥ 13 cm H2O (Truijen et al European Journal of Applied Physiology 2010, 109(2):141-157). If clinical estimation is below 5 cm H2O with decreased weight and blood pressure, patients were considered hypovolemic.

Thank you for your readiness to review the corrected version of this manuscript, and expecting a positive feedback from you.

Warm regards.

Vieux Momeme Mokoli, MD
Corresponding Author
+243815087732, Email: vieux.mokoli@gmail.com