Reviewer’s report

Title: Association between routine and standardized blood pressure measurements and left ventricular hypertrophy among patients on hemodialysis

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Reviewer: Silvio Barberato

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The authors tested the predictive power of diverse blood pressure measurements to detect the presence of left ventricular hypertrophy (LVH) in hemodialysis patients. They found that pre-dialysis measurements, the current recommended method by latest guidelines, had the weakest predictive power for LVH. In contrast, standardized, post and inter-dialytic measurements were stronger predictors of LVH. The paper is well written, the study is of great interest, and the question posed by the authors was well defined, but some points about the described methods should be carefully considered:

1- The authors used cardiac magnetic resonance (CMR) (which is now considered to be the “gold-standard” technique for the assessment of LV dimensions and mass) to accurately estimate left ventricular mass and should be commended by that. However, the volume changes occurring with dialysis sessions can also lead to inaccuracies. Hence, it is important to clearly state when the exams were performed in relation to dialysis session: pre, post-dialysis, or in a non-dialysis day? Days between or the longest day?

2- The authors chose to index LV mass to body surface area. Thus, the citation of the article by Zoccali et al from JASN 2001 seems inappropriate. The referred article showed that the indexation by height 2,7 should be the method of choice in patients undergoing dialysis because it identified a larger number of individuals with LVH and was more powerful than the BSA-method in the prediction of mortality. Furthermore, they did not use CMR but echocardiography instead in their study. For a recent authoritative review of the subject of left ventricular mass and hypertrophy in end-stage renal disease (including cut-off limits for LVH), the authors should be referred to the excellent overview of Glassock et al (Clin J Am Soc Nephrol. 2009 Dec;4 Suppl 1:S79-91).

3- In results section, first paragraph, the authors wrote that the prevalence of LVH was 74, 4%. Differently, they cited the prevalence of 69,2% of LVH in the discussion section, third paragraph.

4- The article would be further enhanced by a detailed description of the geometric pattern of the LVH as well as by the profile of systolic function found in the study sample. Confounding factors, such as systolic dysfunction with or without coronary heart disease, could have affected the blood pressure- LVH link.

5- Inter and intra-observer variability for the calculation of LV mass should be
presented.

All in all, this is an interesting study that deserves publication after the recommended essential revisions.