Reviewer's report

Title: Serum FGF-23 associated with the progression of coronary artery calcification in hemodialysis patients

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Reviewer: Gunnar Heine

Reviewer's report:

The authors aim to associate coronary artery calcification and FGF-23 in a cohort of HD patients. This idea is not without interest. However, data presentation is suboptimal. The cohort is (probably post-hoc) divided into (too) many sub-cohorts (progressors vs no progressors, CAC low vs high, FGF-23 low vs high), which renders the risk of multiple testing. This is of uttermost importance, as major study results were found only in subgroups of patients (association between FGF-23 and CAC progression). Therefore, it must be very clearly stated whether subgroups had been defined before analysis, or afterwards, which is likely.

Major Compulsory Revisions

Introduction: „especially fibroblast growth factor 23 (FGF-23) is implicated in the pathogenesis of vascular calcification”. There are controversial data on the impact of FGF-23 on calcification. Very topical evidence suggests against a direct contribution (Scialla et al KI 2013). The authors will have to critically discuss this study.

The authors state all patients to be on dialysis for four hours, which would be an unusual “one size fits all” approach. Moreover, double pool Kt/V is very high for this rather short dialysis time, and the authors should double-check integrity of this information.

How did the authors calculate One year-mean serum phosphorus levels?

How does the assay applied compare to the more established Kainos or Immunotopics assays?

It is uncommon to present non-linearly distributed data as mean ± standard error. A more conventional way would be to use median and IQR

Please be precise with all information. Significance between PG and NG was p = 0.04 in the text, and p=0.048 in Table 2

Please avoid redundant data presentations. FGF-23 in PG and NG is given in the result section, in Table 2, in Figure legends and in the Figure 1!

Why did the authors log-transfer CACS in the logistic regression model, but not FGF-23?
Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.