Reviewer's report

Title: Risk factors of one year increment of heart calcifications and survival in hemodialysis patients

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Reviewer: charles chazot

Reviewer's report:

In this manuscript Coen et al report in 81 prevalent HD patients the progression of Agatston score studied twice in 18 months using multislice computed tomography (MSCT) and the factors that are associated with this progression. The progression of Agatston score is associated with increased mortality and is related to age, PTH and calcium. Although the study of calcification progression from repeated MSCT is really valuable, important comments and questions come from the reading:

1- The patient cohort is prevalent with a large vintage. There is a high risk of confounding effects including patients on HD treatment for a long period as they appear as "survivors" or "selected". Moreover only 8 have diabetes. It then appears that this etiology is under-represented in this cohort. The dialysis strategies appear very different from one patient to another (membrane type, convection use,…). All these limitations should be discussed.

2- The normal BMI values are not those recommended by the EBPG for dialysis patients (>or=23 kg/m²). It may affect the relationship between BMI and calcification score and its evolution.

3- It is necessary to clarify when calcitriol was stopped

4- The presentation of statistics is confusing. It should be presented step by step: relationship between baseline factors and Agatston score, between baseline factors and Agatston score variation, Agatston score tertiles and their relationship with baseline parameters, LN transformations and their influence on the results. I would suggest one table by test.

Moreover percentage should be abandoned for OR and extreme values provided.

What is the validity of a statistical test if the data transformation has discarded a number of subjects? Please precise the validity of the transformation.

Because it has been deeply involved in calcification pathophysiology, and even if negative, phosphate influence on calcification score and it progression should be clearly presented.

It is difficult to admit strong prediction when p=0.049 (basal Agatston score and higher mortality in the higher score tertile)

5- The KDIGO does not recommend anymore the use of CaxPh product as a marker of BMD in CKD patients. The authors who use it should comment on that.
6-Why blood pressure was not added in one model as hypertension was found associated to calcification progression?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests