Reviewer's report

Title: Fibroblast growth factor-23 and calcium phosphate product in young chronic kidney disease patients: A cross-sectional study

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Reviewer: Justine Bacchetta

Reviewer's report:

This paper from Liu, Filler et al is interesting and well-written. Briefly, it reports bone and mineral metabolism in a cross-sectional study of 102 young CKD patients, describing for the first time in such a population a positive association between FGF23 and calcium/phosphate product.

Major comments

In the inclusion criteria, patients are ‘free of vascular calcifications’; however, can a single plain chest X-ray rule out the presence of vascular calcifications? Moreover, were some vascular and cardiac data available in this cohort as well as growth data? They should be added in Table 2.

A past of renal transplantation may be a confounding factor, and in Table 2 the proportion of patients receiving corticosteroids in each group should appear. Do you find an effect of corticosteroids (used both in glomerular diseases and in transplantation probably) on FGF23 and other parameters of mineral metabolism in your cohort?

Table 2: the age in the different CKD group should appear, since phosphate levels are greatly influenced by age. Moreover, the phosphate levels should be expressed depending on age (for example in SDS using the references published by Carpenter); in Table 2, one normal level for serum phosphate when patients are aged between 2.5 and 27 years does not seem logical.

The affirmation that FGF23 production increases in response to hyperphosphatemia during CKD should be taken with caution: in the results from the CKiD cohort, while FGF23 levels begin to increase at the early stages of CKD, there is an initial drop in serum phosphate level.

Minor comments

In the background end stage renal disease is abbreviated as CKD?

In the background, increased FGF23 levels when GFR decreases may be explained by a decreased renal clearance, but not only, and it should be clarified in the introduction and not later in the discussion.

At the end of the background ‘in children and young adults, where the confounding factors associated with later age are not yet present’: are not yet or
are less present? See the paper published by Goodman and Salusky in the NEJM (that should also be referenced).

The PTH assay used for this study should be detailed.

Another limitation should be discussed in addition to the absence of urinary phosphate excretion: the absence of nutritional assessment of phosphate intake.

Table1: no need for 2 decimals

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests