Reviewer's report

Title: Is there an association between elevated or low serum levels of phosphorus, parathyroid hormone, and calcium and mortality in chronic kidney disease patients? A meta-analysis

Version: 1 Date: 4 January 2013

Reviewer: David Leaf

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Major Comments

1. Page 8: “We did not attempt to contact study authors to inquire about missing data or exact values of graphical elements.” Why not? This would have strengthened the study.

2. Page 32-38: Table 1, which is 7-pages long, would be more appropriate as supplementary material.

3. Page 41-42: It is not necessary to provide the definition of “risk ratio.” An educated reader will know what this means. Similarly, it is not necessary to define that “if the confidence interval contains 1, the RR is not statistically significant.”

4. Page 43: It appears that there is an error here. The 95% CI for low PTH contains 1, however, the p value is significant. On the other hand, the 95% CI for high PTH does not contain 1, yet the p value is not significant. Perhaps the authors mistakenly switched the p values?

Minor Comments

5. Throughout the manuscript, including the title, the authors use the term “chronic kidney disease.” However, their study population is limited to patients with end stage renal disease on dialysis. In general, the term “chronic kidney disease” refers to patients who are pre-dialysis. Therefore, their use of the term in this manuscript is misleading. They should replace this with “end stage renal disease (ESRD)” or “end stage kidney disease (ESKD).”

6. Page 4: it is redundant to say “ESRD” and also “requiring dialysis.”

7. Page 4: “Nevertheless, a qualitative assessment of the studies led them to conclude that abnormalities in certain biochemical parameters…” The authors should specify what kind of abnormalities. High or low?

8. Page 5: It is highly unorthodox to refer to figures in the introduction.

9. Page 13: last paragraph of the results section. The authors should avoid speculating in the results section. This is more appropriate in the discussion.
10. Page 13-16: It is unorthodox to refer to tables in the discussion.

11. Page 14: the authors should soften the wording where they state, “The lack of statistical significance for lower values of phosphorus and PTH is partly attributable…” Instead, they might consider writing, “The lack of statistical significance…MAY BE partly attributable…”

12. Page 43: it is not necessary to provide the Q statistic and the degrees of freedom. The Risk ratio, 95% CI, I2 statistic, and p value are sufficient.

**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:**

None