Reviewer's report

Title: Conversion to lanthanum carbonate monotherapy effectively controls serum phosphorus with a reduced tablet burden: a multicenter open-label study

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Reviewer: Rajnish Mehrotra

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In this study, the investigators present the results of a large phase IV study done with lanthanum carbonate in which HD patients treated with other phosphate binders were switched to a 16-week period of treatment with lanthanum carbonate. The study enrolled 2763 subjects at 223 sites. The authors report that switching patients to lanthanum carbonate maintained the serum P in the same range as with the previous medications but was associated with a lower tablet burden, lower total daily dose, and greater patient and physician satisfaction and preference.

These general findings have been reported before for the drug lanthanum carbonate - the difference is that this is the largest assessment of the issue to date.

1. There is some form of disconnect in the argument presented - I agree with the authors that a lower tablet burden is a desirable thing with regard to patient adherence. But if adherence improves, so should serum P level. However, it did not. This demonstrates that while lowering tablet burden is good, it is not sufficient to affect the outcome of interest. This should be discussed more in the Discussion.

2. The authors present the results of daily dose in Figure 6. I would rather prefer for them to present the change in tablet burden. Patients don't really care how many mg of a drug there is in a tablet or a capsule but the the number of tablets they need to take.

3. In the abstract, I would urge the authors to include the % of patients with controlled serum P with the drug at the end of the 16 weeks. Furthermore, I think for the authors to report the mean dose of the drug only among those with controlled level is not a correct representation of the prescribing pattern to be experienced in clinical practice. I would suggest that the authors report the mean drug dose in ALL patients in the study or remove it.

4. I don't mean to sound self-serving but I would urge the authors to discuss their findings in light of our recent publication on pill burden, quality of life, and adherence (Chiu et al, CJASN 2009) - a study that has external validity given that it was done at three different sites in the United States and is the only study to have considered pill burden (as distinct from number of medications).
5. There are two issues that need clarification. At this time, the 250 mg tablet is not available in the United States but was used in the study. The authors should present the time period over which the subjects were recruited. Moreover, the authors should clarify if the older formulation or the new "optimized" formulation was used for the study. Second, it is unclear why the dose was capped at 3750 mg. Moreover, did the patients at the higher dose continue to use either the 250- or 500 mg dose or could be switched to the 750 mg or 1000 mg dose? That would be useful information for the readers when considering pill burden.

6. The authors have to be careful about over-interpreting the "preference" and "satisfaction" data, particularly for the physicians. These physicians were, after all, investigators in a study sponsored by the manufacturer - they probably had good opinions about the drug and hence, this finding has limited external validity.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have received grant support, served as an ad hoc consultant, and received honoraria for speaking engagements from Shire Pharmaceuticals - the manufacturer of lanthanum carbonate.