Reviewer's report

Title: Regression of left ventricular mass following conversion from conventional hemodialysis to thrice weekly in-centre nocturnal hemodialysis

Version: 1 Date: 24 October 2011

Reviewer: Robert Lindsay

Reviewer's report:

• Major compulsory revisions

1. It would be of interest to the reader to know whether the change in LVM that you have shown is similar to that shown by the other studies that you quote? Is there any potential difference between the LVM change in those given longer, intermittent dialyses to those who are receiving daily or nightly dialysis? In this regard, The Frequent Hemodialysis Study on home conventional dialysis versus six nightly hemodialysis treatments should also be referred to. The results of this study are now well known. It was presented at ASN 2010 and the e-publication from Kidney International appeared on the 20th of July of this year.

2. You should indicate whether or not papillary muscle was included in the measurement of left ventricular mass. This may be of importance when looking at various studies. The Alberta study, for example, did include papillary muscle mass whereas the Frequent Hemodialysis Network studies (both daily and nocturnal) did not.

3. There should be a definition of “normal” for left ventricular mass. An indication of how many patients had “normal” and “increased” LVM pre-conversion should be stated and how this related to the dialysis vintage. What happened to those patients who had a “normal” LVM at the first echocardiograph? One can only assume that if you start off with a “normal” heart a change to more intensive dialysis is not going to lead to reduction in LVM. In similar fashion, with the mixed model analysis, were there patients who showed a decrease in LVM before the conversion date? Decreases were certainly noted in the control patients in the daily FHN trial. Similarly in the daily FHN trial, there were some patients in the six times per week arm who showed an increase in LVM. Therefore, it would be of great interest to know in how many patients this was observed on in your study.

4. Table 1 should include information on residual renal function of the patients specifically those anuric versus those with reasonable remaining urine volumes which of course might influence the development of left ventricular hypertrophy.

5. In a similar manner, there should be information on interdialytic weight gain and pre-dialysis plasma and dialysate sodium concentrations.

6. It would be very interesting to know what impact many of these factors mentioned above e.g. residual urine volume, plasma to dialysate sodium gradient, interdialytic weight gain, etc. as well as the type of access (arterio-venous vs. central catheter) might have had on any change in LVM. It
has to be accepted that the numbers in this study will be insufficient to gain
answers but the possible role for future studies could be addressed in the
Discussion

• Minor Essential Revisions

1. Under background, second paragraph – Is “nighttime” spelled or should it be
hyphened? Also the last sentence of that paragraph should read, “unfortunately,
only a minority of CHD patients are capable of …” (not is)

2. Under Methods, paragraph 2, first sentence – Baxter CA 210 and Xenium 210
are dialyzers not dialysis membranes. The sentence should state that but
perhaps go on to say “… containing cellulose tri-acetate (for the CA 210)” or
whatever is in the Xenium dialyzer. That paragraph should also contain
information of dialysate sodium concentrations and somewhere there should be
information on patients pre-dialysis sodium concentrations

3. Methods – electrocardiographic data, was papillary muscle included in the
calculation of the LVM?

• Discretionary Revisions

1. If the information is available, it would be interesting to have a value for
standard weekly Kt/V (urea) only for comparison with the other published studies.
There are obvious differences in the percentage reduction in urea between
various treatment modalities.

2. Under Discussion, paragraph 6 (on discussion of LVM estimation by
electrocardiographic methods) – You indicate that while INHD provides more
intensive dialysis, the interdialytic interval remains essentially unchanged from
conventional hemodialysis and “thus, interdialytic weight gain would not be
expected to change following conversion to INHD”. I am not sure that this is
necessarily true. It could well be influenced by the serum sodium to dialysate
gradient because of the greater time exposure of blood to dialysate. In a situation
where dialysate sodium exceeds pre-dialysis plasma sodium, diffusive salt
loading to the patient takes place and the only method for sodium removal is by
convection and hence, the ultrafiltration volume. In a situation where the plasma
sodium is higher than the dialysate sodium diffusive losses of salt will also take
place. This will definitely lead to a reduction in the interdialytic weight gain.

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.