Reviewer's report

Title: Would artificial neural networks implemented in clinical wards help nephrologists in predicting epoetin responsiveness?

Version: 1 Date: 16 August 2006

Reviewer: Ken Farrington

Reviewer's report:

General
In general the authors have satisfactorily addressed the concerns of the previous reviewers. I have suggested some discretionary revisions which I think would be of clinical interest.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

1. The previous reviewer’s criticisms of the regression method used to calculate the epoetin dose required to obtain the target haemoglobin of 11.5 g/dl to be addressed in the discussion.

2. The contents of the combined databases are different, the smaller EOC containing many more parameters (including Kt/V, CRP, serum albumin, PTH and intravenous iron dosage), than the larger AIMS. The authors point out that ANNs tend to tolerate missing data. It would be worth discussing the effect of such missing parameters on the study's findings, not just with respect to the performance of ANNs but also with respect that of multiple regression models which tolerate missing data much less well. If the combined database had contained more information on such parameters, (and such data is usually readily available in the clinical setting), would the regression models have performed better?

3. Intercurrent illness, access infections and thrombosis, and surgical operations are potent causes of reduced response to epoetin. Patients with these problems do not seem to have been excluded from the study yet such parameters do not appear in the data set. Some comment on the effects of this on the findings would be helpful.

4. The assumption that the decision of a nephrologist to increase epoetin dose indicates a prediction of follow-up haemoglobin level < 11g/dl one month later needs some justification particularly with respect to the anticipated timing of the full effect of a dose change.

What next?: Accept after discretionary revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.