Reviewer's report

Title: Effects of thoracic epidural analgesia on plasma cAMP and cGMP levels in patients with heart failure

Version: 1 Date: 26 April 2013

Reviewer: Peter Alston

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This is an interesting study that examines the effects of using thoracic epidural anaesthesia (TEA) along with standard pharmacological treatment, to treat heart failure. It examines a number of symptomatic, biochemical and surrogate outcomes. However, it has a number of limitations.

Major compulsory revisions

1. There is no information describing how the patients were selected for inclusion in the study.
2. Insufficient detail of the patients characteristics and drug therapy were provided and the cause of the patients heart failure.
3. Insufficient details regarding the randomisation and blinding have been provided.
4. Details of the ethical approval should have been provided.
5. Information regarding where the patients were during the study and how they were managed should have been provided.
6. An explanation why the four week period was used should have been provided.
7. No study population size estimate was provided to justify the sample size of the study.
8. Multiple testing was applied inflating the risk of Type 1 statistical error. Correction for multiple testing should have applied or one outcome nominated as the primary outcome of interest and the rest as secondary outcomes.
9. Details of the reliability of the biochemical tests should have been provided as well who performed the tests.
10. Details of who performed the ultrasonography should have been provided and with what kind of machine. Details of how the ultrasound measurements were performed should also have been provided.
11. Details of what statistical package and on what operating system should have been provided.
12. Information who gave the epidural top ups should have been provided and why the drug, dosing and timing of top-ups were chose.
13. There is no evidence that the distribution of the data was normal. It is likely
that the biological data was of non-normal distribution and if so it should have been first transformed using something the natural logarithm so that it was near-normal distribution.

14. It would have been valuable to have presented the distribution as 95% confidence intervals.

15. The New York Heart Association classification of symptoms were assessed but do not appear to have been statistically analysed

16. No details of the analysis of variance models were presented.

17. Complications should have been more completely reported as it is not clear what bleeding and infectious complications are i.e. did they have epidural haematomas or abscesses. If either of these complication occurred then it outweighs any symptomatic benefits associated with TEA.

Minor essential revisions

1. There is excessive duplication of results and tables. All the data could have been summarised in one table.

2. There should have been more discussion regarding the limitations of the TEA.

3. Acronyms should be defined the first time that they are used. They should also not be used in titles for figures or tables.

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

Quality of written English: Needs some language corrections before being published

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’