Reviewer’s report

Title: The Association between Statin Therapy during Intensive Care Unit Stay and the Incidence of Venous Thromboembolism: A Propensity Score-Adjusted Analysis

Version: 3 Date: 15 August 2013

Reviewer: Peter Kruger

Reviewer's report:

Major comments:

1. I have some significant concerns about the survival data. What is now figure 2 (survival analysis) is different from the figure/data presented in the original manuscript. The pattern and number of deaths appears to be different and the authors state in their reply “We have noticed that the coding for the outcome variable during hospital mortality analysis has been corrected” – I presume this means a new analysis has been done on different data from that presented in the original manuscript. Perhaps the authors can clarify exactly what errors existed, what re-analysis has occurred and how this new version of the data has been verified as true and correct. I note that no mortality data is presented in the original published manuscript of the main study to allow external verification.

2. I disagree with the conclusion in the abstract and the discussion. It would be better to just state what the study shows – I’m not sure what reported results “support the hypothesis that such association may actually exist”. I think the paragraph that comments on this in the discussion is speculative and doesn’t warrant drawing this as a final conclusion.

3. Different statistical significance values are presented on figure 2 (log rank p=0.08) from in the text (p = 0.10) and table 3 – please clarify.

4. Aspirin use would seem a logical factor that may influence the results of the study and from my understanding logistic regression methodology does allow for inclusion of variables within a model under such circumstances. Could the authors comment on if this data was collected and found not to relate to the outcome or not collected? – in any case a brief comment in the discussion is warranted.

5. Further to my previous comment regarding the clinical detection of the primary outcome. From the data presented I would take this to mean that for every patient that DVT was clinically suspected it was subsequently confirmed with imaging and hence recorded as a positive outcome. Is that correct? Did any patient have a suspected DVT that wasn’t confirmed with imaging or perhaps got some imaging that showed a DVT that wasn’t clinically suspected? My point is that perhaps the discussion needs to acknowledge that it might be possible that not all DVT’s were detected (you would really need to ultrasound everyone in the
study to remove all bias) and perhaps the results need to clarify how often it was looked for and how often it was found?

Minor Comments:

1. Abstract wording adjustment: Studies have shown that statins have pleiotropic effects as well as on inflammation and coagulation which may affect the risk of developing VTE. Delete “as well as” to improve clarity.

2. I’m not sure the wording of “block stratified” has meaning in the abstract – it may just confuse the readers – I think this would be best removed from the Abstract.

3. Results – number of DVT = 15 (put in the %) as you have for statin use to keep consistent.

4. I’m unsure if it is reasonable to say that a HR of 1.26 vs 0.98 in the block stratified analysis is “similar” although I agree both are not statistically significant.

5. Table 2 – could have the n (%) clarified in the column headers (n,%) and n (%).

6. Table 3 heading should include “and Hospital Mortality” and so should read … crude and adjusted analysis of VTE risk and Hospital Mortality …. In addition the * in the footnote needs a mention in the table or header (likely to follow the adjusted analysis sections in both).

**Level of interest:** An article of importance in its field.

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

**Statistical review:** Yes, and I have assessed the statistics in my report.