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:** 27 July 2013

**Reviewer:** Maura Marcucci

**Reviewer’s report:**

The authors addressed the reviewers’ comments in a quite exhaustive way.

Only one of their replies requires a further comment. In response to the reviewer 1’s comment on the selection of the variables to enter the propensity score, and to the reviewer 2’s comment on the overlooked role of variables (e.g. aspirin use, a history of cardiovascular diseases) possibly related to the outcomes and to statin use, the authors modified the text writing “Variables included in the propensity score generation model were selected according to their relationship to the outcome (VTE) rather than the exposure (statin therapy) as has been shown to reduce bias and variance of estimated exposure effect”, and supported their choice using the following two references:


Actually to select variables associated to the exposure or to select variables associate to the outcome are only two of the possible ways of selecting variables to include in a propensity score. One might select variables associated both to the exposure and to the outcome (i.e. confounders). The two examples provided by the Reviewer 2 were thought to belong to this third option. In fact, the two simulation studies cited by the authors found not only what the authors reported as justification for their selection criteria, but also that confounders performed well; from the PubMed abstract of the article by Austin et al:

“(…) We demonstrated that all propensity scores models balanced measured confounders between treated and untreated subjects in a propensity-score matched sample. However, including only the true confounders or the variables predictive of the outcome in the propensity score model resulted in a substantially larger number of matched pairs than did using the treatment-allocation model (…)”.

Therefore, I suggest that the authors leave the sentence as they wrote, and the references as they are, but that they recognize that they could have used that
third criteria. They might do that for example, in Discussion, among the limitations (together with the impossibility to take into account the unknown confounders, they should say that they did not look for confounders at all, if not patient age).

**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 declare that I have no competing interests