Reviewer’s report

Title: Serum procalcitonin for the early recognition of nosocomial sepsis in the critically ill patients: a preliminary report

Version: 1 Date: 18 January 2009

Reviewer: Corsino Rey

Reviewer’s report:

The authors have designed an observational study with a novel approach of using a procalcitonin (PCT) elevation within the hours preceding the suspicion of infection to diagnose nosocomial sepsis.

MAJOR COMPULSORY REVISIONS
1. The major problem is related with the classification of patients and episodes.
   a) I do not understand the mix between ventilator associated pneumonia (VAP) and sepsis. PCT values are different in VAP and sepsis. Therefore, the mix of episodes could be inappropriate.
   b) The authors showed VAP criteria (reference from 1991??) but not sepsis criteria.
   c) I do not understand the reason to only have 11 eligible patients from 123 episodes of bacteraemia. Majority of episodes were lost and the sample size is very short to analyze any result.
   c) Did the authors mixed 41 patients with proven VAP with 11 patients with proven sepsis? Then, the number of nosocomial sepsis will be 52. A flow chart of patients and episodes included in the study and its classification in VAP or sepsis would greatly strengthen the manuscript.
2. Results obtained from VAP patients must be shown, and compared with data from bacteraemia-septic patients.
3. PCT is a diagnostic marker of sepsis, not a risk factor of sepsis. Therefore, multivariate analysis including table 3 are not necessary and should be deleted.
4. The area under the ROC curve was higher for PCT variation between D-1 and D0 than for PCT at D0 (0.89 vs 0.80). Did they analyze if the difference was statistically significant?
5. Limitations of the study. “Most of the proven sepsis was VAP”. In my opinion VAP and sepsis are different pathologies, and PCT increases more in sepsis (specially in severe sepsis and septic shock) than in VAP.

MINOR ESSENTIAL REVISIONS
1. Abstract. There is no objective of the study.
2. Results. In the text “As shown in Table 1, the baseline characteristics of the patients…/… except in terms of gender and age”. In Table 1, p value for age
3. Table 4. Specificity and positive predictive value were acceptable, but sensitivity and negative predictive value were poor. Did they analyze other cut-off values with better sensitivity and worse specificity?

**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 had received speaker honoraria from Brahms (the manufacturer of procalcitonin assays) to attend meetings related to procalcitonin and sepsis.