Reviewer's report

Title: Effect of vancomycin serum trough levels on outcomes in patients with nosocomial pneumonia due to Staphylococcus aureus: a retrospective, post hoc, subgroup analysis of the Phase 3 ATTAIN studies

Version: 2 Date: 28 August 2013

Reviewer: John A Bosso

Reviewer's report:

This post hoc analysis provides some interesting information about the relationship between vancomycin trough concentration and efficacy in patients with hospital-acquired pneumonia. Due to acknowledged and other limitations described below, the information on nephrotoxicity adds nothing to existing knowledge regarding nephrotoxicity and its relationship to magnitude of trough concentration. If this paper if further pursued by the journal, it should emphasize the efficacy component and treat observations about the relationship between nephrotoxicity and concentrations as casual observations (basically because once other risk factors for nephrotoxicity were considered, numbers of relevant patients were inadequate for robust analysis). Specific comments follow:

1. pg 6, line 97: it is unclear whether the population you evaluated here received vancomycin for 7-21 days or merely received #1 dose. Which was it? The latter is hardly a appropriate group to assess efficacy or toxicity. At a minimum, provide mean or median LOT for each group, along with ranges.

2. pg 6, line 100: why are statistical analysis methods not presented here? What was the pre-defined critical level?

3. pg 7, line 118: it is of potential importance to know what the previous antibiotic therapy was. Certainly previous exposure to certain antibiotics could be a major risk factor for vancomycin nephrotoxicity in this study.

4. pg 7, line 120: in a study of nephrotoxicity, this observation (existing renal failure) cannot be minimized as it is logical that it influenced the results. It barely "missed" significance.

5. pg 8, line 130: here is the problem with failing to provide sufficient information about statistical methods and a priori definitions. A p of 0.03 only indicates a trend with cure rates but is significant for AE incidence? The reader should not have to consult footnotes to tables to understand statistical methods.

6. pg 8, line 133: while this is consistent with the cited literature and with a large, multicenter, prospective trial (AAC 2011;55:5475-9) not cited, with only 3 applicable patients, this analysis/observation is of questionable validity.

Level of interest: An article of limited interest
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