Reviewer's report

Title: Severe Pneumococcal Community-acquired Pneumonia: Prognosis in Patients Treated by Beta-Lactam and Quinolone

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Reviewer: Stefano Aliberti

Reviewer's report:

Major Revisions
The study has several methodological problems.
Methodological issue
Aim and design
There is a discrepancy among the aim of the study, the design of the study and the main findings.
- Aim: "to analyze risk factors for mortality in patients treated by a combination of B-lactam plus fluoroquinolone for severe pneumonia." -->based on this aim, readers would like to see definitions/aOR of factors associated with mortality in this group of patients.
- Main findings: "Levofloxacin combined with b-lactam is more effective than ofloxacin or ciprofloxacin combined with a b-lactam in severe pneumococcal CAP." -->This speculation cannot be derived from the design of the study applied and the data presented.
- Design: Dr Olive and coworkers designed a retrospective observational study during 13 years. During this long period different techniques have been developed that could have impacted the outcome analyzed as correctly mentioned by the authors. Based on the particular objective presented in the introduction, authors could think about different designs, such as a nested case-control study or a therapeutic observational retrospective study.
- Study population: It would be interesting to have the number of patients with CAP admitted to the ICU during the long study period in order to have an idea regarding the inception cohort. It should be noticed that the study period was composed by 13 years with 83 severe pneumococcal pneumonia (6-7 patients/year) enrolled. This should be explained by the authors who should also provide information regarding the study setting (which king of ICU? Where? Hospital beds? and so on)
Definitions / criteria:
- Authors should better clarify the definition of severe CAP: patients admitted to ICU? PSI risk class 4?? My suggestion would be to include all the patients admitted to ICU or those with a PSI risk class of 5 according to the previous literature.
- Is not completely clear to me the reason why the authors have decided to exclude penicillin-resistant strain of SP. Please, clarify.

- Authors should give references for the appropriate drug dosages given in the manuscript.

- It would be also necessary to give the exact definition for septic shock that is included in the multivariable analysis in the results section but not mentioned in the Materials & Methods section.

- The definition for time to clinical stability is well standardized in literature (see papers published by Halm, Menendez or Julio Ramirez). Authors could use criteria for clinical stability already validated in literature.

Outcome

I strongly suggest to focus the analysis just on one outcome. The outcome mentioned on page 9 that was associated with septic shock, age, and initial treatment is not clear to me. What kind of mortality was used in this case? Mortality on day 15, day 28 or ICU discharge? Furthermore, what is the rationale in analyzing only mortality on day 15, day 28 and at the time of ICU discharge? Why did not the authors choose only the mortality at ICU discharge as the sole outcome?

Speculation

As data are presented, authors cannot declare that “when severe CAP causative agent in SP, a combination levofloxacin plus a beta lactam is more effective than a combination ofloxacin or ciprofloxacin plus beta lactam”. This sentence in the Discussion section cannot be accepted.

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