Reviewer’s report

Title: Chronic Periodontitis and Community-acquired Pneumonia: A Population-based Cohort Study

Version: 0 Date: 03 Dec 2018

Reviewer: Te-Chun Shen

Reviewer's report:

Comments:

Thanks for give me the chance to review the article, which entitled "Chronic Periodontal Diseases and Community-Acquired Pneumonia: A Population-Based Cohort Study". The study aimed to assess the association between chronic periodontitis (CP) and community-acquired pneumonia (CAP). The novelty of the topic is sufficient, the clinical significance is important, the design is somewhat reasonable, and the manuscript is well-written. However, I still have several concerns regarding the study.

Major points:

(1) Definition:

1. Hospital-acquired pneumonia (HAP) refers to pneumonia occurring 48 hours after admission. It's right, but if a pneumonia develops within 3 days from the last discharge; it is also considered to be a HAP. How do you exclude the condition? Furthermore, in the study design, I do not see the method to exclude HAP from the overall pneumonia (J12-J18). (The coding in the database is usually a discharge diagnosis, which could not distinguish CAP or HAP.)

2. CAP refers to an acute infection of the lungs in people who have not been recently hospitalized and are not regularly exposed to the health care system. So how do you manage those people who are regularly exposed to the health care system, such as people undergoing regular hemodialysis or those living in the nursing home? (NOT a CAP)

3. In the study design, the main outcome was "admission by CAP". As we know, many CAPs can be treated in the out-patient department (without admission). Therefore, the study could not catch all CAP events. The authors should clarify this.

Maybe the authors need to consult a chest man to revise the study design.
(2) Abstract

You have a statement that "Compared to individuals without CP, individuals under the age of 65 who had CP had an increased risk of CAP (HR, 1.11; 95% confidence interval, 1.04-1.18)" in the abstract. I did not see the related analysis in the text and table, why?
And if the statement is correct, the association between CP and pneumonia is really existed.

(3) Analysis

The authors should clearly define the end point of the study. How do you calculate multiple pneumonia events in one person? The authors should present the incidence density rate (events/person-years), not only the event numbers in their Results and Tables. This will help to know the true difference between CP and non-CP groups.

(4) Discussion

Since you have mentioned that CP may have the possible association to aspiration pneumonia (J69.0), could you provide the data of incident aspiration pneumonia in your CP and non-CP groups?

(5) Limitation

The absence of the detailed type, severity, and pathogens of CAP should be noticed.

(6) Conclusion

I think the results do not fully support and reach the conclusion now.

Minor points:

1. The title shows "chronic periodontal diseases", but the text usually shows "chronic periodontitis". I think it is better to use the same term, chronic periodontitis, in the whole article.

2. The abbreviation, CP (chronic periodontitis), should be defined again in the Background section, not only in the Abstract.

3. Table 1: "periodontitis" should be revised to "chronic periodontitis".

4. Table 2 and Table 3: "healthy" subjects should not be included into chronic periodontitis.
5. Table 3: "chronic periodontal diseases" should be revised to "chronic periodontitis".

6. Table 4: "chronic periodontal diseases and non-chronic periodontal diseases" should be revised to "severe chronic periodontitis and non-severe chronic periodontitis".

7. Table 5: "chronic periodontal diseases" should be revised to "severe chronic periodontitis" and "pneumonia" should be revised to "community-acquired pneumonia".

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

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