Author’s response to reviews

Title: Association between dementia and discharge status in patients hospitalized with pneumonia

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Response to the Reviewers’ comments

Dear Dr. Nicola Murgia and Reviewers

Thank you very much for reviewing our manuscript and kindly providing us with the opportunity to revise our manuscript entitled "Association between dementia and discharge status in patients hospitalized with pneumonia" (PULM-D-16-00308)
We have addressed your comments with point-by-point responses, and revised our manuscript accordingly. The revised portion of the manuscript were highlighted in yellow and our point-by-point responses to the reviewers’ comments are attached.

We hope that we have addressed all of the reviewers’ comments satisfactorily and made appropriate changes in the revised manuscript. Your kind consideration for possible publication in BMC Pulmonary Medicine is highly appreciated.

Yours sincerely,

Taisuke Jo

Reviewer’s comments:

Reviewer #1:

1- Please, explain with more details the cox regression analysis. If the data is unadjusted, you should do it adjusted.

Generally, “Cox regressions” are multivariable adjusted analyses. We performed multivariable Cox regression analysis with adjustment for the following covariates listed in the methods: dementia, age, sex, BMI, BUN >21 mg/dl, SpO2 <90%, impaired consciousness, systolic blood pressure <90 mmHg, cancer, hemodialysis and intensive care unit admission. In the revised manuscript, we have added the word “multivariable” to the title of Table 3 and also added the word “adjusted” to the line 5 in page 9.

2- Define impaired consciousness. What cut-off did you use for Japan Coma Scale?

Japan Coma Scale score 0 denoted alert consciousness; scores 1–3 denote delirium; scores 10–30 denote somnolence; and scores 100–300 denote coma. In the present study, Japan Coma Scale scores ≥1 were defined as “impaired consciousness”.(page 5, lines 6-8)

3- The authors should describe the A-DROP results of the patients included and adjust the analysis with this variable.
We included all the items of A-DROP (BUN >21 mg/dl, SpO2 <90%, impaired consciousness, and systolic blood pressure <90 mmHg) in the independent variables in the Cox regression analysis. We have added the following comments in the Methods: “The independent variables included dementia, age, sex, BMI, cancer, hemodialysis, intensive care unit admission and the A-DROP items; BUN >21 mg/dl, SpO2 <90%, impaired consciousness, systolic blood pressure <90 mmHg.” (page 6, lines 14-16)

4- The authors should describe if the patients had disfagia or use of tube gastric feed.

We have added the following sentence in the Results; “Dysphagia and nasogastric tube feeding was observed in 4,953 (11.0%) and 4,120 (9.1%) patients with dementia, respectively, and 19,980 (4.7%) and 22,123 (5.2%) patients without dementia, respectively.” (page 8, lines 4-6)

We have also added the following comments in the Discussion: “In the present study, dementia patients were more likely to have dysphagia. Reportedly, dysphagia was associated with increase in aspiration pneumonia [41] and discharge disposition [13,14] in stroke patients. Thus, the association between dementia and discharge home in the present study can be partly explained by the high proportion of dysphagia in the dementia patients.”

5- In the fig 1 you analyzed the Cumulative number of patients discharged to home in percentage, however in the figure you wrote cumulative survival. Please fix it.

We have changed the legend of Figure 1 accordingly. “Cumulative number of patients discharged to home shown in percentage”.

Reviewer 2: The authors can improve the quality of the manuscript by elaborating more on the background, methods, statistical analysis, results and the discussions. The authors should especially consider the use of imputation technique to address the missing data issue.

Thank you for your valuable advice. We have executed multiple imputation for missing BMI and A-DROP items. We have added a couple of sentences in the Methods. We have improved the numbers (%) in the Results and Tables. We have elaborated more on the backgrounds, methods, statistical analysis, results and the discussions accordingly.