

# Review of: "Tocilizumab Plus Corticosteroid in Elderly Patients Hospitalized With COVID-19 Pneumonia: A Retrospective Cohort Study"

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Potential competing interests: No potential competing interests to declare.

This is an interesting study looking for an improvement in older adult care in SARS-COV 2 related pneumonia.

There is in my opinion however major limitations which should mitigate or even modify the conclusions of the authors and should be resolved before publication on the impact of a lower dose of tocilizumab at 400mg.

Regarding the methodology:

1: The exclusion criteria makes the study open to bias:

- Why were patients with history of respiratory disease excluded? There should have no interaction with tocilizumab and is not an contraindication for corticosteroids. This is pointed as a limitation for generalization in the discussion but is still a disputable choice.
- The exclusion of patients who died or were hospitalized less than 3 days is not explained and might bias the result of either early benefits or toxicity of tocilizumab.
- Exclusion of vaccinated patients reduce the generalization of this study as stated in the discussion.

2: At which point of time were the patients in the comparator group included? At the start of corticosteroids? At the admission in hospital? Was tocilizumab always administered at the same time as corticosteroids in the tocilizumab population. What is the delay between hospital admission and treatment administration?

3: Did some patients >65 YO in your institution receive 800mg of tocilizumab? If so, were they included or excluded? The reason for the choice of using only tocilizumab at this dose in your institution should be clearly explained.

4: An evaluation of fitness of elderly patients should be reported as it is well described as an independant risk factor for mortality in this population.

5 : There is no report of decision not to intubate patients and its relative proportion among groups This could be a treatment allocation bias that interfere with your main outcome and should be reported in a population of older adults.

6: No statistical method was used to try and mitigate the bias du to the retrospective and non-interventional non

randomized character of this study. Despite their limitation, a multivariable analysis or a propensity matching with at least age and baseline respiratory support and type of units (ICU or ward) may modify the results and limit the bias.

7: There should have a definition of hepatic injury given in the text

Regarding the presentation of the results:

1: The 2 populations are extremely different in the severity of the disease. Tocilizumab appears to have been administered to the most severe cases based on the oxygen supports despite similar age and comorbidity profile. There is no mention of the units (ICU or ward) in the table 1, which may be a major confounding factor of treatment allocation.

2: The odds ratio of in-hospital mortality in the first paragraph of the results isn't reported.

3: The conclusion "it was associated with a clinically-important higher in-hospital mortality" cannot be present in the text as it is a secondary endpoint in two widely different populations. The effect observed might entirely be caused by treatment allocation bias.