

LETTER

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Letter to the editor—Mortality rate of acute kidney injury in SARS, MERS, and COVID-19 infection: a systematic review and meta-analysis

Joel Swai*

Dear Editor,

I have read with interest the published article entitled “Mortality rate of acute kidney injury in SARS, MERS, and COVID-19 infection: a systematic review and meta-analysis” by Chen et al. [1]. The article is well written, and I have three concerns as explained below.

Firstly, the mortality rate for COVID-19 patients with AKI is different in the text (i.e., 76.5%; 95% CI 61.0–89.0) from one reported in the authors’ Figure 1 (i.e., 78.0%; 95% CI 63.0–90.0). The authors might need to clarify this discrepancy.

Secondly, the authors mistakenly made a duplicate entry of the study by Chen et al. (2020) in the COVID-19 forest plot. This mistake resulted in a pooled AKI mortality rate of 78.0% (CI 63.0–90.0), $I^2 = 97.1\%$, $P < 0.0001$, instead of 53.99% (CI 52.34–55.65), $I^2 = 98.4\%$, $P < 0.0001$, had the authors sorted the duplicate-entry problem.

Thirdly, the authors concluded the mortality rate for COVID-19 patients with AKI from an otherwise a high

heterogeneity of $I^2 = 97.1\%$, $P < 0.0001$. This strongly impacts the reliability of the conclusion drawn [2].

I, on the other hand, reanalyzed authors’ data and performed sensitivity analysis according to the Cochrane Library recommendation [3]. I excluded six peculiar studies from the analysis. Alberici et al. and Banerjee et al. involved kidney transplant patients, unlike the rest of the studies. Wang et al. utilized intensive care unit patients, unlike other studies. Moreover, Alberici et al., Banerjee et al., Hirsch et al., Suwanwongse et al., and Richardson et al. included racially diverse participants. Different races have different COVID-19 mortalities [4, 5]. The nine remaining studies represented all-Asian Chinese hospitalized patients with COVID-19 and AKI. The newly obtained mortality rate for COVID-19 patients with AKI was 94.90% (CI 91.47–98.34), with non-statistically significant heterogeneity, $I^2 = 7.4\%$, $P < 0.375$, see Fig. 1. Sensitivity analysis could not be conducted in MERS and SARS outcomes because of an insufficient number of studies.

Authors’ response to “Joel Swai. Letter to the editor—Mortality rate of acute kidney injury in SARS, MERS, and COVID-19 infection: a systematic review and meta-analysis”

Yih-Ting Chen, Shih-Chieh Shao and Yung-Chang Chen

We thank Dr. Joel Swai for the interest in our research letter. As the author pointed out, the reported results of

mortality rate for coronavirus disease 2019 (COVID-19) patients with acute kidney injury (AKI) is different from the text and Figure 1c in the original publication of our article [1]. The problem is that we mistakenly made a duplicate entry of the Chen et al. (2020) study while performing the COVID-19 forest plot. We have noticed this critical issue and sent the

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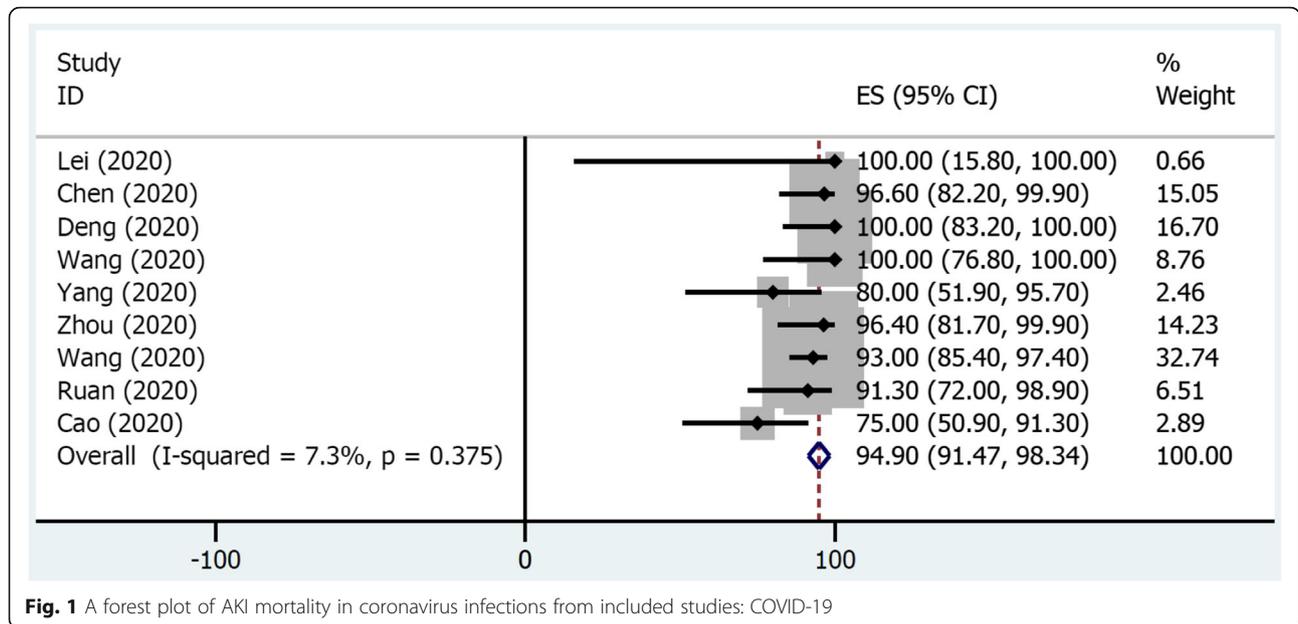
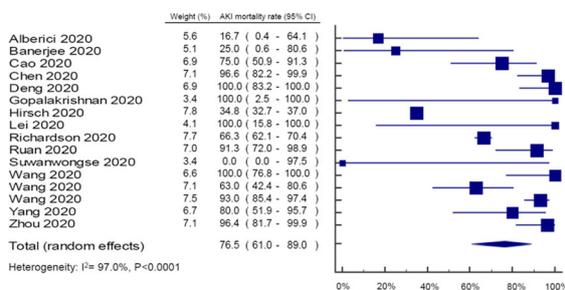


Fig. 1 A forest plot of AKI mortality in coronavirus infections from included studies: COVID-19

correct proof before the article publication; unfortunately, this mistake had not been accurately revised by the production team. We sincerely regret the inaccuracy may cause any inconvenience to the readers. However, there are no changes to the interpretation of the results, conclusions, and applications of our article. In details:

1. There was no evidence of statistical heterogeneity among studies reporting AKI mortality in SARS ($I^2 = 0.0\%$, $P = 0.589$) and MERS ($I^2 = 0.0\%$, $P = 0.758$), but there was for COVID-19 infection ($I^2 = 97.0\%$, $P < 0.0001$).
2. Figure 1c:



In addition, our research letter aimed to overview the AKI mortality in patients with different coronaviruses, but the clinical heterogeneity between studies should be also noted. One of the important factors may be the racial difference between studies as Dr. Joel Swai noted. Even if the recent study from Fisher et al. indicated the races are not

associated with mortality in COVID-19 patients developing AKI [6], future large meta-analyses may be suggested to explore the clinical impacts from different races in AKI mortality in COVID-19 patients.

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Author's contributions

JS drafted the manuscript. JS revised the manuscript critically for valuable intellectual content. JS approved the final manuscript.

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Consent for publication

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Competing interests

The author has no conflict of interest to declare.

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