

Peer Review File

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Reviewer A

Authors have mentioned their experience “Chest CT Imaging Features and Severity Scores as Biomarkers for Prognostic Prediction in Patients with COVID-19”

The following are the recommendations that needs attention for reconsideration of this manuscript. Please address all aspects pointwise to ensure that all concerns raised are well addressed. While submitting the revision, please use tracker, highlight the changes and let us know the paragraph/lines where changes have been made in separate document/response letter. References for the relevant papers provided, please discuss them and cite at appropriate places.

1. Please remove 123 in the title if that is a mistake.

Reply 1: We have removed “123” in the title. (see Page 1, line 2)

2. Introduction:

-I am sure, these stats will be changed during revision.

- See line “ The estimated mortality was 29 3.4% by the WHO as of March 3, but it was much higher at the early epicenter, 30 Wuhan in China (about 6%) and the current epicenter, Italy in Europe (about 13%)”- it is about and not about. Please also add some data from US in terms of mortality as now US is leading in terms of death. Please refer following/citations

*Sahu KK, Kumar R. Current perspective on pandemic of COVID-19 in the United States. J Family Med Prim Care 2020; 9:1784-91.

Reply 2: We have revised this paragraph, adding the latest data until August 19, 2020, also, we added some data from US in terms of death and referred the above citation. (see Page 3, line 57-68, with No Markup)

Changes in the text: A novel pneumonia named coronavirus disease 2019 (COVID-19) was first reported in December 2019 and rapidly spread around the world. Subsequently, the World Health Organization (WHO) announced COVID-19 outbreak as a pandemic on March 12, 2020. As of August 19, 2020, 10:38am CEST, a total of 21,938,207 confirmed cases, and 775,582 deaths were reported globally (1). The estimated mortality was 3.54%, which was much lower than the earliest epicenter of Wuhan in China (about 6%) and the subsequent epicenter of Italy in Europe (about 13%). So far, the United States of America had the largest number of COVID-19 cases (cumulative number of 5,393,138 cases as of August 19, 2020), but the mortality rate (about 3.14%) remained slightly below the average (2). Currently, the spread of COVID-19 is still getting worse in North America, South America, and South Asia, especially in the countries like United States of America, Brazil, and India.

- See line “Several studies (2-6) reported that older age, comorbidities (cardiovascular and cerebrovascular diseases), and elevated serum levels of D-dimer, high-sensitivity C-reactive

protein, and decreased lymphocytes are important high-risk factors leading to an increase of mortality rate in severe patients with COVID-19” I would also include other predisposing factors or immunocompromised individuals like cancer pregnancy at least. Please refer following/citations

* Chen Y, Bai J. Maternal and infant outcomes of full-term pregnancy combined with COVID-2019 in Wuhan, China: retrospective case series [published online ahead of print, 2020 Jul 21].

*Jindal V, Sahu KK, Gaikazian S, Siddiqui AD, Jaiyesimi I. Cancer treatment during COVID-19 pandemic. *Med Oncol*. 2020;37(7):58.

Reply 2: We have added cancer and pregnancy as predisposing factors of COVID-19 severity and referred the above citations. (see Page 3-4, line 71-77, with No Markup)

Changes in the text: Several studies (3-7) reported that older age, comorbidities (cardiovascular and cerebrovascular diseases), and elevated serum levels of D-dimer, high-sensitivity C-reactive protein (hsCRP), and decreased lymphocytes were important high-risk factors associated with an increase of mortality rate in severe patients with COVID-19. Besides, the severity of the disease was also related to some special conditions, such as tumors and pregnancy (8, 9).

3. Material and methods. See line “throat swab samples were enrolled in this study, including 62 recovered patients 60 (recovered group) and 72 deceased patients (deceased group). I am not clear how you selected the patients. Did more patient died than survived, if I am wrong please clarify?

Reply 3: Sorry for the confusion. To be honestly, the main part of this work was completed at the end of March. By then, we selected 72 deceased cases with at least one CT scan performed in our hospital from a total of 196 deaths; and just for the comparison, we randomly selected 72 discharged cases (10 was excluded for lack of laboratory exam results) with the initial CT scan performed in our hospital from a total of almost 2600 hospitalized cases in our hospital. Because our hospital was one of the largest medical centers designated for patients with COVID-19 and had the largest critical care center, and there were still many patients in hospital, so the data as of the completion of this study was not sufficient to accurately assess the overall mortality rate.

Changes in the text: N/A.

4. Discussion: As this disease is rapidly evolving, there might be few studies which are looking into the same way the authors are looking into it. While, every observation is significant, I want authors to rewrite at appropriate places their discussion if there are similar studies, so that a brief comparison can be done. Please refer following/citations:

* Zhang J, Meng G, Li W, et al. Relationship of chest CT score with clinical characteristics of 108 patients hospitalized with COVID-19 in Wuhan, China. *Respir Res*. 2020;21(1):180.

* Qin L, Yang Y, Cao Q, et al. A predictive model and scoring system combining clinical and CT characteristics for the diagnosis of COVID-19 [published online ahead of print, 2020 Jul 1].

* Lal A, Mishra AK, Sahu KK. CT chest findings in coronavirus disease-19 (COVID-19). *J Formos Med Assoc*. 2020;119(5):1000-1001.

Reply 4: We have added some content related with some similar studies and referred above citations in the discussion section. (see Page 12, line 267-276, with No Markup)

Changes in the text: Although previous studies have reported some correlations between imaging features and disease severity, there was limited evidence to support that denser or more confluent radiological lung involvement is linked to worse clinical outcomes (21). Zhang J et al (22) demonstrated that the chest CT score had a positive association with inflammation indicators and was a good indicator of the extent of systemic inflammation. Qin L et al (23) found that some specific CT features (peripheral distribution of lesions and crazy-paving pattern) could improve the efficiency of differential diagnosis between COVID-19 pneumonia and non-COVID-19 pneumonia. So far, no study has revealed the prognostic value of CT Score on the severity of this disease.