Peer review file

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Reviewer A

Comment 1: INTRODUCTION

The authors have summarized epidemiological data about COVID-19 pneumonia in different countries. They have reported the following sentence "Until March 9th 09:55 Beijing time, COVID-19 have affected 109306 people, with 3820 deaths in 97 countries". Just to improve quality of your research, please add the reference for these data you have provided.

Reply 1: Thank you for the comment. The data about COVID-19 pneumonia in different countries was based on real-time data provided by WHO. The latest data have been updated in the manuscript (see Page 4, line 77-78). By 10:00 CEST, 22 May 2020, COVID-19 have affected 4993 470 people, with 327 738 deaths [1].

[1] WHO. Coronavirus disease (COVID-19) Situation Report – 123 https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200522-covid-19-sitrep-123.pdf?sfvrsn=5ad1bc3_4

Comment 2: Methods - Patients

I think that inclusion criteria should be better explained. You have evaluated only CT examinations of Patients with COVID pneumonia, so that how patients were considered positive for COVID – need to be reported in this part of the manuscript.

Reply 2: Thank you for your helpful comment. We have revised the text in the manuscript in the Methods section (see Page 5, line 87-89):

Our inclusion criteria were: (a) Patients who were confirmed with a positive novel coronavirus nucleic acid antibody (PT-RCR assay with oropharyngeal swabs samples) and admitted to our Center.

Comment 3: Some questions about lesions that have been scored on CT images. 1) have you considered perilobular pattern as consolidations? 2) crazy paving pattern was not listed in HRCT features – this finding was not observed in your patients?

Reply 3: Thank you for pointing this out.

1) In our study, we investigated the CT scores of pulmonary lesions which was based

on the attenuation and extent of the abnormalities. Patterns of lesions were not considered in our research.

2) Crazy paving pattern is the name given to characteristic polygonal pattern of interlobular thickening on computed tomography (CT scan) of the lung [2]. GGO accompanied with crazy paving pattern was classified as GGO in our study.

[2] Verma R, Abdoh M. Crazy paving pattern. Clin Case Rep. 2017 Feb 21;5(4):533-534.

Comment 4: Serial CT examinations were considered for this study; please report number of CT performed (mean value) for all patients.

Reply 4: Thank you for the good recommendation. We have revised the paper according to your insightful suggestions in Results section (see Page 9, line 170-172): Among the 62 patients, 9 had twice CT scans, 10 had three CT scans, 25 had four CT scans,14 had five CT scans 3 had six CT scans and the other 1 had seven CT scans. A total of 243 CT scans (mean 4±1) were acquired and evaluated.

Comment 5: Results: p values for consolidations, GG areas and overall pulmonary lesions should be specified in the text; also table 1 need to be improved, providing p-values between baseline and peak-time CT, and between baseline CT and CT acquired at the discharge.

Reply 5: Thank you for your comments. We have revised the paper according to your insightful suggestions.

1)The p values for consolidations, GG areas and overall pulmonary lesions had be specified in the text (see Page 9, line167-169).

2) The p-values between baseline and peak-time CT, and between baseline CT and CT acquired at the discharge were provided in Table 3 (see Page 24).

Comment 6: Discussion: It's very important that negative conversion showed moderate correlation with onset of resolution disease on chest CT. The persistence of CT findings, as reported in your paper, need to be correlated with the clinical situation. The third CT – was acquired at the discharge? (when you have observed no more temperature and negative conversion?)

Reply 6: It is indeed a good point to note. Serial chest CTs during hospitalization were acquired and investigated. The last CT was acquired at the discharge. The recovery time of temperature and negative conversion of viral nucleic acid were record according to the patient's clinical information.

Comment 7: How many patients showed negative conversion and persistence of CT findings (even if reduced)?

Reply 7: Thank you for your comment. As shown in Result, three patients showed negative conversion and persistence of CT findings.

Reviewer B

Comment 1: Please provide inter-observer variability in CT scoring of pulmonary lesions.

Reply 1: This is a great point. We have revised the manuscript and added the inter-observer variability in Results section (see Page 8, line158-159).

Comment 2: The statistical method should be updated. It seems to be mix the parametric test and non-parametric tests. please ask a statistics expert for statistical analysis and statistical representation (such as p value of 0.000).

Reply 2: Thank you for your insightful suggestions. The statistical method had been updated with non-parametric tests.

Comment 3: The figures need to be updated. For example, the stacked-bar plots in Figure 1 seem to be inadequate, because CT scores were compared using a non-parametric test (Mann-Whitney U test). In Figure 4, the axial levels of CT are not the same. For better comparison, it is recommended to use the exact same level of images. For Figure 6, please ask a statistics expert for statistical analysis and statistical representation.

Reply 3: Thank you for pointing this out. We have revised Figure 1, Figure 4 and Figure 6 (see Page 18, 19 and 21).

Comment 4: I am not sure if the analysis in Table 5 is appropriate, because the authors compared only type 1, and type 2 of the 5 types.

Reply 4: Thank you for the comment. The type 3, 4 and 5 patterns only appeared in three cases of 62 discharged patients, respectively. So they were not included in the statistical analysis because of only one sample.

Reviewer C

Comment 1: Which kind of "iterative reconstruction technique" was used?

Reply 1: Thank you for pointing this out. Advanced Model Iterative Reconstruction Technique was used. We have revised the manuscript in the Methods section (see Page 5, line 98).

Comment 2: Re-phrase the technical CT parameters like "collimation: 0.625 mm; pitch: 1.5; ..."

Reply 2: Thank you for the suggestions. The technical CT parameters have be modified in the Methods section (see Page 5, line 99-100).

Comment 3: Results: Please provide information about the "d-dimer"?

Reply 3: Thank you for the good recommendation. We have revised the text in the manuscript and added the information about the "d-dimer" (see Page 8, line 152 and Page 23 Table 2).

Comment 4: Any data on pulmonary function available?

Reply 4: Pulmonary function testing was not performed in our center. Pulmonary function testing could represent a potential avenue for COVID 19 transmission due to the congregation of patients with lung disease and because of the potential for coughing and droplet formation surrounding pulmonary function testing procedures [3].

[3] American thoracic society. Pulmonary Function Laboratories: Advice Regarding COVID-19. https://www.thoracic.org/professionals/clinical-resources/disease-related-resources/pulmonary-function-laboratories.php

Comment 5: How many patients had to be intubated and mechanically ventilated?

Reply 5: Thank you for your comment. In our retrospective study, no patient had to

be intubated and mechanically ventilated.

Comment 6: Page 9, line 9: "…twenty-five patients (24/29)" ?

Reply 6: Thanks for pointing this out. We have fixed this error in the manuscript (see Page 10, line 206).

Reviewer D

Although the results of this study are very interesting, there are concerns in the method of study.

Comment 1: The range of the initial CT examination is too wide (1 - 16 days after the onset of symptoms, mean 6±3 days), so it is unclear whether the initial CT reflects the actual initial stage of the disease state.

Reply 1: The referee raised a good point. In our study, we found that the duration from onset to admission was longer in type 1 (7±3 days) than type 2 (4±3 days), which made the process not completely recorded. This may result in the missing recording of the rising period of the curve. Type 1 could be part of the curve of type 2, and hence more patients are needed to study the disease course, which was pointed out in the discussion section (see Page 12, line 235-239).

Comment 2: The definition of "peak time" is unclear.

Reply 2: The point raised above is a valid concern. The peak time was the time when the CT score was the highest. We have revised the manuscript and added the corresponding descriptions to the Image Acquisition and Evaluation subsection under the Methods section (see Page 7, line 125-126).

Reviewer E

Comment 1: The aim of your manuscript is of particular interest, however there are some issues that should be addressed listed down below; particularly the definition in methods of the time of pneumonia resolution onset is not well defined. Additionally, your CT score is difficult to understand and to reproduce, since you did not explore interobserver variability.

Reply 1: Thank you for your comments and encouragement.

1) When evaluating the pneumonia resolution on CT image, the minimum reduction of ten points in CT scores of overall lesions was considered meaningful (see Page 7, line 126-127).
2) We have revised the manuscript and added the inter-observer variability in Results section (see Page 8, line 158-159).

Comment 2: Results Remove the expression "so on" from all the results section.

Reply 2: Thank you for the suggestions. The expression "so on" had been removed (see Page 8, line 147-148).

Comment 3: Which were the absolute results of PCR and leucocyte count?

Reply 3: Thanks for pointing this out. Categorical hs-CRP and leucocyte counts were analysed. According to the absolute results of hs-CRP and leucocyte count, they were divided to the normal lymphocyte group and the lymphopenia group, normal hs-CRP group and the elevated hs-CRP group.

Comment 4: You should define in methods the radiographic pattern of evolution.

Reply 4: This is a great point. We have added the description in the methods section (see Page 7, line 127-131).

Comment 5: Which CT scores are different between fever vs non-fever? GGO? overall? consolidation?

Reply 5: The referee raised a good point. The CT scores of overall lesions are different between fever vs non-fever. We have modified the description in the results section (see Page 9, line 183-185; Page 10, line 199-204; Page 11, line 213-218).

Comment 6: How did you define in methods the time of onset of resolution of pneumonia?

Reply 6: Thank you for your comment. When evaluating the pneumonia resolution on CT image, the minimum reduction of ten points in CT scores of overall lesions was considered meaningful. The time from the onset of symptoms to absorption of pneumonia was recorded.