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OPEN PEER REVIEW

Prognostic Factors of Initial Chest CT Findings for ICU Admission and Mortality in Patients with COVID-19 Pneumonia

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

More about open peer review: brieflands.com/knowledgebase/opr

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1 Original submission

4 comments · 12 Jul 2020 – 18 Jul 2020

Referee 1 Reviewer

MINOR REVISION 12 Jul 2020

Dear author,
Thanks for submitting your work to our journal.
The study is well designed and explained in detail.
I think the novelty of the current study is limited; however, it's still valuable.
The only comment I have:
-You have stated in the methods:
"peri-broncho-vascular (involvement with the disease and not
edema)"
How did you consider a pure peribroncho vascular pattern (without other imaging features) to be pulmonary edema?
Regards.

Referee 2 Reviewer

MINOR REVISION 12 Jul 2020

1-This sentence is unclear: "There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity." The point is that it is unclear for which condition this cutoff point is diagnostic. The authors should mention the target of diagnosis here.
2-Please add an objective section to the paper according to the journal format.
3-I recommend that the authors write the title as: "…..….initial chest CT findings.…..…."
4-Please add the manufacturer information for SPSS.
5-What is the meaning of input and output variables? Please clarify.
6-It is better to add a footnote in table 1 and define bad prognosis and good prognosis.
7-It is recommended that the authors arrange table 2 into these 3 categories: Main CT findings [rows 1-7], lesion distribution [rows 8-13], and additional findings [other rows].
8-It seems that (OR=1.17) should be 1.17.
9-How did the authors calculate and select the cutoff point for the multivariate model? [For example, 0.61] I mean that in the univariate model, the total CT score is the score for which we can select a cutoff point, but in the multivariate model, the score is not tangible. Please add explanations.
10-Did the authors have any data on SP02?
11-As death is the most important event, isn't it better to predict it based on the imaging and clinical data?
12-Are the patients in the paper all the patients admitted during the stated time interval?

Associate Editor

MINOR REVISION 17 Jul 2020

Dear author
Thank you for submitting your work to our journal. According to the reviewers, the article needs minor revision.

Editor-in-Chief MINOR REVISION 18 Jul 2020

Dear authors,
Your article needs Minor Revision.
Regards

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Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear editor in chief,

Dear reviewer,

Thank you for the time you dedicated to this manuscript and thanks for your valuable comments.

here I track all the comments I received individually:

1. **this sentence is unclear: “There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity.” The point is that it is unclear for which condition this cut off point is diagnostic? The authors should mention the target of diagnosis here:** the cutoff point indicates the discriminatory point between good prognose patients (as defined in article are patients who discharged from the hospital and are alive) and poor prognose patients (patients who needed ICU admission or were dead).
2. **please add objective part to paper according to journal format*:*** Done
3. **I recommend the authors write the title as: “……..initial chest CT findings……..:** Done.
4. **please add the manufacturer data of SPSS:** Done.
5. **what is the meaning of input and output variables? Please clarify**: it is related to the multivariate regression analysis used in the study. Multivariate Regression Analysis is used to explain the relationship between one continuous dependent/output (Y) variable and multiple independent/input (X) variables. It is postulated that there is a linear relationship between inputs and outputs
6. **It is better to add a footnote in table 1 and define bad prognosis and good prognosis:** Done

7. **It is recommended the authors arrange table 2 in these 3 categories of Main CT findings [rows 1-7], lesion distribution [rows 8-13] and additional findings [other rows]:** Done
8. **it seems the (OR=1.17) should be 1.17:** unfortunately, not exactly clear for us!
9. **How did the authors calculate and select cut off point for multivariate model? [For example 0.61] I mean in univariate model, total CT score is the score in which we can select a cut off point but in multivariate model, the score is not tangible. Please add explanations:** The multivariate model takes more variables into account rather than the CT score alone. Therefore, the output of this model is the best prediction based on several input variables and is then used to plot the ROC curve. The cut off we provide for this ROC curve is not a CT score. It is an output from the multivariate model for which we have the best trade-off for the sensitivity and specificity. It does not have a practical/clinical implication but is valuable to report from a statistical point of view.
10. **did the authors have any data of SPo2?** No**,** unfortunately we didn't have access to the clinical data.
11. **As the death is the most important event, isn't it better to predict it based on the imaging and clinical data?** Sure, it is, however since we didn't have the clinical data, couldn't include it in the analysis.
12. **Are these patients in the paper all patients admitted in the mentioned time interval?** Yes, they do.
13. **you have stated in the methods: "peri-broncho-vascular (involvement with the disease and not edema)" how did you considered a pure peribroncho vascular**

pattern (without other imaging features) as pulmonary edema? We revised the text as you said: "peribronchovascular (involvement with the disease and not edema)". We expected edema as fine smooth interstitial peribronchovascular thickening usually with other imaging supporting findings.

Sincerely,

2 Revision 1

4 comments · 25 Jul 2020 – 5 Aug 2020

Referee 1 Reviewer

ACCEPT 25 Jul 2020

Dear author,
Thanks for the revision you made.
Regards.

Referee 2 Reviewer

MINOR REVISION 2 Aug 2020

The authors have corrected most of the points. There are some minor corrections that should be addressed:
1-I ask the authors to clarify the sentence: "There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity". They explained the point to the reviewer in their response letter, but I mean that it would be better to clarify the point in the paper. So I recommend that they change the sentence to: "There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity in differentiation of poor prognosis patients (patients who needed ICU admission or died"
2-Please separate the objective section with a heading in the paper.
3-I asked the authors to clarify the input and output variables, and they explained the basics of regression. Maybe my question was unclear. I mean that they should explain which variables are dependent and which are independent in the model. So, I recommend two points in this regard: 1-It would be better for them to refer to the dependent variable as the output and the independent variable as the input [if I am right] or at least clarify this point in the paper [for example, they can mention input (independent) variables and output (dependent) variables]- 2-Please mention which variables are input or independent variables [such as age, CT score, diabetes, ….…] and which variable is the output (dependent variable), such as prognosis. Please address this point in the tables too.

Associate Editor

MINOR REVISION 4 Aug 2020

Dear author,
According to one of the reviewers, the article needs minor revision.

Editor-in-Chief

MINOR REVISION 5 Aug 2020

Dear authors,
Your article needs minor revision.
Regards

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear editor in chief,

Dear reviewer,

Thank you for the time you dedicated to this manuscript and thanks for your valuable comments.

here I track all the comments I received individually:

1. **I ask the authors to clear the sentence: “There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity” they explain for reviewer the point in their response letter but I mean it is better they clarify the point in paper. So I recommend they change the sentence to: “There was a correlation between total CT-score and prognosis and an 11.5 score was suggested as a cut-off with 67.4% sensitivity and 68.7% specificity in differentiation of poor prognosis patients (patients who needed ICU admission or died”:** Done
2. **please separate the objective part with title in paper*:*** Done
3. **I asked the authors to clarify the input and output variables and they explained the basics of regression. Maybe my question is unclear. I mean they explain what variables are dependent and what are independent in the model. So, I recommend two points in this regard: 1-It is better they mention dependent variable as output and independent variable as input [If I am right] or at least clarify this point in the paper [for example they can mention input (independent) variable and output (dependent) variables]- 2-please mention which variables are input or independent [such as age, CT score, diabetes, ……] and which is output (dependent) such as prognosis. Please follow this point for tables too:** Done

Sincerely,

3 Revision 2

2 comments · 12 Aug 2020 – 7 Nov 2020

Associate Editor

ACCEPT 12 Aug 2020

Dear author,
According to the reviewers, the article could be accepted.

Editor-in-Chief

ACCEPT 7 Nov 2020

Dear authors,
Your article is acceptable for publication in IJR.
Regards