

World Journal of Gastroenterology Manuscript N°: 63382

Dear Professor Lian-Sheng Ma

Thank you very much for the positive comments by you and the reviewers. In particular, all the suggestions made by Reviewer 1 and 2 have now been incorporated into the manuscript in the relevant places, as recommended.

Below are our more detailed responses.

Regards

Miguel Jiménez Pérez

Malaga, Spain

Reviewer #1:

Specific Comments to Authors: AI has experienced spectacular advances over the last 10 years for application in the field of medicine, and is now used for diagnostic, therapeutic and prognostic purposes in almost all fields. This review summarizes the research progress of AI in imaging / histological diagnosis, treatment and prognosis evaluation of HCC. It is very interesting and attractive. Recommended for publication.

Response: Thank you very much

Reviewer #2:

Specific Comments to Authors: Thank you for the opportunity to review the above-titled manuscript. The topic is interesting to the readers. However, there are issues to the authors to fix.

Page 1: Institution (should be Author/institute): Miguel Jiménez Pérez MD, PhD, Rocío González Grande MD.

Response: Done

Page 2: Abstract: Treatment mentioned once in the abstract, but there is no substantial knowledge about treatment and how AI is used in the treatment. [deep-learning (DL) and machine learning (ML)] stated, but no information about them or in what way they differ, and which one is used in the review.

Response: Extra information has now been given in the Abstract about DL and ML

Page 3: Core Tip: Not clear how AI can resolve the problems stated earlier in the first one or two sentences.

Response: A few words have been added to the Core tip to show how AI can help in the analysis of the many data available

Page 4: "artificial neural networks (ANNs) or classification and regression trees (CART), have all been used in multiple studies in the field of medicine [Add a reference].

Response: A reference has now been included (Reference 2)

Page 4: Last two lines: "...as this is a very common tumor [Use Cancer Statistics 2020 for more specific information and add it as a reference].

Response: Figures from the American Cancer Society are now given and referenced (Reference 5)

Figure 5: Before Figure 1: The readers have not been prepared for Figure 1, not it was stated in the text.

Response: A new paragraph has been added just before Figure 1 explaining what the figure shows.

Page 5: Under section 2: ".....CNN (It is not clear what is CNN, it should be explained earlier in 3-4 lines)

Response: A few lines have been added to explain CNN

Page 6: top line: item 2.4 PET and 2.5 Histology were not stated here; they should.

Response: Thank you. They have now been added to the introductory statement

Page 13: the conclusions could be strengthened.

Response: A couple of lines have been added.

Page 13: Create a new section about "future directions in research"- what are the three top priorities in research in this area explain each in 3-5 lines.

Response: We have created a new section at the end about future directions, as recommended

Ref: Two references to consider as well- .(1) Azer SA. Deep learning with convolutional neural networks for identification of liver masses and hepatocellular carcinoma: A systematic review. World J Gastrointest Oncol. 2019;11(12):1218-1230. doi:10.4251/wjgo.v11.i12.1218 (2) Nanni L et al 2020. Deep learners and deep learner descriptors for medical applications. Springer, Vol 186. <https://www.springer.com/gp/book/9783030427481>

Response: We have included the first of these suggestions, but feel the second (though highly interesting) fails to help the reader of this particular article

Table I: Change the tables to become landscape- The first column should be Author (year)Ref, the second column should be the title of the article, the third is aims of the study, the fourth is the diagnostic technique, the fifth is AI tool used (CNN or ...), the sixth (University of first author, Country)

and

Table II: The first column should be Author (year)Ref, the second column should be the title of the article, the third is number of patients, the fourth the study aims, the fifth is diagnostic technique used, the sixth is AI tool used (CNN or ...) and outcomes, the seventh column (University of first author, Country)

Response: We have changed the format of the tables, as suggested

Under table 2 add: All studies were retrospective studies in their design, except the study by Liang et al [45] was prospective.

Response: Done

Reviewer #3:

Specific Comments to Authors: In recent years, the application of AI in medicine has made great progress. Liver cancer, as a highly malignant tumor, is a hot spot in AI research due to its difficulties in diagnosis and treatment. The study summarized the

application research of AI in different diagnosis and treatment methods of liver cancer, comprehensively showed the application prospect and limitation of AI in the field of liver cancer at present, which has important reference value for the majority of medical workers. I agree with the publication of the article.

Response: Thank you for the encouraging comments