

PEER-REVIEW REPORT

Name of journal: *Artificial Intelligence in Gastroenterology*

Manuscript NO: 74474

Title: Artificial intelligence and human liver allocation: potential benefits and ethical implications

Provenance and peer review: Invited manuscript; externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 03755068

Position: Peer Reviewer

Academic degree: MD

Professional title: Consultant Physician-Scientist

Reviewer's Country/Territory: Italy

Author's Country/Territory: Brazil

Manuscript submission date: 2021-12-24

Reviewer chosen by: AI Technique

Reviewer accepted review: 2021-12-25 07:38

Reviewer performed review: 2021-12-25 18:43

Review time: 11 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Peer-reviewer statements	Peer-Review: [<input checked="" type="radio"/>] Anonymous [<input type="radio"/>] Onymous Conflicts-of-Interest: [<input type="radio"/>] Yes [<input checked="" type="radio"/>] No
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SPECIFIC COMMENTS TO AUTHORS

This was a minireview on artificial intelligence applied to organ allocation in the liver transplant setting. In the first section (i.e., Introduction) the Authors described the current state of the art on organ allocation around the world, introducing concepts as utility and urgency. In the second part, they briefly described some studies which applied artificial intelligence in the setting of organ allocation. On a general view, the paper is fluent, and the topic is of interest for the Journal. My comments. - There are some typos that should be carefully reviewed (e.g., morbimortality; usefulness instead of utility; receptor instead of recipient). - The first section describes principles as utility and urgency. I think that also the concept of transplant benefit should be added. - Hepatocellular carcinoma is one of the most important indications to liver transplantation, with an increasing trend over time. Patients with HCC usually undergo transplantation according to utility criterion (and not urgency). Notably, the topic of transplant benefit for HCC has been proposed. This point should be added and briefly discussed. - In the core tip, the Authors dealt with ethical aspects of liver allocation. In what way artificial intelligence can help these aspects? - The Authors described results of three papers which applied artificial intelligence in organ allocation. Nevertheless, there are other many (and recent) papers which investigated this point (i.e., PMID 34019601; 33428298; 32274856; 32073494). In my opinion this topic should be discussed more in depth, adding new references.

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Reviewer's code: 05839064

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Professional title: Academic Fellow, Doctor

Reviewer's Country/Territory: United States

Author's Country/Territory: Brazil

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Reviewer accepted review: 2021-12-26 17:53

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Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input checked="" type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Peer-reviewer statements	Peer-Review: [<input checked="" type="radio"/>] Anonymous [<input type="radio"/>] Onymous Conflicts-of-Interest: [<input type="radio"/>] Yes [<input checked="" type="radio"/>] No
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SPECIFIC COMMENTS TO AUTHORS

This is a review article on role of AI in LT allocation. Multiple issues need to be addressed: 1. Introduction part is too long and has irrelevant information. Would recommend to make it more precise and concise. In addition the AI part is also very general, can be summarized and added to the introduction part to give the reader an idea on principles of AI. 2. Applications of Artificial Intelligence on Liver Allocation : it is very very brief, authors need to discuss all studies and criticize them in details with taking into consideration the clinical context, study design, sample size, model used, statistics done, limitations, implications ... 3. Would recommend adding a table to summarize the literature to make it easier for the reader to capture

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Reviewer's code: 05126185

Position: Editorial Board

Academic degree: PhD

Professional title: Associate Professor

Reviewer's Country/Territory: South Korea

Author's Country/Territory: Brazil

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Review time: 1 Day and 7 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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Peer-reviewer statements	Peer-Review: [<input checked="" type="checkbox"/>] Anonymous [<input type="checkbox"/>] Onymous Conflicts-of-Interest: [<input type="checkbox"/>] Yes [<input checked="" type="checkbox"/>] No
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SPECIFIC COMMENTS TO AUTHORS

I would like to suggest you to present more discussion of different machine learning methods including the decision tree, the random forest and the artificial neural network.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Reviewer's code: 03755068

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Reviewer's Country/Territory: Italy

Author's Country/Territory: Brazil

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Review time: 1 Hour

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Peer-reviewer	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous



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statements

Conflicts-of-Interest: [] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The Authors fairly answered my previous questions. No further comments.