Peer Review File

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Reviewer A

The authors focused on reporting about comparing laparoscopic and open resection in elderly hepatocellular carcinoma: A systematic review and meta-analysis. The paper is very readable. However, the several following issues should be reflected.

Reviewer's comment 1: In these comparative studies, to what extent does re-hepatectomy be included in? Re-hepatectomy is often included in surgical resection for HCC in elderly patients.

Author's response: Thank you for your insightful question regarding the inclusion of re-hepatectomy in our comparative studies. In our study, we focused exclusively on patients undergoing primary surgical treatment for hepatocellular carcinoma (HCC) and did not include cases of re-hepatectomy. This means that patients who underwent surgical resection as their initial treatment for HCC were considered, while those requiring subsequent re-hepatectomy were excluded from our analysis. The following information has been added to the manuscript as follows:

"In our study, we focused exclusively on patients undergoing primary surgical treatment for hepatocellular carcinoma (HCC) and did not include cases of re-hepatectomy." (Line 119)

"The exclusion criteria encompassed: (1) studies involving inappropriate populations, such as those with stage IV HCC, recurrent HCC or re-hepatectomy, liver metastasis, or specific situations like HIV infection; (2) studies related to emergency surgery or palliative treatment; (3) non-original articles, including reviews, editorials, letters, etc.; (4) publications consisting solely of abstracts; (5) studies published in languages other than English or Korean; and (6) duplicate publications." (Line 127)

Reviewer's comment 2: Do the types of post-hepatectomy complications for elderly patients compared to those undergoing standard hepatectomy? Additionally, what is the impact of laparoscopic lever resection on this matter?

Author's response: Thank you for your thoughtful questions concerning the types of post-hepatectomy complications in elderly patients compared to those undergoing standard hepatectomy, and the impact of laparoscopic liver resection on this matter.

Regarding the first interpretation of your question, focusing on the occurrence frequency of individual complications, we have added detailed information about specific complications beyond major/minor classifications in our manuscript as follows.

"Post-operative individual complication rate

When considering specific complications, the incidence of post-operative liver failure was significantly lower in the LLR group compared to the OLR group (OR 0.56, 95% CI 0.33–0.94, I2=0%, Figure 5D). In addition, it was possible to analyze the occurrence of ascites, wound infection, respiratory complication, bile leak, and bleeding (Supplementary Table 3). The occurrence of ascites (OR 0.63), wound infection (OR 0.47), respiratory complication (OR 0.31), bile leak (OR 0.45), and bleeding (OR 0.65) all tended to be lower in the LLR group compared to the OLR group. Among these, the incidence of respiratory complications was statistically significantly lower in the LLR group (OR 0.31, 95% CI 0.16–0.59, I2=0%)." (Line 234)

Supplementary Table 3. Various types of complication

Outcome variables	No. of studies	Laparoscopic liver resection		Open liver resection		Random, M-H Pooled OR	95% CI	I^2
		No. of participants	Events	No. of participants	Events			
Ascites	4	360	53	470	78	0.63	0.30-1.35	48
Wound infection	3	205	2	315	10	0.47	0.11-2.00	0
Respiratory complication	5	435	13	545	49	0.31	0.16-0.59	0
Bile leak	5	435	8	545	24	0.45	0.20-1.01	0
Bleeding	5	435	4	545	9	0.65	0.21-2.02	0

As for the second possible interpretation, comparing complication rates between elderly and non-elderly cohorts, our analysis faced limitations due to the lack of inclusion of non-elderly groups in many of the studies we reviewed. Consequently, a direct comparison between these two demographics was not feasible within the scope of our research. This limitation is outlined in the discussion section of our paper, where we suggest areas for future research to address this gap in the literature.

"Fourth, our analysis faced limitations due to the lack of inclusion of non-elderly groups in many of the studies we reviewed. Consequently, a direct comparison between these two demographics was not feasible within the scope of our research. Regarding this topic, we are planning to publish a paper based on the results of additional meta-analysis research." (Line 338)

Reviewer B

The authors compared the efficacy and safety of Laparoscopic liver resection (LLR) with open liver resection (OLR) in elderly hepatocellular carcinoma (HCC) patients. They have concluded

that LLR offers a safer and more suitable alternative to open surgery for elderly patients with HCC.
This study was well reviewed about the surgical results of LLR for elderly patients with HCC. However, I have several concerns that need to be addressed before considering publication.

Comments:
Reviewer's comment 1: Are these liver resections for first resected case in this study? The authors should show indication criteria in detail.

Author's response: Thank you for your insightful question regarding the inclusion of re-hepatectomy in our comparative studies. In our study, we focused exclusively on patients undergoing primary surgical treatment for hepatocellular carcinoma (HCC) and did not include cases of re-hepatectomy. This means that patients who underwent surgical resection as their initial treatment for HCC were considered, while those requiring subsequent re-hepatectomy were excluded from our analysis. The following information has been added to the manuscript as follows:

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Reviewer's comment 2: Did LLR include a planned hand-assisted or hybrid approach in this study? How about robotic surgery? The authors had better indicate surgical procedure for LLR in detail.

Author's response: Thank you very much for your insightful question regarding the specifics of the laparoscopic liver resection (LLR) approaches utilized in our study, including inquiries about planned hand-assisted or hybrid approaches, as well as robotic surgery. In response to your query, we have added comprehensive details to Table 1 of our manuscript to include information on whether LLR was performed using a planned hand-assisted or hybrid approach, as well as the inclusion of robotic surgery procedures.

Author, year	Country	Study design	Study center(n)	Enroll period	Proportion of minor LR*		MINORS score	Robotic surgery	Hybrid approach
					LLR	OLR			
Monden, 2022(19)	Japan	RC, PSM	Single center	2010-2021	90.7%	92.0%	21	Not mentioned	Excluded

Delvecchio, 2021(20)	Europe	RC, PSM	Multi-center(8)	2009-2019	81.7%	80.8%	21	Not mentioned	Not mentioned
Wen, 2021(21)	China	RC, PSM	Single center	2015-2018	94.4%	91.5%	21	Not mentioned	Not mentioned
Chen, 2020(22)	China	RC, PSM	Single center	2013-2018	100%	100%	20	Not mentioned	Not mentioned
Dumronggittigule, 2020(23)	Korea	RC, PSM	Single center	2003-2018	53.7%	56.1%	21	Excluded	Not mentioned
Kim, 2020(24)	Korea	RC, PSM	Single center	2013-2017	51.1%	56.0%	21	Excluded	Not mentioned
Nomi, 2020(25)	Japan	RC, PSM	Multi-center(9)	2010-2017	Mixed	Mixed	21	Not mentioned	Not mentioned
Goh, 2018(26)	Singapore	RC, PSM	Single center	2005-2016	100%	100%	21	Not mentioned	Not mentioned
Amato, 2017(27)	Italy	RC	Single center	2010-2014	100%	88.9%	19	Not mentioned	Excluded