

## **Response to Reviewers**

**Journal title:** World Journal of Gastrointestinal Surgery

**Manuscript No:** 78673

**Title:** New Perspectives on Robotic Pancreaticoduodenectomy: An Analysis of the National Cancer Database.

### **Comments:**

**Reviewer #1:** Robotic surgery is typically minimally invasive. So the patient suffers less pain, slight blood loss and minimal scarring, and requires only a short recovery time. With the robotic arm eliminating the natural limits of human wrists, surgery can be performed with more delicate, precise and efficient movements. But it is only available in centers that can afford the technology and have specially trained surgeons. Large multicentric trials have confirmed the prognostic importance of regional LN metastases after resection for Pancreatic ductal adenocarcinoma This study aims at lymph node harvest during robotic pancreaticoduodenectomy for the surgical treatment of pancreatic ductal adenocarcinoma and evaluate short and long term outcomes in open, lap and robotic PD. It confirms better number of LN harvest and better survival after robotic PD than seen with open or lap. Based on longitudinal studies, we know that margin negative (R0) resection for pancreatic cancer translates into improved survival. In addition, increased number of lymph nodes retrieved during surgery frequently allows accurate staging and is synonymous with the adequacy of surgical resection. This is a good study but needs longer follow up and also more details regarding histopathology may need to be included for future.

**Reviewer #2:** I read the paper very carefully and I would like to congratulate the author on such well done job. This topic is extremely interesting and controversial , Which per se should be considered as publishable material after minor revision.

**Reviewer #3:** The authors presented us a OPD vs. LPD vs. RPD study. As we known, whether OPD or LPD should be performed for a resectable PC patient is still in controversy, now RPD is added to this. However, this study presented here is still interesting for pancreatic surgeons and the data actually help us know the RPD. But the manuscript still has some minor issues. 1. the authors collected many data from

2004 to 2018, but only present the 2010 to 2018? And, as we know, along with the progress of the surgery technique, surgeons may performed surgery much more better no matter in OPD or RPD. The authors have so many data (more than 2800 cases in 2018) even the many OPD performed in 2018, why only choose the patients in 2018 for analysis? 2. the authors mentioned that "With the known advantages of minimally invasive techniques and the potential of performing complex surgeries with enhanced precision and accuracy using robotic techniques, robotic PD has the potential to be a safe and feasible alternative to open and laparoscopic approaches." It is easy to understand the advantages of the RPD to OPD, but how is the RPD and LPD? 3. the surgeons who performed the OPD, LPD, or RPD may also influence the LN harvest, whether the RPD surgeon still perform OPD or LPD? or the indicator of the RPD, LPD and OPD? 4. the authors should present more detailed data including the complication of surgery, and so on. 5. the author should discuss why RPD can harvest more LN or give us some hypothesis.

Dear Reviewer 1,

First, we would like to thank you for taking the time to review the manuscript entitled "New Perspectives on Robotic Pancreaticoduodenectomy: An Analysis of the National Cancer Database (Manuscript # **78673**)" and provide your criticism.

We appreciate you comments and have revised the manuscript accordingly. The revised sections are marked in yellow in the revised version of the manuscript (attached). The detailed responses to the reviewer's comments are presented as follows:

1. Robotic surgery is typically minimally invasive. So the patient suffers less pain, slight blood loss and minimal scarring, and requires only a short recovery time. With the robotic arm eliminating the natural limits of human wrists, surgery can be performed with more delicate, precise and efficient movements. But it is only available in centers that can afford the technology and have specially trained surgeons. Large multicentric trials have confirmed the prognostic importance of regional LN metastases after resection for Pancreatic ductal adenocarcinoma This study aims at lymph node harvest during robotic pancreaticoduodenectomy for the surgical treatment of pancreatic ductal adenocarcinoma and evaluate short and long term outcomes in open, lap and robotic PD. It confirms better number of LN harvest and better survival after robotic PD than seen with open or lap. Based on

longitudinal studies, we know that margin negative (R0) resection for pancreatic cancer translates into improved survival. In addition, increased number of lymph nodes retrieved during surgery frequently allows accurate staging and is synonymous with the adequacy of surgical resection. This is a good study but needs longer follow up and also more details regarding histopathology may need to be included for future.

Response: Although our study was retrospective in nature and based on the data requested from the National Cancer Database, where follow up period had been predetermined by patients' survival, we agree with the reviewer that it would be of uttermost importance to conduct a prospective study comparing minimally invasive and open pancreaticoduodenectomies with longer period of follow up as well as more precise histopathology, especially taking into consideration recent advancements in molecular testing. All the authors agreed to include reviewer's annotation to the Discussion section (Paragraph #6, Page #13).

Dear Reviewer 2,

We would like to thank you for taking the time to read and for your comments on our manuscript entitled "New Perspectives on Robotic Pancreaticoduodenectomy: An Analysis of the National Cancer Database (Manuscript # **78673**)".

We appreciate your input and the suggested modifications and have revised the manuscript accordingly.

Dear Reviewer 3,

We would like to thank you for taking the time to read and for your comments on our manuscript entitled "New Perspectives on Robotic Pancreaticoduodenectomy: An Analysis of the National Cancer Database (Manuscript # **78673**)".

We appreciate you comments and suggested modifications and have revised the manuscript accordingly. The revised sections are marked in yellow in the revised version of the manuscript (attached). The detailed responses to the reviewer's comments are presented as follows:

1. The authors collected many data from 2004 to 2018, but only present the 2010 to 2018? And, as we know, along with the progress of the surgery technique, surgeons may performed surgery much more better no matter in OPD or RPD. The authors have so many data (more than 2800 cases in 2018) even the many OPD performed in 2018, why only choose the patients in 2018 for analysis?

Response: We agree with the Reviewer #2 that in general performance tends to improve with experience in all three approaches, however, for that specific study we first requested records from the National Cancer Database (NCDB) for patients with pancreatic adenocarcinoma diagnosed between 2004 and 2018 and then we had to excluded procedures performed before 2010 because the surgical approach was not consistently reported. Therefore, only patients who underwent Pancreaticoduodenectomy between 2010-2018 were included in the final analysis.

2. The authors mentioned that "With the known advantages of minimally invasive techniques and the potential of performing complex surgeries with enhanced precision and accuracy using robotic techniques, robotic PD has the potential to be a safe and feasible alternative to open and laparoscopic approaches." It is easy to understand the advantages of the RPD to OPD, but how is the RPD and LPD?

Response: We would like to thank the Reviewer #2 for that thoughtful and pertinent question. Few studies were published specifically comparing Robotic vs Laparoscopic Pancreaticoduodenectomy that suggested equivalent clinical outcomes that was mentioned in the Discussion section (Paragraph #3, Page #12, Reference #15). On the other hand the learning curve for the Robotic approach is shorter as compared to Laparoscopic, however there is still great heterogeneity in the literature in terms of definitions and assessment of the learning curves.

3. The surgeons who performed the OPD, LPD, or RPD may also influence the LN harvest, whether the RPD surgeon still perform OPD or LPD? or the indicator of the RPD, LPD and OPD?

Response: The Reviewer #2 actually brings up a legitimate question for deliberation: Does the surgeon performing Robotic Pancreaticoduodenectomy influence the Lymph node harvest? As speculated by many robotic surgeons the robotic platform in particular provides more efficient and meticulous retroperitoneal dissection,

especially of stomach station 8 (common hepatic artery) and 9 (celiac artery) lymph nodes. We believe that the approach and exposure influence the lymph node harvest more rather than an individual skills. Unfortunately, NCBD does not incorporate detailed operative reports describing step by step surgical techniques, thus, it is impossible to make any definitive conclusions. All the authors recognized this important limitation factor and we included it to the Discussion section (Paragraph #7, Page #14).

4.The authors should present more detailed data including the complication of surgery, and so on.

Response: We totally agree with the Reviewer #2 that it would be crucial to analyze the postoperative complications of the Pancreaticoduodenectomy, especially the two most common ones - the rate of pancreatic leak and delayed gastric emptying. Again, no data on the specific postoperative complications is available in the NCDB and all the authors were in agreement to mention this relevant aspect in the Discussion section (Paragraph #7, Page #14).

5.The author should discuss why RPD can harvest more LN or give us some hypothesis.

Response. Yes, we believe it's important to discuss our hypothesis as to why the lymph node harvest was improved with Robotic approach as was suggested by the Reviewer #2 and it was added to the Discussion section (Paragraph #4, Page #13, Reference #9).

Sincerely yours,

Aleksandr Kalabin, MD