

Dear editor of Artificial Intelligence in Gastrointestinal Endoscopy Journal,

We are very grateful for considering publishing our article entitled 'Artificial intelligence in the endoscopic approach of biliary tract diseases: a current review'. We thank the reviewers for their contribution, and we take the proposed suggestion with great pleasure, considering that it certainly contributes to improving the quality of our paper.

After a detailed analysis of the comments and suggestions contained in the opinions sent to us, the article has undergone some changes, which are indicated below.

Thank you once again for your time and interest.

Sincerely,

Fábio Pereira Correia

Reviewer 1

This minireview summarizes the state of the art of artificial intelligence in the diagnosis and treatment of biliary diseases. Here are my opinions. 1. **Most of the references are up to date. This review mainly focuses on endoscopic imaging. The CT and MRI on biliary disease are not discussed in the review, so the title may be misleading.** 2. **Figure 4 is not shown, but mentioned in the main text.**

Answer:

The main objective of our review was to assess the state of the art regarding the role of artificial intelligence in diagnosis and therapy, mainly from an endoscopic point of view. In this way, we chose to change the title of the article to 'Artificial intelligence in the endoscopic approach of biliary tract diseases: a current review'. When we mentioned figure 4 it was a mistake. Where you read figure 4 you should read figure 2.

Reviewer 2:

The author made a comprehensive review regarding the effect of AI in biliary diseases including diagnosis of cholelithiasis and undertermined biliary stricture and treatment of biliary stones briefly. AI had been employed in GI endoscopy, especially in the detection and diagnosis of early GI cancer but rare development in biliary diseases. Many unknown areas of AI for biliary diseases deserve to be exploited. This review ignite the spark of research and application focused on biliarypancreatic diseases for endoscopist.

Answer:

We appreciate the comment of reviewer #2. We have nothing to comment.

Reviewer 3:

Congratulations for such a great literature review regarding the use and implementation of computational resources to develop an automatic AI-based algorithm for managing such complex clinical situation that the biliary gallstones represent, especially the migrating ones that require a prompt therapeutic response for a good overall clinical outcome of the patient. All surgeons, especially those that operate in a laparoscopic manner biliary lithiasis are facing difficult times when it comes to recognize early the possibility of such complications to develop. Of course, there are many human-based key-point decision algorithms to aid establishing an early diagnosis, but the learning curve is steep and often involves considerable clinical and imaging resources. These algorithms even extended within the realm of iatrogenic bile duct injuries that occur during complex cholecystectomies (<http://scholar.valpo.edu/jmms/vol4/iss1/9>), a situation very similar to the one researched in this paper, but the rapidity, clarity and precision of AI-based system is at a different level in regards to speed and accuracy. Your paper comes in hand to keep general surgeons as well as gastroenterologists up to date in this ever changing and developing world of AI-based algorithms that, for sure, will completely replace sooner rather than later, the human implication in an early diagnosis system, but this still requires larger studies with better integration of the AI algorithms with the imaging machines, such as Colangio-MRI, Colangio-CT, ultrasound, etc. A minor suggestion though: please make a small change in the title of the paper so it would better reflect that this is a literature review and not a personal experience.

Answer:

With the aim that the title of the work reflects a literature review and not a personal experience, we have changed the title of the article to 'Artificial intelligence in the endoscopic approach of biliary tract diseases: a current review'.

Science Editor:

1) The conclusion of the article is too big. Completing an article answers the purpose of the article only. - Do not use references in your conclusion.

References should be placed up to the topic of discussion. 2) If there are more figures to be added, they will enrich the article. 3) It is extremely necessary for the author to read the submission instructions. The article is completely outside the WJG editing rules.

Answer:

1) Regarding the conclusion, we have simplified and focused on the purpose of the article. Thus, we removed references to other articles from this part of the work. Thus, the conclusion is as follows:

‘The diagnostic and therapeutic complexity associated with bile tract diseases makes this an attractive area for the development of AI systems.

In choledocholithiasis, AI systems have proved to be useful both in diagnosis, allowing a more careful selection of patients with indication for ERCP; as well as treatment, assisting the endoscopist in the critical steps of the procedure (eg, cannulation). The application of AI in cholangioscopy showed interest in the possibility of a more objective characterization of indeterminate biliary strictures and of directing biopsies to areas where the findings are more suspicious. Endoscopic ultrasound, an intervention area with a long learning curve, could benefit from the introduction of this technology, especially for less experienced endoscopists.

Despite this, there are still few studies focused on biliary condition, and most of them are retrospective, with small samples and high risk of bias. In the future, it is essential to continue to invest in the development of systems that optimize the diagnosis and facilitate the treatment of biliary pathologies.’

- 2) Unfortunately, since it is such a recent topic and with few published studies, we could not find more figures to complement the article.
- 3) We have carefully read the submission instructions and tried to adjust our article to the WJG editing rules.