

January 23rd, 2021

Re: Manuscript No. 62032

Dear Editor,

thank you for your letter of January 23rd 2021 and the possibility to transfer and submit our revised manuscript titled "CT colonography and radiation risk: how low can we go?" for publication in the World Journal of Gastrointestinal Endoscopy.

We have carefully considered the reviewers' comments, and have revised the manuscript accordingly. The changes are marked in **red** in the revised version of the manuscript. Below are the answers to specific reviewers' comments.

Reviewer #3.

It would enhance the manuscript to expand upon the role of CTC following incomplete optical colonoscopy

Thank you for this comment. We have added a new paragraph with the references accordingly.

The examination is of great benefit to patients who have undergone bowel preparation and could have a CTC the same day or the following day.

According to comment, we have elaborated this segment in the revised version of the manuscript.

In the introduction, for balance, I would also include the specific drawbacks of CTC (does not obtain tissue, flat lesions can be missed, pitfalls of interpretation e.g. incomplete luminal distension etc.).

We agree with the reviewer, and a new segment on sepecific drawbacks has been added in the introduction, along with the references.

A table comparing and contrasting benefits of OC and CTC would be a nice addition.

The table has been added according to the reviewer's requirements.

While the authors provide a thorough explanation behind why CTC can be a low dose study, it should be discussed that there are factors which increase the dose of

CTC e.g if intravenous contrast is administered or if additional views are obtained (for example in patients who are unable to lie prone, two lateral decubitus studies can be performed); while these may not be uniformly performed at all institutions, for the sake of providing a balanced argument these should be discussed.

This is a good point as several operational factors result in higher doses. We have added a segment accordingly.

Furthermore, practice regarding ancillary imaging before a CTC and after incomplete OC should be discussed as this can also increase radiation dose; for example, some centers perform a scout/topogram or non-contrast CT abdomen following incomplete OC, in order to exclude a perforation; although there is evidence to suggest this is unnecessary.

Thank you for this comment, we have elaborated this segment in the revised version of the manuscript (with the references)

In addition, it may be of benefit to discuss the role of 3D volume rendering and computer aided diagnosis in CTC; these tools have been shown to enhance detection of polyps i.e. an adjunct to increase diagnostic sensitivity without increasing dose

Thank you for this useful comment. We have added a new paragraph.

A table of the different mSv doses for examinations mentioned as comparisons would be nice.

A table comparing different mSV doses has been added.

Imaging examples illustrating the contrast between fecal tagging material, air and a polyp would be nice.

We have added example images as requested

Specific comments: - Abbreviated title; "CT colonography and radiation " CT colonography is misspelled, please edit - Abstract: "...important examination in imagining polyps and colorectal carcinoma (CRC)" replace imagining with imaging - I would consider replacing conventional colonoscopy with optical colonoscopy (OC) and revise throughout the text - Core tip " CT colonography is an important imagining technique" replace with imaging technique - First paragraph, introduction replace imagining with "imaging and" in patients whom it" with " in patients for whom" - I would caution against describing CTC as ... [a] method more suitable for the CRC screening"; consider rephrasing to " a suitable alternative to optical

colonoscopy for CRC screening - "The participation rate, positivity rate, and CTC detection rate were homogeneous among the studies." Do the authors mean the rates were similar amongst the studies? - "Thus, new strategies for lowering the radiation dose are considered, maintaining or improving image quality." Suggest rephrasing to "Thus, when new strategies for lowering radiation dose are considered, they must also maintain or improve image quality" - "During the last few decades, medical producers, physicists, radiologists, and technologists worked with CT equipment to find ways" I am unsure of what the role of a medical producer is and would suggest omitting. - "There are many modalities on how to adjust scanning parameters to lower the dose." I would rephrase to say "there are many ways to adjust scanning parameters in order to lower the dose" - Please provide references for the following statements: "the tube current or the voltage depending on the tissue density and contrast, scanning region, and the patients' body shape and size" - "The image quality has to be satisfactory for the delineation of pathology structures from the normal ones." Consider changing to "pathologic structures" or "abnormal structures" - " If there is an option of iterative reconstruction (IR), we can lower the voltage and turn on IT", do the authors mean turn on IR? - "In 2016, the Health Physics society published that radiation lower than 100mSv impacted the human body, which statistically equals zero" requires a reference and I believe should be rephrased to say "... Radiation lower than 100mSV did not impact the human body" although I am unclear; please consider rephrasing.

All specific comment have been addressed in the text, according to the reviewer's suggestions.

Reviewer #2

The main criticism I have is not about the quality of the paper or its organization as both are good. It is simply some errors of syntax, grammar, fragmented sentences, all of which are easy to repair. These are minor language based errors. I am attaching a list of changes that you can make to improve the grammar and readability of the paper.

Thank you very much for this kind comment, we have corrected the manuscript according to your suggestions. We apologize for language mistakes.

Reviewer #1

Could you please state the innovativeness of your research?

This opinion review comprehensively addresses the radiation risk in CTC with imaging technology refinements that should be used to lower radiation doses.

We corrected several typos and additionally revised manuscript for grammar and language.

In conclusion, we thank the reviewers for recognizing the presented manuscript as a good scientific effort, as well as for the useful and constructive comments, which made us think more critically about the presentation of our work. We hope that we have improved the consistency, clarity and interpretation of data in the revised manuscript and that the revised manuscript will meet the reviewers' and editors' requirements and be suitable for publication in *World Journal of Gastrointestinal Endoscopy*.

Thank you again for the privilege of submitting our work to *World Journal of Gastrointestinal Endoscopy*.

Sincerely,

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