Reviewer's report

Title: Evaluation of dual-wavelength excitation autofluorescence imaging of colorectal tumours with a high-sensitivity CMOS imager: a cross-sectional study

Version: 1 Date: 8 April 2015

Reviewer: Zhen Tian

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Major compulsory revisions:

I have two major concerns. One is about the efficacy gain of this dual-wavelength excitation autofluorescence imaging method. The other is about the reliability of the findings.

For my first concern: the authors claim that the big disadvantage of the AFI method is its high false-positive rate and low specificity of 35%. 15-32% of colorectal adenomas were missed by colonoscopy. That’s the major motivation for the authors to develop a new imager and propose to use dual wavelength excitation method. While, in their results, 86.2% of the Adenoma/M-ca ratio images were considered as high signal group. Compared to the 15% value mentioned above for AFI, the new method doesn’t show much improvement in sensitivity (true positive rate). On the other hand, the authors didn’t do any experiments and analysis on the false positive rate and true negative rate for the new method. Without these values, I cannot reach the conclusion that the new method outperforms the AFI method in order to justify the relevance of this manuscript.

For my second concern: The ratio images were categorized into high signal images and no signal images by only one gastroenterologist. What’s the intensity threshold the gastroenterologist used to differentiate the high signal images and no signal images? Whether a very different category result may be achieved by another gastroenterologist? If a similar result cannot be repeated by another gastroenterologist, then the analysis and conclusion based on this result is not reliable.

Minor essential revisions:

Line 157: “Clinicians are able image colorectal lesions in detail”. There should be a grammar mistake. Consider revising this sentence.

Line 200: “can be emitted light using …” should be “can emit light …”

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being
Published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests