Reviewer’s report

Title: Preoperative Prostate Health Index predicts adverse pathology and Gleason score upgrading after radical prostatectomy for prostate cancer.

Version: 0  Date: 26 Apr 2020

Reviewer: Vincent Laudone

Reviewer's report:

This article is a well intentioned look at the accuracy of PHI to predict pathologic outcomes at RP. The issue with the article is it relevance or value. The authors argue that "The ability of PHI to predict the risk of Gleason score upgrade may help to identify potentially high-risk patients among men with biopsy proven insignificant prostate cancer." Is a 4%-5% increase in accuracy of pathologic outcomes really enough to change management in any clinically significant fashion? The discussion includes how PHI may be predictive of BCR which is likely a more relevant outcome, but the present study does not address this. Furthermore, it is stated: "We found that PHI provides the highest accuracy in predicting prostate cancer aggressiveness and expansion of the tumor detected at final pathology." This highest accuracy is only in comparison to their base model. What would it be if other factors such as a genomic profile was included in the base model?

In summary the authors should consider rewriting the conclusion of the abstract to indicate that PHI provided a small incremental improvement in predicting pathologic outcomes and that this improvement is of uncertain clinically utility. Furthermore, no comparison is made to newer predictive tools such as genomic profiling.

Please confirm that you have included your review in the ‘Comments to Author’ box?

As a minimum standard, please include a few sentences that outline what you think are the authors’ hypothesis/objectives, their main results, and the conclusions drawn. Your report should constructively instruct authors on how they can strengthen their paper to the point where it may be acceptable for publication, or provide detailed reasons as to why the manuscript does not fulfill our criteria for consideration. Please supply appropriate evidence using examples from the manuscript to substantiate your comments. Please break your comments into two bulleted or numbered sections: major and minor comments.

Please note that we may not be able to use your review if no comments are provided.
Yes

Are the methods appropriate and well described to allow independent reproduction of experiments?

Please state in the ‘Comments to Authors’ box below what you think are the strengths and weaknesses of the methods (study design, data collection, and data analysis), and what is required, if anything, to improve the quality of reporting

Yes

Does the work include the necessary controls?

If not, please explain in the ‘Comments to Author’ box below.

Yes

Are you able to assess the statistics?

- Are the statistical test(s) used in this study appropriate and well described?

- Is the exact sample size (n) reported for each experimental group/condition (as a number, not a range)?

- Are the description of any error bars and probability values appropriate?

- Are all error bars defined in the corresponding figure legends?

- Has a sample size calculation been included, or a description and rationale about how sample sizes were chosen?

Please can you confirm which of the following statements apply to your statistical assessment of the manuscript (Please include details of what the authors need to address in the ‘Comments to Author’ box):
There are statistical tests that I am unable to assess and recommend seeking additional advice (please specify which tests these are in the ‘Comments to Editor’ box)

**Are the conclusions drawn adequately supported by the data shown?**

If not, please explain in the ‘Comments to Author’ box below.

No

**Quality of written English**

Please indicate the quality of language in the manuscript:

Acceptable

**Should the manuscript be highlighted for promotional activity?**

Articles that are deemed of interest to a broad audience can be promoted in a variety of ways. This could be through email updates, postings on the BioMed Central homepage, social media, blogs and/or press releases. Please indicate in the text box below whether you think this manuscript should be considered for promotional activity, indicating your reasons why (e.g. what is the most newsworthy aspect of the research).

No

**Declaration of competing interests**

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal