Reviewer's report

Title: The Role of PET/CT for the Detection of Gastric Cancer Recurrence

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Reviewer: Katja Ott

Reviewer's report:

The authors describe the role of PET/CT in the detection of recurrence in gastric cancer. The conclusion of the authors is that PET/CT is as sensitive and specific as contrast CT in the detection of recurrence, but does not have any advantage. However, do to the additional metabolic information, normally the thesis would be that the addition of a PET might increase sensitivity and accuracy. Therefore their results are surprising. We all know that even staging of gastric cancer is complicated due to a relatively high percentage of FDG inavid tumors. In the situation of recurrence we do not have any experience of the FDG avidity of gastric cancer at the moment. Therefore this topic is an interesting field of research.

Major compulsory revisions:

GENERAL
-the study design is unclear: retrospective-prospective; blinded-not blinded, randomised-non randomised, sequence of CT and PET/CT
-the quality of the PET/CT applied has to be discussed, if no additional information compared to the normal CT scan can be provided. Nowadays PET/CT are available with diagnostic CT scans, in which the CT scan has the same quality as a normal diagnostic CT: probably your results occur due to technical problems.

INTRODUCTION:
-focus on the problem recurrence of gastric cancer->include literature focused on recurrence of gastric cancer
->describe the rate of recurrences
->localisation at different sites, problem especially the diagnostics of peritoneal carcinomatosis
->available diagnostic tools for the diagnosis of recurrences of gastric cancer
-discribe the problems of PET in the diagnosis of gastric cancer
->25-40% of the primary tumors are FDG inavid tumors
-define the aim of your study and your primary and secondary endpoints at the end of your introduction

MM:
- describe your study design exactly
- at what time points routine follow up was performed?
- define localisation of recurrence -> local recurrence (endo-extraluminal + local lymph nodes; distant metastase; PC)
- why a sequential examination was performed, was the evaluation blinded, was the quality of CT scan in PET/CT and CT equal?

RESULTS:
- the recurrence rate 38/50 is extremely high: how do you explain it? 50% of the patients were stage I and II-
- how do you explain that the sensitivity of PET/CT is lower than contrast CT in general?
- analyse your results based on your endpoints
- what were the aims of the study:
  1. to identify recurrences correctly: sensitivity and PPV
  2. is there a difference in the correct identification of the different sites of recurrence: distant-local-PC?

These two questions would be clinically relevant and should be addressed and analysed

DISCUSSION:
Include the available literature for gastric cancer and PET and recurrence and gastric cancer. The FDG non-avidity is a well known problem in gastric cancer. In most countries gastric cancer is not an accepted tool for the initial staging of gastric cancer and is not recommended in the diagnosis of recurrences.
Because we know that 20-50% of the gastric cancers are FDG inavid, we do not know at all, the percentage of FDG avid recurrences in gastric cancer.
Discuss the high recurrence rate n=27 for stage I/II patients in your study population.
The percentage of signet cell cancer in your study population is rather small—is there a bias or subselection? This might bias your results, because we know that intestinal tumors are more frequently FDG avid.

LITERATUR:
Included the literature available for recurrence and gastric cancer

FIGURES:
correct please figure 1: change 2 to 12

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.