Reviewer's report

Title: CT Texture Features are Associated with Overall Survival in Pancreatic Ductal Adenocarcinoma - A Quantitative Analysis

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Reviewer: Richard Kinh Gian Do

Reviewer's report:

In this paper, the authors assess whether CT-derived texture features of PDAC predict patient survival. They conclude that some features are promising prognostic biomarkers of OS. While this conclusion is modest at best, there are still a number of methodological limitations that need to be addressed. A few specific comments are as follows:

Introduction:

No hypothesis is given. The authors simply state the purpose of looking for associations between PDAC texture features and survival, which limits the conclusions drawn from such an approach.

Methods:

Patients were selected consecutively between 2009 and 2012 for surgery. The authors need to state whether they underwent neoadjuvant therapy or not, and how the pre-operative CT may have been affected by such therapy before surgery. The timing of the CT is not documented relative to surgery or potential neoadjuvant therapy, and needs to be disclosed.

Under Imaging Acquisition: it is not clear whether slices were reconstructed a specific interval (e.g. 5 mm) before performing ROI analysis.

Under Image Analysis: It is unclear how ROIs are drawn in the portal venous phase, when tumors are potentially isoattenuating to pancreas. In Figure 1, it is also unclear how the tumor contour match the tumor size in the legend above. The thresholding between -10 and 500 HU also seem to rise to an exceedingly high range, and seems unlikely to exclude biliary stents if present. Since stents can potentially alter the measured GLCM features substantially, a picture showing how thresholding gets rid of the stent is needed to verify this range is adequate.
Normalization is used in entropy - it is unclear if normalization is used for the remaining features and what the impact of this is.

Most importantly, the authors refer to reference 20, which studies the effects of gray level quantization on co-occurrence texture statistics, but it is unclear what aspect of this paper were applied to this manuscript. Thus, more details about the exact methodology need to be shared.

Under Statistical analysis: it is unclear what the ROC was performed for when it is stated it is used to study prognostic value of each texture parameter. What survival endpoint are the authors studying?

Discussion:

Line 32: Change 'course' to 'coarse'

The comparison of the paper's results to those of Lubner et al is unclear, since completely different methodologies are used. The discussion about fine texture features is misleading since no filtering is described in the methodology.

The authors correctly point out a number of limitations, foremost the very small sample size. The choice of five texture features based on findings in other papers is convenient, but does not address the fact that these papers used very different methodologies. Ultimately, it is possible that the results described are obtained by chance, and without external validation, the paper serves better as preliminary data for additional studies.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
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