Reviewer’s report

Title: Diagnostic accuracy of controlled attenuation parameter (CAP) as a non-invasive test for steatosis in suspected non alcoholic fatty liver disease: a systematic review and meta-analysis

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Reviewer: Luca Valenti

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In this study, Ke Pu and coworkers examined the diagnostic accuracy of CAP evaluation by Fibroscan in determining the presence and severity of hepatic steatosis in patients with suspected NAFLD, as compared to liver biopsy, by performing a meta-analysis of 9 papers considering 1,297 patients.

They found that CAP has a good diagnostic accuracy for detecting NAFLD, while the performance in detecting moderate and severe steatosis was moderate and poor, respectively. There was a significant heterogeneity in the ability to detect moderate steatosis, which may be explained by differences in cutoff used, geographic regions, age, and BMI. They conclude that CAP should be cautiously considered as a non-invasive substitute for liver biopsy.

This is a timely study that addresses a very important and hot topic, that is noninvasive assessment of hepatic fat by approaches that can be implemented in routine clinical practice (as opposed to Mir-Based techniques that are more suitable for research).

I have the following comments to further improve the manuscript, that I think should be addressed before the manuscript can be considered for publication:

* Authors should specify more clearly in the title, the abstract and the conclusions that the reference standard for steatosis evaluation was histologically assessment by a pathologist of liver biopsy, which is subject to sampling variability, inter individual disagreement and is a qualitative / semiquantitative approach. Studies are now also available for comparison with MRI-PDFF (it would be good to discuss them)

* Another major limitation that needs to be discussed is related to the lack of availability of individual patient data, which might have allowed to discriminate better the sources of heterogeneity and to propose more robust thresholds for the diagnosis and staging of steatosis, with adjustment for confounders (as proposed by Karlas et al. in liver diseases overall). Did the
Authors contact Authors of the studies to check whether at least part of them was willing to share the data for such an analysis? Even if performed in a subgroup, this would increase the value of the manuscript.

* Authors should specify throughout the manuscript that studies were conducted in patients with "suspected NAFLD", as apparently histological steatosis was not detected in a fraction of evaluated individuals. Otherwise it would have been impossible to evaluate the performance in detecting the presence of NAFLD. In this regard, since this is a very selected population in which apparently other liver diseases were ruled out and pre-test probability of NAFLD was very high, we submit that the diagnostic accuracy of CAP for evaluation of steatosis presence is over-inflated. Authors should specify that this may be much lower in the general population.

*Sensitivity analyses: I would present an analysis by removing the two studies at high risk of bias.

* Minor: it would be useful to stress the importance of the assessment of hepatic fat content as a possible driver of liver disease progression in patients with NAFLD, see e.g. Dongiovanni, J Inter Med 2018

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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No

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I am able to assess the statistics

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