Reviewer's report

Title: Identify the degree of liver fibrosis in CHB patients using an artificial neural network based on routine and serum markers

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Reviewer: Karine Lacombe

Reviewer's report:

Wang et al. have submitted a manuscript to BMC Infect Dis reporting data on the validation of a model using artificial neural network, which goal was to determine which algorithm better predicted significant liver fibrosis in hepatitis B mono-infected patients.

Although it is the 1st of its kind (neural network) in the field of non invasive scores of liver fibrosis, it is one of a long series of many different kind of scores published since 2002. I do not see what new is brought by this study to the already very well explored field of liver non invasive scores. Furthermore, the paper particularly lacks of precision and English is poor, the paper needs very thorough English editing before publication. Finally, it is not clear whether informed consent has been collected from patients for participating in this study.

Some major remarks:

It is difficult to see which biochemical markers and socio-demographical data have been introduced in the model. Are these the ones described in table 1? In this case, abbreviations must be explained: what are ChE and TBIL for example? I am very surprised by the range of biochemical variables reported in table 1: the range for albumin cannot be in real life from 8.7 to 407 g/l. Many other range are non consistent (i.e. TP of 11 in F0-F1 patients). Besides, it is well known that patients with acute hepatitis (such as the ones presented in table 1 with levels of ALT at 1329) should not be included in validation scores as they artificially increase the global score and do not reflect the true level of fibrosis.

Tables and figures lack of explanations in a general way. In Figure 2 for example, we do not know what corresponds to what, one must guess which figure refers to validation set, training set and testing set.

The conclusion lacks a paragraph on the comparison of this model with other simple published and widely used scores (APRI, FIB-4, fibrometer, fibrotest, etc.). It also lacks a paragraph on the limitations of such methodology.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

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'