Reviewer’s report

Title: Nine-year incident diabetes is predicted by fatty liver indices: The French D.E.S.I.R. study

Version: 1 Date: 23 February 2010

Reviewer: Monica Nannipieri

Reviewer’s report:

The authors evaluated the predictive power of two recent indexes of fatty liver (FLI and NAFLD-FLS) on incident diabetes in a French population. They concluded that these fatty liver indexes, that could be useful in evaluating the extent of fatty liver disease, are also predictive of incident diabetes.

The study was carried out in a very large population, in which the cases of incident diabetes in a period of 9-years, were potentially sufficient to looking for a predictive marker of incident diabetes and it could be potentially interesting to identify simple clinical tools in predicting diabetes development. However, there are several important limitations and flaws in this study that strongly reduce the strength of reported results.

1) As stated by the authors themselves, definition of fatty liver used in this study was only based on surrogate indexes without any data from scanning device. In the absence of such fundamental direct data on liver state it is hard to give any conclusion on validation of the above indexes of fatty liver to predict incident diabetes.

2) The utilized NAFLD-FLS index includes many parameters of metabolic syndrome such as central obesity, lipid concentration and plasma insulin concentrations that are per se important predictors for incident diabetes. Therefore, if NAFLD-FLS index could be considered an acceptable index for fatty liver prediction it does not appear to be the same for predicting diabetes. Moreover, although the authors state that “the term in type 2 diabetes does not contribute in our study”, the use of such an index that includes predefinition of presence of diabetes to evaluate incident diabetes is strongly questionable.

3) The new finding of the study is somewhat limited by the knowledge that some previous studies had already demonstrated that aminotransferases correlate to type 2 diabetes and predict incident diabetes per se (The Mexico City Diabetes Study), other than as well as plasma glucose and insulin.

4) In the present study the authors tried to identify a new predictor of diabetes useful for general population; however they did not study a general population, but only volunteers; this could have introduced some selection-bias.

5) The population was not screened for fundamental biochemical parameters such as markers of viral hepatitis; this limitation clearly affects the strength of reported results.
6) The Authors stated that population was evaluated according to the degree of physical activity and to where the activity was done (see Measures of Inclusion Section page 5); no criteria utilized to define physical activity were, on the contrary, reported; in the absence of definition, the interpretation of data as reported in Table 1 (Intense physical activity) and in Results Section (see page 8) is strongly limited. The same for the smoking habits: what criteria were utilized? (Smoker non smoker?; other?)

7) The studied population shows clear unbalance as far as Women/Men distribution according to Fatty liver index (see Table 1). Actually, 73% of women showed a fatty liver index < 20 vs 32% as obtained in men. This point should be carefully discussed.

8) Data on FLI classes are shown as mean +/- SD; this form of presentation of data is questionable in the absence of data on distribution.

Minor:
The manuscript needs important revision for English.

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

Quality of written English: Needs some language corrections before being published

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