Reviewer's report

Title: A comparison of diagnostic tests for lactose malabsorption - which one is the best?

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Reviewer: Piero Vernia

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The study, although of some interest, is not new. In 1975 Necomer et al published in NEJM a paper addressing the same problem. The test for genetic defect is here used (and in a subset of patients only) whereas Newcomer measured lactase activity. In both papers the serum glucose levels after a lactose load were compared to the H2 breath test. Glucose levels, however, are not any more used in adults, being less reliable that other techniques for the diagnosis of lactose malabsorption /intolerance.

One main problem resides in the overall number of patients, which is low. The patient selection, based on perceived milk intolerance (which is utterly unreliable) and/or “non specific abdominal discomfort” is vague and debatable. Better defined inclusion criteria, a larger patient series, and, possibly, exploring the genetic defect in all patients would add much to this study.

The most interesting point of the paper is the demonstration that the sum of H2 plus CH4 x 2 has slightly better diagnostic properties as compared to H2. Theoretically this approach is sound, H2 plus CH4 x 2 expressing more precisely than H2 alone the overall production/excretion of hydrogen. Nonetheless the clinical use of methane is difficult as its concentration is highly variable, both in fasting condition and after meals. The problem, in my opinion should be discussed in detail by the authors.

Level of interest: An article of limited interest

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests