Reviewer's report

Title: A Point-of-Care test for facing the burden of undiagnosed celiac disease in the Mediterranean area: a pragmatic design study

Version: 3 Date: 27 October 2014

Reviewer: Daniela Basso

Reviewer's report:

The study "A point-of-care test for facing the burden of undiagnosed celiac disease in the Mediterranean area: a pragmatic design study" by Costa et al. is aimed to demonstrate that new generation POCT for CD diagnosis is cost-effective.

Major compulsory revision:

Data do not support conclusions.

A reasonable premise and conclusion for POCT use in CD setting regards only countries without laboratories facilities. It is not true what stated in the introduction that ELISAs "are laborious and expensive". In well organized laboratories, CD serum testing is fast, not expensive and, differently from POCT, is under continuous monitoring for quality control. Moreover, the statement in the introduction that POCT are "easy-to-perform" is contradicted by the results (fig 1 compared to fig 2 and 3): the rate of classification error increases when POCT are used by different persons suggesting that it is not so easy to perform. The other statement which is also the leit motiv of the study is POCT low cost, but no data regarding POCT cost and comparison with standard ELISA are provided.

An ideal diagnostic test should be 100% sensitive and specific, but this rarely occurs. For screening purposes, as those claimed for this POCT, sensitivity must be privileged and should be as high as possible, while a low specificity might be accepted. This does not appears to be the case of this POCT (PPV of about 90% and NPV of about 98%).

The results presented in table 2 are not clearly described. i.e. are the No CD found the number of patients with a confirmed histological diagnosis of CD?

A more detailed analysis of POCT results in comparison with standard ELISA should be presented. In particular was there any association between POCT results and ELISA tTG levels? In the paper by Raivio et al (ref 16) it appears clearly from figure 2 that the lowest ELISA value among those with POCT positive results is about five fold the cut-off. If this is the sensitivity of POCT this must be defined.

Some considerations on CD prevalence among the different countries studied should also be taken into account. By POCT CD was identified in Italy in 19/3559, in Slovenia in 7/1480, in Turkey in 1/771. Do these prevalences fit with data in the literature?
Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests