Reviewer's report

Title: Utilization of serology for the diagnosis of suspected Lyme borreliosis in Denmark: Prospective survey of patients seen in general practice

Version: 1 Date: 27 February 2010

Reviewer: Hermann Girschick

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Major Compulsory Revisions

1. Is the question posed by the authors well defined? yes

2. Are the methods appropriate and well described? in part,

the reader would like to have a comparative analysis using other modes of serology typing, like ELISA including more epitopes than the flagellin prone for cross reactivity, or western blotting.

Especially the high IGM rates found in children are unexplained and might reflect cross reactivity to other flagella bearing bacterial pathogens, not only EBV or CMV as suspected by the authors but not proven.

In addition, the non significant variations of the serotyping IgM and IgG over the months of the year indicate a low specificity for borrelia but a high sensitivity to other pathogens of the test, finally resulting in an underestimation of the actual infection rates/seropositivity in borrelia specific clinical pictures like lymphocytoma or chronic neuroborreliosis, but an overestimation of seropositivity in clinical pictures like rash (17% IgG positive).

The authors state this in part themselves with regard to the seropositivity of arthritis patients. Here the test does not help at all to decide who has an infection or not, or one would state that decision on treatment in 8.4 % of individuals can not be based on the ELISA performed (IgM 2.3 % and IgG 6.6%). It is not clear wether the treated individuals were actually the ones who were seropositive. Whether 8.4 % percent ment that this is the fraction of treated individuals out of the whole group or whether this is the seropositivity of the treated ones.

On the other hand, the surprisingly low incidence rates for IgG in acrodermatitis, chronic neuroborreliosis realy question the clinical value of the serological test, because here one would at least consider the seropositivity to be much higher. this remains unexplained by the authors.

It is not really clear in the table 1 which patient was treated, whether the percentage shown in the 6th colums is the seropositivity or the mere percentage of patients treated.
3. Are the data sound?
questions remain on the clinical usefulness of the test

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
yes

5. Are the discussion and conclusions well balanced and adequately supported by the data?
the reviewer would consider the test much more questionable than the authors do

6. Are limitations of the work clearly stated?
Not to the extent, as stated above

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
yes

8. Do the title and abstract accurately convey what has been found?
In part the survey has been retrospective, because the reports on diagnosis were done after serology was obtained

9. Is the writing acceptable?
yes

**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:**
nothing to report
'I declare that I have no competing interests'