Reviewer's report

**Title:** Mapping of Hormones and Cortisol Responses in Patients after Neuroborreliosis.

**Version:** 2  **Date:** 27 September 2009

**Reviewer:** John J Halperin

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This very interesting paper addresses possible endocrine dysfunction in patients with persistent symptoms following the diagnosis and treatment of Lyme neuroborreliosis. I believe the paper could be substantially improved if the following issues were addressed (major compulsory revisions):

1. What were the features that validated the initial diagnosis of Lyme neuroborreliosis? Did patients have meningitis, cranial neuritis, radiculitis or something else? Were all seropositive? What was the range of values of the AI and how did that compare to the normal range? Who documented the residual neurologic signs – a neurologist? (I note none of the authors is a neurologist.)

2. The authors created a numerical summary of the patients' residual signs and symptoms. Both with the total measure and the symptom measure correlated with the aberrant cortisol response. I assume it did not correlate with the measure of residual findings on examination?

3. Was there any information about the characteristics of the patients who declined participation?

4. Were there any differences in the cortisol response among patients treated with doxycycline vs parenteral regimens?

5. The division into 2 groups based on a PTS score of 4 seems post hoc. Did the authors do any sensitivity analyses to see how dependent their conclusion was on the specific number chosen?

6. The most important issue relates to the control group. As the authors point out in their discussion, there are important abnormalities of cortisol responses in depression. It would have been extremely helpful if the authors performed a depression inventory in the NB patients, compared their results to depressed controls, or both.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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