Reviewer's report

Title: Co-infection of human parvovirus B19 with Plasmodium falciparum contributes to malaria disease severity in Gabonese patients

Version: 2 Date: 13 May 2013

Reviewer: Kevin K Brown

Reviewer's report:

The manuscript describes a study to investing the possible role of parvovirus B19 infection in patients with malaria. However it is not clear what hypothesis the authors are investigating. Is it that parvovirus B19 infection in the past is associated with increased severity of anemia in patients with malaria. Or is it that recent infection/co-infection with parvovirus B19 is associated with more severe anemia. It is the latter that has been hypothesized in the past and appears to be the current area of interest. Depending on the hypothesis to be tested, then the study should be set up accordingly.

The second major concern is that the authors appear to assume that the detection of parvovirus B19 DNA is equivalent to active infection with B19. There are a number of papers in the literature that show that B19V DNA can be detected, albeit at low levels, probably for the rest of a person's life. Therefore it is not sufficient to simply detect B19 and say that this means something. Often a viral load of >10^4 IU/ml combined with IgM can be used to distinguish recent infection from past infection.

Thirdly there is insufficient information to describe where and when these patient samples were collected. Are these the same samples collected in 1995-1996 and previously described. If so, then it needs to be recorded how the samples were processed and stored. If not the information on when the samples were collected, how patients were identified (ie consecutive patients attending the hospital with severe Pl falciparum infection etc). Also how the control were identified, and where they age, sex, locality and time matched.

Insufficient information is provided on the statistical analysis. It appears than the mean of viral load is provided, and yet this is inappropriate for a non-Gaussian distribution. It is not stated what the confidence limits are.

Minor essential revisions

No information provided on how the samples were extracted.

No information provided on the serology

Why was serology only done on such as small subset? And why only on the PCR positive/malaria samples?

Please use standard SI units for all measurements (give Hb level not hematocrit),
and IU/ml for viral load.
Sequences should be submitted to GenBank or equivocal.
Insufficient information provided to understand what statistical tests have been done, and what confidence limits.
Inadequate information provided on the figures to interpret the box graphs.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

No financial interest