Reviewer's report

Title: A first insight into the genotypic diversity of Mycobacterium tuberculosis from Rwanda

Version: 3 Date: 2 October 2012

Reviewer: Matthew Bates

Reviewer's report:

- Major Compulsory Revisions

The manuscript is much improved and mainly requires only spelling or grammar corrections as detailed below. I have just one major reservation remaining which I think could be easily addressed by the authors.

In the abstract the authors conclude: “Mycobacterium tuberculosis is the most prevalent species of Mycobacterium tuberculosis complex in Rwanda, and SIT 52 (T2) the predominant strain. Drug resistance was more pronounced in retreatment cases but no significant difference was observed by HIV status in relation to any spoligotypes” and again at the end of the paper they conclude: "Mycobacterium tuberculosis is the most prevalent species of Mycobacterium tuberculosis complex in Rwanda, and SIT 52 (T2) the predominant strain. Drug resistance was more pronounced in retreatment cases but no significant difference was observed by HIV status.”

So these are the two main findings? Whilst I have a minor issue with text being simply cut and paste and duplicated in different sections, I would overlook this possibly justifiable repetition, if the results and analysis presented actually supported the conclusion.

1) With respect to the HIV conclusion statement

When the word ‘significance’ is used, some statistical analysis has to have been undertaken to show the ‘significance’ or lack thereof. I propose something like the following change to your results (blue) and text to be replaced (green):

“In the sample analyzed, 69 patients (45.7%) were HIV sero-positive, 76 (50.3%) sero-negative, while 6 (4%) did not have test results hence their status unknown. Of the 69 sero-positive cases, 42 (60.9%) were TB retreatment cases while 52/76 (26.3%) of the sero-negative cases were retreatment. An analysis of the drug susceptibility pattern of isolates from the 69 HIV seropositive individuals showed that 31 had strains resistant to isoniazid, 32 to rifampicin while 30 (43.5%) were MDR isolates. Analysis of the two major spoligotypes and HIV sero-status of patients showed that among HIV positive patients, ??/?? (??%) had strains of the SIT 52 cluster, vs ??/?? (??%) HIV negative patients (p = ?.???). Likewise, among HIV positive patients ??/?? (??%) had strains of the SIT 125 cluster, vs ??/?? (??%) in HIV negative patients (p = ?.???).strains of the SIT
52 cluster had 19/48 (39.6%) sero-positive individuals while 26/48 (54.2%) were sero-negative and the remaining three patients did not have test results. SIT 125 with 12 strains, on the other hand, had seven sero-positive and five sero-negative individuals. The sero-status of the patients carrying unclustered strains in the study is shown in Figure 1. There was no statistical relationship between HIV sero-status of the patients and any particular spoligotypes pattern.”

I also think that Figure 1 should group strains by HIV, so that the reader can clearly see no pattern, in support of the conclusions.

2) With respect to the MDR conclusion statement

Then with respect to the conclusion about MDR: “Drug resistance was more pronounced in retreatment cases”. Is the ‘pronouncement’ significant or not? Either way... the two proportions need to be compared by chi-squared and p values stated. It is the following excerpt from the results which needs the p values adding to it:

“Among the retreatment cases, 48/94 (51.1%) were MDR, while 13/46? (28.3%) of the new cases were MDR (p = 0.0105). A summary of patient demographic characteristics and associated drug susceptibility pattern is shown in Table 1.”

There is significantly more MDR in the retreatment cases (as you would expect). Suggest you replace ‘more pronounced’ with ‘significantly more’ wherever in the document you refer to this finding.

- Minor Essential Revisions

the rest of the document needs combing through to make sure it is confluent with the above changes... plus more careful attention to typos and grammar:

In the abstract alone:

1) “ability to transmit” change to “transmission”
2) “Of 94 of the retreatment cases” change to “Of 94 retreatment cases”
3) Small “p” for significance

In the discussion, add an ‘s’ to ‘finding’ in the following statement.

“Finding from the current study, however, are in agreement with the previous data from Uganda”

- Discretionary Revisions

None

Level of interest: An article of importance in its field

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