Reviewer's report

Title: Tuberculosis recurrence and mortality rates in successfully treated tuberculosis patients in southern Ethiopia: retrospective cohort study

Version: 1 Date: 25 January 2009

Reviewer: kolappan pillai

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Report

Major Compulsory Revision:
1. Cases included in this study are cured and completed cases. These cases are appropriate for studying recurrence rate only. But not appropriate for mortality rate because these groups of cases have the least mortality rates. The findings from this study may not be comparable with studies reporting TB mortality rates for all types of cases. For studying mortality rate, all cases should be included because defaulters and failures have highest mortality rates. This study has selectively excluded defaulters and failures, which will result in, under estimation of mortality rate among Tb cases.

2. The calculation of Recurrence rate and mortality rate (The authors describe them as IR for recurrence and death), which are the outcome measures, are not correct. Even though they were correctly defined in the text (page 6,para 3,line 5) as number of deaths or recurrences per 100PYO, in the results section and in tables 2 and 3 they have calculated them as recurrence or death PYO/ Total PYO. For example, the mortality rate was reported as (148/2602 in page 8) 5.7/100 PYO. But the actual mortality rate is (64/2602) 2.46/100 PYO. The entire paper has to be thoroughly revised as all the findings and discussions based on them have to be suitably modified.

3. The smear positive case is not clearly defined. It has to be clearly defined whether it includes only new smear positives or both new and retreatment smear positive cases. It is desirable to bifurcate smear positive cases into new cases and retreatment cases, as the mortality rate is more among retreatment cases than new cases.

4. The smear negative cases also are not defined clearly. How was the diagnosis of smear negative cases made? Does this group include only radiological cases or smear negative culture positive cases or clinically suspect cases.

5. The study population is a cohort of TB cases registered from 1998 to 2006. When was this retrospective cohort study started? When was the data collection completed? This has to be clearly stated in the methods section.

6. The methods section must include details of DOTS programme in the study area like number of heath institutions in the TU, the type of DOTS providers,
quality of recording and reporting in the programme, estimated case load in the
study area, performance indicators such as case detection rates, conversion
rates, cure rates and completion rates during the study period.

Minor Essential Revision:

1. The duration of treatment and mandatory sputum examinations during
treatment have to be clearly stated.

2. Explain how the recurrent cases were diagnosed especially for smear negative
and extra pulmonary TB.

3. The authors say that the reference population and the study population have
similar socioeconomic development and have same altitudes. Comparison of the
heath care services in the two populations will be more relevant.

4. Table 4 is not clear. The SMR is calculated as follows:
   Observed number of deaths O
   PYO for this group n P-Ys
   Standard rate y/1000 P-Ys
   Expected number of deaths E (calculated as n* y/1000)
   SMR O/E.
   Rewrite the table 4 as shown above.

5. Discussion is very shallow. Needs to be completely revised; Comparison with
findings of similar studies. Discuss possible reasons for the difference.
References to HIV prevalence and MDR TB should be substantiated with
appropriate figures. If the authors have information on HIV prevalence and MDR
TB in this study population, it should be reported and used in the discussion.
Difference in the Mortality rates between farmers and non-farmers should be
discussed in more detail.

6. Three different terms are used for mortality. Mortality rate, IR for death and
death rate. Mortality rate is an incidence rate. I would suggest using the term
mortality rate only.

Discretionary Revision:

1. Under discussion in Para 2 the authors compare recurrence rate of 3.5% with
studies reporting similar rates for different follow up periods but this study has not
mentioned any period of follow up. Not possible to compare. But this study
reports recurrence rate as cases/100PYO. (2.8/100PYO reported in table 2 is not
correct .The correct recurrence rate is 0.94/100PYO). This rate can be expressed
as 0.94% per annum.

2. Page 9,para 1 line 4 states ‘gaps’ in the programme. Explain the ‘gaps’

3. Page 9,para 2line 2mentions mortality rate as 7.7%. How this figure was
obtained? Table 3 shows 5.7/100pyo as mortality rate. But as mentioned above this is not correct. The correct mortality rate is 2.5/100PYO or 2.5% per annum.

4. Same page, Para 3, line 1 says IR of death as 5.7/100PYO. To be corrected as 2.5/100pyo.

5. Page 9, para 4, line 1 says similar study report from India but the study is not referred. Which study is being referred? Give reference.

6. Page 10, para 2, limitations should include exclusion of cases with other treatment outcomes for the study.

7. The study findings have to be discussed rather than comparing with other study results.

8. Conclusion should relate to this study objectives and findings. It mentions that Tb treatment has improved the survival of patients. Show evidence. The authors refer to patients occupationally associated with HIV. What are the occupations? Conclusion has nothing to do with the study findings. Completely rewrite relevant conclusions for this study.

9. Table 2: different variables have different totals. Should have same totals. Recurrence PYO column not required. IR of recurrence to be replaced by Recurrence Rate per 100 PYO. Age variable has only one row and no reference group.

10. Table 3: The comments for table 2 applies to Table 3 also.

11. Table 4: Age category can be grouped into two or three groups. Table should be rewritten as mentioned in the comment on calculation of SMR.

12. Figure 3: The curve shows follow-up up to 8 years. The text says average follow-up period was 3.59 person years. How many patients were followed up in each group and how long? Show the numbers followed up for each group in the figure. The text and the figure do not match.

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'