Reviewer's report

Title: The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik province of Armenia: Cross-sectional study

Version: 2 Date: 6 March 2015

Reviewer: Marzieh Katibeh

Reviewer’s report:

Peer-review results

The manuscript is based on a study on diabetic retinopathy that is a priority of the WHO and Vision 2020 program. The study has been conducted in an area with insufficient previous data, therefore, the results have public health importance. I suggest the following comments for improving the quality of the manuscript.

Abstract

1. Minor Essential Revisions: Background, the sentence “Diabetic retinopathy (DR) is the leading cause of vision loss in adults…” should be modified. DR is one of the leading causes of blindness in adults not the leading cause.

Background

2. Major Compulsory Revisions: The sentence “Age-related blindness is increasing throughout the world, as is blindness due to uncontrolled diabetes.” is not given in the Ref 2. Ref 2 says AMD, cataract and glaucoma are the leading causes of blindness in the US and “aging” is the main reason for increasing blindness in the next 20 years. DR is very important and prevalent but it is necessary to be accurate in selecting and interpreting the proper citations.

Method

Data collection

3. Major Compulsory Revisions: Please include more details about the sampling frame, sampling method, date and duration of data collection phase. It is not clear how many urban and rural PHC units are located in the survey area? how many of them where included in this study? What is the coverage rate of DM registry in these units? etc.,

4. Major Compulsory Revisions: Discretionary Revisions: Do endocrinologists work at PHC level in this province? Usually mid-/low-level staffs work at PHC level. Please clarify

5. The response rate is very low (47%) and only known and registered subjects with DM were recruited; therefore, it seems occurring selection-bias has been very probable in this study. I recommend including a paragraph in the discussion and explaining about this limitation and its effect on the results.

Instrument

6. Major Compulsory Revisions: Page 5, last Para: Please include the instrument
or give an accessible reference. I could not find the instrument.

Study variables

7. Major Compulsory Revisions: Variables. Page 6: In sentence “The blood glucose level was estimated based on the patients’ recall of the latest result of their blood glucose level.”, please consider it as the study limitation because it may be a source for information bias in this study because even a documented blood sample (BS or FBS) is not a good indicator for managing blood sugar. Instead, HA1c is a more reliable indicator.

8. Major Compulsory Revisions: Behavioral Risk Factors Surveillance System Questionnaire: Page 6, last Para: Please include the instrument or give an accessible link.

Eye screening procedure

9. Major Compulsory Revisions: The grading of DR is usually based on EDTRS, ICO or Scottish classification not WHO. Therefore, it can limit the comparability of your results with other studies. I would recommend to reanalysis your results considering the ICO (International Council of Ophthalmology) classification for DR grading.

10. Major Compulsory Revisions: How macular edema was identified and classified? I think ME should be included in the results because it is very important in patients with DM.

11. Major Compulsory Revisions: Currently, stereoscopic fundus photography is proposed for DR classification but clinical examination was used in this study. Again it may be a source of misclassification (information bias) in this study and should be included in study limitation.

Ethical Consideration

12. Discretionary Revisions: Oral consent should have been observed by a witness or ideally a written consent should have been taken.

Analysis

13. Major Compulsory Revisions: Age- and sex-standardized prevalence rates are usually reported in an epidemiologic study. Please give adjusted prevalence rates of DR and its grading considering “all registered people with DM in Gegharkunik province” as the sampling in your study.

14. Major Compulsory Revisions: In terms of descriptive statistics, they should be more precise. Please add 95% CI to all proportions (e.g. DR prevalence,…)

Results

15. Minor Essential Revisions: Please add the response rate.

16. Major Compulsory Revisions: Please compare the baseline characteristics of the responders and non-responders. It can help to interpret the generalizability of the results.

17. Minor Essential Revisions: Page 9, Para 3, sentence “Roughly half of the patients were physically active …..”: In the result section, the exact amount of
each variable should be reported. Please replace “roughly” with a precise figure.

18. Major Compulsory Revisions: Page 9, Para 4: “bivariate logistic regression” is used for binary variables. How this model has been used for age or diabetes duration that are continues variables. Please consider revising the model.

19. Discretionary Revisions: Page 9, last Para: In addition, it is better not to exclude some main confounding variables like smoking, and physical activity from the multivariate logistic regression model.

Discussion

Minor Essential Revisions: It is a well-written discussion but after revising the Method and Result sections based on above comments, some modifications are required.

Tables

Please revise tables by adding more precise data and analysis that are proposed in the Analysis and Method sections.

20. Major Compulsory Revisions: Table 1: please include crude and standardized rates. And please included more details of DR and macular edema grading (e.g. mild NPDR, moderate NPDR,….Mild DME, CSME,...)

21. Minor Essential: Table 1: please add 95%CI to the prevalence rates

Reference (Major Compulsory Revisions)

22. Ref 1: Please complete the citation. The CDC of which country is referred to? In addition, I could not access to the document by connecting to the given link.

23. Ref 23: Again the exact webpage cannot be found. Please give the exact citation. If it is a standard questionnaire or method, it should have been published as a paper or in a textbook.

24. Ref 20, 23, 25, 28: Please replace these references with a primary reference. The WHO, the CDC and other organizations usually give their recommendations based on some robust published papers, so please find those citations and cite to the main sources.

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

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests: None