Reviewer's report

Title: Computer aided quantification for retinal lesions in patients with moderate and severe non-proliferative diabetic retinopathy: a retrospective cohort study

Version: 1 Date: 8 December 2013

Reviewer: Yogita Kanan

Reviewer's report:

A new computer aided analysis of retinal lesions in patients of NPDR is presented. This method could improve on or aid lesion diagnosis by clinicians. There are some English language issues with many sentences difficult to understand but otherwise a good paper.

Major Compulsory Revisions:

1). In the background portion of the abstract, the authors say ‘Retinal lesions like micro-aneurysms and exudates are important for clinical diagnosis for diabetes retinopathy’.

Change this sentence to ‘Detection of retinal lesions like micro-aneurysms and exudates are important for the clinical diagnosis of diabetes retinopathy.’

2). In the background portion of the abstract the authors say ‘The traditional subjective judgments by clinicians are dependent on their experience and lack of consistency, therefore quantification of lesions is worthwhile’.

Please change the sentence to ‘The traditional subjective judgments by clinicians are dependent on their experience and can be subject to lack of consistency and therefore a quantification method is worthwhile’.

3). In the Dataset selection and preparation section, the authors say ‘All the fundus images were obtained from the same digital fundus camera under 45o field of view (FOV) and macular as image center to keep the image acquisition condition consistency at 3504 x 2336 pixels, and the patients accompanied with excluded.’

This sentence is too long and confusing. Please fragment like shown below.

‘All the fundus images were obtained with the same 45° field of view (FOV) camera, with the macula at the center. The image acquisition conditions were consistent at 3504 x 2336 pixels.

Please explain what ‘the patients accompanied with excluded’ means?

4) Correct the spelling of 'Exduate' to 'Exudate' in the 'Exudate detection' section in Methods.

5) In the ‘Exudate detection’ writeup, the author says ‘Then, morphological operators including erosion and dilation were performed on segmented binary
image to exclude the noisy’.

Change the word noisy to noise.

6). In the ‘Exudate detection’ writeup, the author says ‘To prevent the influence of pixel calibration, the area of total exudates were divided by the area of optic disk, which is name as exudates/disk ratio were calculated’.

To make this sentence clear, change this sentence to

To prevent the influence of pixel calibration, the area of total exudates were divided by the area of optic disk and this value was called exudates/disk ratio.

7). In the statistical analysis section, change ‘The P value less than 0.05 was treated as statistical Significance’ to ‘The P value less than 0.05 was treated as statistically significant’.

Minor Essential Revisions:

1). Please discuss if other computer analysis methods for NPDR classifications are available and how this method compares with the other models.

Discretionary Revisions: None

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

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.