Reviewer's report

Title: Predictive multi-imaging biomarkers relevant for visual acuity in idiopathic macular telangiectasis type 1

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Reviewer: Solmaz Abdolrahimzadeh

Reviewer's report:

The manuscript by Zhang et al describes optical coherence angiography SD-OCT and (OCT A) findings in idiopathic macular telangiectasia type 1.

The paper is innovative, and the results are very interesting, especially since there are few articles on these aspects in macular telangiectasia.

However, the manuscript is very difficult to read and comprehend due to numerous grammatical errors (phrasing, paragraphs, spelling, word choice etc). Furthermore, although the results are very interesting, overall these are not presented in a clear and logical order. The errors are too many to mention in the context of a scientific review and the paper needs to be scrutinised and carefully reviewed as regarding appropriate medical writing (including tables headings, legends, format etc) and English.

Some further points should be addressed:

Key words: please expand (eg DRIL, EZ....)

Introduction:

It would be useful if the authors briefly reported on the current classification of MT types 1 and 2.

The authors briefly state the utility of OCTA but it would be useful to also describe the utility of SD-OCT and mention that thickness of vascularized layers can be evaluated by automatic segmentation (Demirkaya N et al. Effect of age on individual retinal layer thickness in normal eyes as measured with spectral-domain optical coherence tomography. Invest Ophthalmol and Vis Sci 2013; 54:4934-4940 and Abdolrahimzadeh et al. Optical coherence tomography evidence on the correlation of choroidal thickness and age with vascularized retinal layers in normal eyes.
Retina 2016; 36(12): 2329-2338) but that OCT A can provide further details on the vascular networks …

The authors report "In previous research, visual acuity (VA) of MT type 1 was assessed the correlation with IS/OS and cystoid spaces" and put reference 2 for this (Sugiura Y et al) who, however, do not mention IS/OS in their paper. Please amend this.

Materials and methods:

Please confirm absence of retinal changes in fellow and normal eyes.

Please mention time range when OCT examinations were carried out, if possible.

The authors report that the vascular layers assessed were divided into 4 layers SCP, DCP, outer layer, and choroidal layers by OCT A. However, they do not report their results on the choroidal layers. Neither do they discuss this interesting aspect. Please explain or add relevant data to this respect.

Results:

The phrase "all patients had blurred vision of the diseased eyes at the first visit" can be deleted.

Please state vision of contralateral eyes; and vision and CMT in normal eyes.

Which eyes of the healthy controls were used? Were these 10 eyes or ten patients? Both eyes? or one eye of each patient? Table states "normal eyes -10" but in the abstract the authors state "10 healthy people as age matched controls"

Furthermore, the results seem to be based on comparison of eyes with MT and contralateral eyes and there is no mention of "normal eyes" in the analysis of data.

In table 1 the values for SCP in the contralateral eyes and normal eyes are not shown.
Discussion:

The authors should discuss their results with comparison to the existing literature. In the introduction, the authors do state "However, there was few SD-OCT and OCT A derived parameters associated with VA", therefore, it would be useful to better discuss these papers in the discussion section with appropriate references. As an example they should compare their results with those of Matet et al in AJO as regarding the correlation of VA with the superficial and deep capillary plexus.

The authors state that "It has been proven that the deep capillary bed is conductive to the oxygen requirements of the photoreceptor layer " and have cited reference 22. The authors should expand on this concept as it can be misleading. First, they should mention that the study they cite has been on an animal model. Second, Birol et al reported that "… photoreceptors …are supplied primarily by the choroidal circulation, with only 10-15% of the supply coming from the retinal circulation." This should be clearly mentioned. Furthermore, Birol et al conclude that "oxygenation of the fovea is somewhat different from that of the perifovea....." thus, it would be useful to mention this and discuss any correlations that might be relevant as regarding the foveal and perifoveal areas.

The authors should delete " And from patients 4, we predicted that the vascular changes of DCP scaled by OCT A were a earlier sign of MT type 1" from the first paragraph of the discussion. The first paragraph should include the most significant results. The authors extensively describe the alterations in patient 4; although this is interesting, it confuses the reader and interrupts the train of thought for the major results they obtained; therefore, the discussion should be focused on these.

(Also the last sentence of the results is a conclusion and not a result … and can be deleted: "From patient 4 we discovered…")

The sentence "These OCT and OCT A derived anatomic parameters could act as better alternatives for evaluating VA to select the therapeutic regimen and participant counselling " should be modified to not be an "alternative" to VA but to provide "further" information. The sentence should be more of a conclusive sentence and perhaps the authors could briefly mention the "therapeutic regimens" that could be selected.

Conclusions

The conclusions should be more completely presented eg the authors do not mention telangiectasia
Table headings: there are misused capital letters.

Figure legends: abbreviations should be first written in full and then abbreviated, improve legend presentation eg do not use "stands for" etc.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Unable to assess

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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