Reviewer's report

Title: Detection of microvascular changes in a paediatric and adolescent population with type 1 diabetes: A pilot cross-sectional study.

Version: 3 Date: 15 August 2013

Reviewer: Anna Zampetti

Reviewer's report:

Revision
I review the paper for the second time. Many changes have been made and the paper has slightly improved. Nevertheless in my opinion it deserves to be extensively revised.

The title is better now but you can try for example “Assessment of early microvascular changes by multiple non invasive techniques in a pediatric population with type I Diabetes: a pilot cross sectional study.

ABSTRACT

Please specify better the purpose of the study.

Was really the ability of nailfold capillaroscopy and the other techniques to detect early microvascular changes or to see if the combination of these techniques could detect better the early microvascular changes?

Furthermore I did not like the verb “explore as it is probably appropriate for an invasive procedure and all these techniques are not. Probably this point should also be underlined somewhere in the discussion and mentioned in the purpose. Please also add that you wanted to correlate the results with specific laboratory parameters.

The paper is still confused to the reader in several points. There are many parameters analysed and its difficult to understand the methodology and the results.

Please find enclosed all the questions that were raised by me reading the paper.

ABSTRACT

In methods… please change “ the cardiovascular investigations”, capillaroscopy is routinely not used by cardiologist but rheumatologist and immunologist. Please change the sentence: Associations were described … Associations of what?? Please clarify this sentence.

In results please put a comma after “recruited”, in the first sentence. Then start with “ patients had a mean HbA1c of 8.1%... You should subdivided the results according to the procedures analysed.. then,, please change as it follows .Capillaroscopy showed that avascular areas were present in patients with … The higher number of microhaemorrhages was found
correlated to ... recent Hb A1 increase ( is this correct?)
There is no mention about the length and onset of increased HbA1c ..
You should better described and summarize the specific capillaroscopy parameters that were used and how the correlation was done. Although you report this extensively later in the paper , the abstract is really confused and doesn’t provide clear information about the methodology and results.

In the Conclusion of abstract), what does “moderate” duration of diabetes mean?? Did you classify the length in moderate, severe, slight??.
I would prefer to change the sentence “ poor diabetes control” into “ with increased level of. HbA1c.... simply.
At the end of the abstract, there are no conclusion of retinal and Blood pressure monitoring as the reader is expecting .

BACKGROUND
Please erase from the background the paragraph .. We undertook... etc..
It is a repetition....
It was already written in the abstract...
Please go straight to the background.
You should write for example.. Many techniques area currently available to analyze the microvascular involvement ...
Then you can briefly describe this techniques to the reader.
Please change the sentence” to explore the use of other more recent investigation techniques…” into.. “ to evaluate the use in association of the following non invasive procedures. These procedures are able to assess the morphology and functionality of microvascular network in different anatomic areas. Specificall we used ,.. capillaroscopy etc....
I am not sure that including 24 Blood pressure could add any information to the study and you should consider to exclude this technique.
The capillary abnormalities usually analyzed, should be summarize in a table and not reported in the text ( too long!)
You should then write. ... Several capillary changes have been described in diabetes with poor metabolic control, although the results have been debated by other authors.
Clarify that capillaroscopy has many limitations in children ( as reported by Zampetti et al 2009 )
You mention the study ( Ref. 10) please clarify. What does the different reperfusion mean in diabetic pediatric patient??
Please re-write more clearly the paragraph that mentions ref 11. It is completely confused. Try this way....With regard to the retinal vessel involvement, semiautomated computer-based imaging program have shown that ......
In the retinal vessel assessment section, you should specify when the images were taken.

In the discussion Please change the first sentence “ This exploratory pilot study demonstrated that results were significantly linked …. I checked the table showing the results and the p was statistically not significant. What do you mean? Is there any trend of association? You could write , “ although statistically not significant the results showed that …. The sentence “ This result suggest that changes to the microcirculation in the periphery…. “ is enigmatic.

The sentence “ Both morphological and functional capillary changes were found in the partecipants” or a similar sentence should be put at the beginning of the discussion… and the concept should be further discussed.

As already reported in this revision, I am not sure about the usefulness of 24 h Blood pressure test and you should actually consider to delete this technique.

Please clarify the sentence “ This study suggest s that these investigations are associated with the traditional markers of poor diabetic control… . You did not discuss this ….no point about the correlation with the laboratory parameters and if glycosilated Heamoglobin is a sufficient marker.

In conclusion the paper deserves an extensive and accurate revision. It contains some interesting findings but It should be more clearly rewritten and simplified. The analyzed variables are so many. This version is not suitable for publication as it is.

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