Reviewer's report

Title: Theme trends and knowledge structure on choroidal neovascularization: a quantitative and co-word analysis

Version: 0 Date: 26 Sep 2017

Reviewer: Marc Biarnés

Reviewer's report:

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General comments

The manuscript titled "Theme trends and knowledge structure on CNV: a quantitative and co-word analysis" by Zhao et al, use a new methodological approach in the field of Ophthalmology to evaluate trends in research and fields involved in the study of choroidal neovascularization (CNV). The approach is based on reviewing MeSH terms in papers published in Pubmed covering CNV throughout a 4-year period, and using those MeSH terms and co-word analysis as an input for cluster analysis. The aim of the authors is to summarize the main areas of research in this condition and evaluating their inter-relationship and relevance using Strategic diagram analysis and Social network analysis.

The paper needs a little more attention to the way it is written and tables could be more succinct, leaving more comprehensive detail for Supplemental material. Nonetheless, the approach is of interest per se (the paper could benefit from the input of an expert in this field). My concerns arise because the topic selected (CNV) is quite broad and may make interpretation of the results difficult.

CNV is a common pathological downstream feature of many disorders (AMD, high myopia, inflammation, etc.). Perhaps as a result of this, the literature reflects this heterogeneity and this in turn, translates into some categories emerging from cluster analysis being difficult to conceptualize as a single entity or topic. A similar analysis focusing in a single condition (ie, CNV in AMD or angioid streaks) may have led to more easily interpretable and meaningful results.
Some parts of the Discussion may be unnecessary: I believe the reader is not expecting a summary of the areas identified by cluster analysis, but rather how they may relate to each other, the potential of this approach to help advance the field or which potential information may be extracted from measures such as "centrality" or "betweenness". There are other limitations not noted by the authors: it is unclear how the authors reached the final number of categories from cluster analysis. In addition, the methods used assume the same weight is given to any paper, and this may not be the case: many papers could be published in a given area while having little impact on the field (ie, imaging), while others may have a deep impact and yet have little representation using this approach (for example, genetics). These limitations should be discussed in the manuscript.

In summary, an interesting paper with a potential useful methodological addition to the tools we use to conduct meta-research, which would have benefited from a more precise target topic.

Specific comments

Introduction:

Line (L) 30: please, clarify that the growth of new blood vessels is towards the retina

L32-33: "A set of retinopathy" does not seem to be correct. Please, change it to "A group of different entities share the occurrence of CNV…", or similar

L34-35: the incidence of CNV in ROP or DR is very rare. These disorders are characterized by appearance of new blood vessels but their origin is retinal, not choroidal. Please change accordingly.

L39: the effect of anti-VEGF is rarely curative

L64-73: I believe the readers of BMC Oph. would benefit from a graph depicting the different types of centrality

L79: it may be more appropriate to use "…CNV in retinal disease" or similar than "…CNV in retinopathy".
Methods:

L90: please, specify exact dates of paper search. Otherwise, replication cannot be verified. How did you check for duplicated papers? Did you exclude review papers?

L95: please, explain briefly the BICOMB matrix builder

Which criteria is used to arrive at the given number of categories (6) from the cluster analysis and how do you label the emerging categories?

Results:

L190-1: these two terms seem to be describing the same underlying phenomenon

Discussion:

L216: unless information is provided on time changes or trends in selected topics across the study period, this study does not give information on evolution on the knowledge of CNV

L224-6: please, write again this phrase

L260-1: I do not understand the aim of the phrase. Could you please clarify this?

L305-23: I think this is the kind of discussion of interest in this paper. A review of the meaning of the different clusters as conducted in many of previous paragraphs is probably not required.

References:

Please, review the format of References and the wording in Tables (ie, table 4b)
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.

Unable to assess

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

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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