Reviewer’s report

Title: Diagnostic accuracy of three placement sites for the cold test in subjects amongst different age groups.

Version: 0 Date: 03 Sep 2018

Reviewer: Sahng G. Kim

Reviewer's report:

The authors of this study investigated the diagnostic accuracy (sensitivity, specificity, accuracy, positive predictive value and negative predictive value) of cold pulp testing for vital and necrotic teeth according to cold application sites, age groups and genders. The study is interesting, but there are major issues regarding manuscript writing and data presentation/analysis.

1. (Results) The authors should present overall diagnostic accuracy (sensitivity, specificity, accuracy, PPV, and NPV) of cold pulp testing in the three placement sites, MTBS, CTBS, and MTLS, respectively.

2. (Results) It is recommended that the results be presented according to anterior vs posterior teeth. It is thought that the tooth type also affects the results when different cold placement sites were used.

3. (Tables 2, 3 and 4) The authors should present the total values of the results in each column and or row. For example, the results from all ages within the placement sites and genders and the results from all placement sites within the age groups and genders should be added in Table 3. In table 2, diagnostic accuracy values (sensitivity, specificity, PPV, NPV, and accuracy) from all age groups in each placement site should be presented. Similar total values can be presented in Table 4.

4. (Discussion) The authors should compare the diagnostic accuracy values with those of the previous articles or systematic/meta-analysis review papers.

5. (Background and Discussion) The contents need to be described logically without subheadings in Background and Discussion sections. It is recommended that the subheadings should not be used in these sections.

6. There are grammatically awkward sentences and typos. For instance, "The true results are correct diagnoses because the cold test obtained the same diagnosis than that of the ideal standard." (page 3 lines 46-49) "Unfortunately, …an external stimulus from of the nervous system." (page 20 lines 19-20)
7. Please consider using "gold standard" instead of "ideal standard" throughout the manuscript.

8. (Discussion) It would be more interesting if the authors have tested incisal edge or occlusal surface for cold testing since there are previous studies using these sites. Please discuss it in the discussion section.

9. (Discussion) The following sentence may not be appropriate. "We included teeth with…, but studies in teeth with reversible and irreversible pulpitis are necessary." (page 15, lines 57-58) The reversible pulpitis or irreversible pulpitis may not be confirmed using clinical observation. Furthermore, it is not ethical to do any invasive treatment in teeth with reversible pulpitis. Please revise this sentence.

10. (Conclusion) The author should present the overall values of each diagnostic accuracy.

11. (References) Please edit the reference list in the reference style of BMC Oral health.

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.

No

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 am able to assess the statistics

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