Reviewer’s report

Title: The Relationship between Vitamin D Receptor Gene Polymorphism and Deciduous Tooth Decay in Chinese Children

Version: 0 Date: 17 Dec 2016

Reviewer: Lydie Izakovicova Holla

Reviewer’s report:

The authors of manuscript "The association of vitamin D receptor gene polymorphisms with deciduous tooth decay in Chinese children " investigated a possible association between four SNPs in VDR gene and caries susceptibility in a group of 380 subjects with and without dental caries. The authors conclude that VDR BsmI polymorphism can be associated with risk of caries in deciduous teeth in Chinese population. However, I have several concerns about this manuscript and there are many points that should be revised and/or commented.

Major comments:

Introduction:

a) Introduction of this manuscript contains several identical information as discussion (e.g. sentences "Dental caries is one of the most common……..", "A randomized trial demonstrated that vitamin D deficiency……", "Vitamin D is critical to the maintenance of a constant…………", "The biological function of vitamin D was mediated……", "As reported, the activity of VDR protein…….." (this sentence even occurs three times). The same sentences cannot be used firstly in introduction and then in discussion.

b) Please add the reference after the sentence "The prevalence of dental caries is more than 50%..." - the literature gives 90% prevalence of dental caries in the population.

c) The authors mentioned that "Untreated dental caries can lead to pain, tooth loss, and oral infection...." - what oral infection do they mean?

d) The authors should also mention the importance of vitamin D as an immunoregulation factor (not only the factor that affects homeostasis of calcium and phosphate ions.

Material and methods:

a) Study population: The authors describe that 203 female and 177 male were included in this study. It will be better to write girls and boys (considering the fact that the age of children is 4-7 years).
b) Inclusion and exclusion criteria for children should be mentioned.

c) The authors should shortly describe how the levels of S. mutans correspond to the mentioned classification of 0, 1, 2 and 3.

d) If the PCR methods used in the manuscript were taken from the literature, the reference should be sufficient. Only if it is a newly developed method, detailed description should be given.

Statistical analysis:

a) The authors did not include any data on statistical power. I would like to see sample size and power calculation data included in the study design.

b) Authors should explain why is it possible that when they analyzed BsmI polymorphism with frequencies Bb 152 (61.4%) and bb 97 (38.6%), they did not find BB homozygote - did they try to sequence at least part of the samples which after the restriction analysis were Bb? According to the reviewer´s calculation, this result is highly improbable.

Results:

a) Please describe number of caries in a group of children with caries (as mean ± SD or median ± quartiles).

Discussion:

a) Discussion is confused; authors jump from one issue to another and repeat a lot of information from the introduction.

b) It should be useful to compare allele frequencies of VDR SNPs with the frequencies found within other studies in the Chinese population http://onlinelibrary.wiley.com/doi/10.1111/j.1600-0765.2007.01044.x/abstract (for example, in BsmI the frequency highly differs)

c) Some potential limitations to the present study should be considered.

References:

a) The selection of the literature is not completely representative - 3 studies about VDR polymorphism and dental caries have been published to date - the authors should add the third study (Izakovicova Holla et al., Caries Res), which is in compliance with their findings of "no association of TaqI VDR polymorphism with caries". Similarly besides Bayram et al., also other
studies exist confirming the differences in the caries genetic determination in the deciduous and permanent dentition (e.g. Borilova Linhartova et al., Caries Res 2016)

Fig. 1 and 2 are not necessary (could be omitted).

Minor comments:

* In title: Title should be "The association between vitamin D receptor gene polymorphism (not polymorphisms) and deciduous tooth decay in Chinese children" - only BsmI SNP was associated with caries.

* For enzymes, the abbreviation which forms the first three letters of the name of the restriction enzyme is written in italics and the following number is not in italics - e.g. TaqI

* There should be a gap between S. and mutans

* Page 6, paragraph 1: Correct SRBY GREEN as SYBR GREEN

* Page 6, paragraph 2: Correct New England Biolabbs as New England Biolabs

* Table 3: Values 0.000 should be corrected (values are not given without any valid number)

The MS must be carefully edited, numerous stylistic inaccuracies and errors (gaps, brackets - e.g. Tab.2: BsmI and TaqI in comparisons with ApaI and FokI, misspellings) corrected and paper readability improved.

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.

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 am able to assess the statistics

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