ACTA ODONTOLOGICA SCANDINAVICA
2019, VOL. 77, NO. 7, 559
https://doi.org/10.1080/00016357.2019.1632475

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LETTER TO THE EDITOR

Re: *in vivo* evaluation of fluoride and sodium lauryl sulphate in toothpaste on buccal epithelial cells toxicity

Sir,

I read the article by Tadin et al. '*In vivo* evaluation of fluoride and sodium lauryl sulphate in toothpaste on buccal epithelial cells toxicity' [1] with interest. Although it contains alluring data, there are also some confusing points.

First of all, the title of the paper is not correct from point of view of language. It should be following: '*In vivo* evaluation of geno- and cytotoxicity of fluoride and sodium lauryl sulphate in toothpaste on buccal epithelial cells'. It looks like 'buccal epithelial cells' are 'toxic' ….

Form the title, it is clear that toxicity of two compounds was studied only in buccal cells. But in text the authors also mentioned gingival cells. It seems to me that the authors mixed up two types of different cells in oral cavity: gingival and buccal. It is completely unclear which type of cells they studied. From the text it can be supposed that they consider 'gingival' as a synonym of 'buccal'. Although gingival cells can be collected from gingiva and buccal cells from cheeks. The type of cells which was investigated needs clarification.

In 2009, Thomas et al. [2] published a standardized protocol for MN cytome assay which is at present the best protocol for study geno- and cytotoxic effects in exfoliated buccal cells but it can be applied for evaluation of all types of epithelial cells. In that paper is indicated [2] that (based on several earlier studies (Casartelli, 1997 #14) [3]) the use of DNA-non-specific stain is not recommended for staining of epithelial cells. They can lead to false-positive results as was shown in some studies. In the same protocol it is stressed that no less than 2000 differentiated cells per person should evaluated (which was not done).

The authors found that sodium lauryl sulphate contained in toothpastes increases the number of morphological (nuclear) alterations in buccal epithelial cells. It can be proposed that in response to cytotoxic effects leading to cell death, the proliferative activity of buccal will increase. This can be proved by means of measure of basal cells rates which was not done.

The titles of Tables 2 and 3 are wrong ['Mean values and standard deviations for micronucleus test endpoints in buccal epithelial cells (average cytogenetic damage score/1000 gingival epithelial cells) ….']. Nuclear anomalies (all categories in the tables except MN) are not MN endpoints, they do not express cytogenetic damage but reflect cytotoxic effects. Instead it can be written 'micronucleus cytome assay endpoints'.

Tables 1 and 2 as well as Figures 1 and 2 are very confusing and quite difficult for understanding. The rates of cells with karyolysis are surprisingly low (0.05–0.75‰). This means that frequencies of such anomaly were 1 per 20,000 and 1 per 1333 cells, respectively. Since in the experimental study described in Table 2 were involved 20 persons and from each 1000 cells were scored, in time points 2 and 3 only ONE karyolitic cell was found (in total 2). It should be noted that normally the frequencies of this nuclear anomaly in healthy non-exposed persons should be between 20‰ and 200‰ [2].

I also read the publication of the same authors in the same journal concerning cyto- and genotoxicity of whitening kinds in buccal cells [4]. The authors studied along with other nuclear anomalies one very strange anomaly, namely 'nucleoplasmic bridges'. Such anomaly does not exist in epithelial cells [2,5]. As for other types of mammalian cells (not epithelial), such anomaly exists [6]. In my opinion, the authors mixed up this anomaly with another one existing in epithelial cells, namely 'broken egg'. Anyway, an erratum should be published for this mistake not to confuse readers.

As for the first mentioned publication of the authors, appropriate corrections should be made to avoid confusions.

Disclosure statement

No potential conflict of interest was reported by the author.

References

[1] Tadin A, Gavic L, Govic T, et al. *In vivo* evaluation of fluoride and sodium lauryl sulphate in toothpaste on buccal epithelial cells toxicity. Acta Odontol Scand. 2019;77:386–393.

[2] Thomas P, Holland N, Bolognesi C, et al. Buccal micronucleus cytome assay. Nat Protoc. 2009;4:825–837.

[3] Nersesyan A, Kundi M, Atefie K, et al. Effect of staining procedures on the results of micronucleus assays with exfoliated oral mucosa cells. Cancer Epidemiol Biomarkers Prev. 2006;15:1835–1840.

[4] Tadin A, Gavic L, Zeravica A, et al. Assessment of cytotoxic and genotoxic effects of conventional and whitening kinds of toothpaste on oral mucosa cells. Acta Odontol Scand. 2018;76:64–70.

[5] Tolbert PE, Shy CM, Allen JW. Micronuclei and other nuclear anomalies in buccal smears: methods development. Mutat Res. 1992;271:69–77.

[6] Thomas P, Umegaki K, Fenech M. Nucleoplasmic bridges are a sensitive measure of chromosome rearrangement in the cytokinesis-block micronucleus assay. Mutagenesis. 2003;18:187–194.

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Received 16 May 2019; accepted 11 June 2019