**SHUMEYKO, OLESYA**

**“PROGRESSION OF PERIODONTAL DISEASE IN A MAINTENANCE**

**POPULATION OF SMOKERS AND NON-SMOKERS: A 3-YEAR**

**LONGITUDINAL STUDY”**

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1. **When was the work published?**

The work was published in the Journal Of Periodontology, March, 2008;

Vol.79, Issue 3.

1. **What are the main points of the article?**

The main point of this article is to describe the study that was conducted in order to assess disease progression longitudinally in smoking and non-smoking subjects with chronic periodontitis undergoing periodontal maintenance every 3 to 4 months.

1. **Are the qualifications of the authors appropriate?**

Yes. All authors are affiliated with following institutions:

Department of Dental Diagnostics and Surgical Sciences, University of Manitoba, Winnipeg, MB, Canada;

Department of Community Health Sciences, University of Manitoba;

Department of Periodontics, Endodontics and Dental Hygiene, University of Louisville, KY;

Department of Pharmacology and Toxicology, University of Louisville.

1. **Is the purpose clearly stated?**

Yes. The purpose is to assess disease progression longitudinally in smoking and non-smoking subjects with chronic periodontitis undergoing periodontal maintenance every 3 to 4 months.

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1. **Is the experimental design clearly described?**

Yes. The investigators manipulated the following variables: the mean values for Clinical Attachment Loss (CAL), Pockets Depth (PD), Plaque Index (PI) and Bleeding on Probing (BOP) - (dependent variables) were calculated at each annual reevaluation visit, and data were compared between smokers and non-smokers (independent variables).

Subjects were chosen from 127 patients with chronic periodontitis attending a clinic for regular periodontal maintenance. Of these, 108 (85%) patients volunteered for the study. To be included in the data analyses, they had to follow regular maintenance therapy (3-4 months) for three consecutive years. The initial number of self –reported smokers was 23 (later reduced to 16) with 85 subjects reporting to be non-smokers. The self-reported non-smokers included 39 former smokers. Of the original 108 participants, 81 subjects were included in data analysis. The reasons for dropout included mortality, relocation and disinterest. The study was performed in full Accordance with the ethical principles including the World Medical Association Declaration of Helsinki. Informed consent was obtained from each subject.

1. **Have the possible influences on the findings been identified and controls instituted?**

Yes. It has been clearly identified that tobacco smoking correlates inversely with deteriorating periodontal health and that this association may be dose dependent. Additionally, periodontal disease progression is more severe in smokers compared to non-smokers. Researchers also found that after 1 year of maintenance therapy, smoking status did not affect clinical periodontal status. They concluded that smokers can achieve a similar degree of stability in pocket depths as non-smokers as long as they undergo an

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exceptional interventional therapy followed by frequent and effective maintenance visits. I do not think that proper controls were instituted. All participants were well aware of the

ongoing experiment and there were no separation into experimental and control groups.

1. **Has the sample been appropriately selected?**

The selection of the subject is a vital research process. The subjects for this experiment were not selected randomly. The size of the sample was large enough – the final number

of those whose data were analyzed were 81, which is large enough. There were two different groups of participants (smokers and non-smokers), even though a large part of non-smokers admitted to having smoked at some point. The authors admitted to having the key weakness of the research: lack of consideration of specific variables such as diabetes; the inclusion of all patients rather than targeting a specific disease group; and small number of current smokers – 16.

1. **Has the reliability and validity of the article has been assessed?**

Yes. The article was published in well-known and respected journal – “Journal of Periodontology”. Journals represent the most current source of information in any discipline.

1. **Is the experimental therapy compared appropriately to the control therapy?**

I believe that not all of the comparisons were made appropriately. As I mentioned above there was no clear separation into experimental and control groups. Yes, there were two completely different groups of people (smokers and non-smokers), but they were not randomly selected and many variables were not included. According to the researchers,

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the 3-year long experiment failed to demonstrate any statistically significant differences in disease progression (CAL and PD variables), inflammatory indices (PI and BOP)

between current smokers and non-smokers. Despite all the findings the impact of tobacco

smoking on oral and systemic health should not be negated.

1. **Is the investigation of sufficient duration?**

Yes.This experiment was a 3-year longitudinal study.

1. **Have the research questions or hypothesis been answered?**

Yes. The research question was to assess disease progression longitudinally in smoking and non-smoking subjects with chronic periodontitis undergoing periodontal maintenance every 3 to 4 months: there were no significant differences in the number of missing teeth, in the change of Plaque Index and Bleeding on Probing. Current smokers showed tendency to have a greater CAL and deeper PD than non-smokers, but overall there were no significant differences noted in all the variables measured, such as CAL, PI, BOP, and PD between two groups.

1. **Do the interpretations and conclusion logically follow the experimental finding?**

Yes. The interpretations and conclusions are based on the data. They are closely related to findings and appear to be in logical and systematic order.

1. **Do you agree or disagree with article and findings? Why?**

I have mixed feelings about this article. On one hand I disagree with one of the conclusions that the research failed to show significant differences between two participating groups. I strongly believe that the results should be different for the

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“smokers” group, and by “different” I mean more severe findings, because it is a well-known fact the smoking has a detrimental effect not only on the oral cavity, but on the

host immune response as well, which might lead to more rapid, advanced progression of periodontitis. On the other hand, I do agree with the researchers regarding their key weaknesses: not including systematic disease factor (diabetes), including in the experiment subjects who were former smokers and putting them in the same group as non-smokers and having only 16 current participants in the “smokers” group.

14. **What would you change in the article? Why? What would you add/delete?**

Overall, I liked the article. All of the steps were explained in details. The language was clear and it kept me interested the whole time. The only thing I would change is I would add more visual aids (I learn and memorize better and faster when I see a picture associated with the disease). Also it would be very interesting to see the visual comparison of the oral cavities of two different groups.