BASIC SANITATION AND DENTAL CARIES: THE ASSOCIATION BETWEEN THEM

[1] TAFFAREL, Julio Cesar, Stomatology, Federal University of Paraná, Brazil.
juliotaffa@gmail.com

INTRODUCTION

Dental caries is one of the most common chronic diseases in humans. Its incidence has increased along with the availability of processed sugar in a diversity of foods consumed globally (Tang et al, 2015).

It is the result of an interaction between fermentable carbohydrates and bacteria, which adhere to teeth and produce corrosive acids. This disease is a relevant public health problem as it generates negative health impacts such as pain and discomfort, in addition to social constraints that affect people's quality of life (Tang et al, 2015). Moreover, it remains a significant problem in some sectors of society, especially in the poorest ones with less access to health care.

There are already known ways to control caries: diet control, correct oral hygiene, access to fluoride through toothpaste, mouthwash or fluoridated water, among others. Specifically in the poor population, one of the main ways to fight caries is through the fluoridation of the public water supply. However, for this population to have access to fluoridated water, they must have access to basic sanitation (Tang et al, 2015).

MATERIALS AND METHODS

A narrative literature review research was carried out using a non-systematic or explicit search protocol.

There are not many scientific works on this topic, so the search protocol was straightforward, seeking to find the best studies for the development of the text. Papers that were not in English or Portuguese were excluded from the research, regardless of the country of origin.

The research databases used were Scielo, PubMed, Rev@Odonto, Elsevier, and HHS. Articles from other bases were not contemplated. The following keywords were used for searches in the databases: Basic Sanitation, Oral Care, Dental Caries.

RESULTS AND DISCUSSION

Approximately 2 billion people in the world still do not have basic sanitation facilities; in Latin America, only 65% of the population has access to safely managed water services and about 15 million Brazilians do not have a daily supply of running water (World Health Assembly, 2019).

It is possible to notice that many people still do not have minimal access to basic sanitation, which affects basic daily needs such as adequate food and quality drinking water. This has a great influence on oral health and the development of oral pathologies such as caries (Castilho et al, 2013).

After the implementation of an educational policy on health and the development of basic sanitation policies with a group of 1499 children, researchers achieved the prevention of approximately 24% of cases of decayed teeth. In addition, children had fewer permanent teeth lost or filled (Duijster et al, 2017).

In another research, it was found that 56% of children who used a well or spring as their main source of water had caries, while the incidence was 60% lower in children who had access to public basic sanitation. Furthermore, the author states that a worse oral health situation is associated with a worse quality of life (Martins et al, 2020).

One location, however, had a good cost-benefit ratio related to preventive actions carried out by health professionals. Consequently, people with better basic sanitation and clean water had a lower number of developing diseases (Niederman et al, 2015).

Fluoridation has been proven to reduce the amount of caries in children's teeth by 18-40% (Rockville, 2000).

Figure 1. Child in open sewer
Alao, September, 2007

Thus, water fluoridation is an interesting option for locations where oral health education is not enough. Through this process it is possible to prevent caries and improve the quality of the population that uses this water.

However, basic sanitation is crucial so that the population is able to reach and use fluoridated water. If the population does not have basic sanitation and uses water from a well or river water, the incidence of caries is higher.

Basic sanitation reduces not only the incidence of caries but also of other diseases, since it allows people to have a more balanced diet and better hygiene, both in the mouth and in the rest of the body.

Therefore, basic sanitation is related to the reduction of the incidence of caries and improvement of the population's quality of life. Governments must invest in sanitation accordingly, since by mitigating diseases the government also saves on their treatments.

CONCLUSION

Basic sanitation is very important for the prevention of caries, as governments can use fluoridated water to control the issue. In this way, the population benefits in terms of quality of life, and the government benefits from decreased spending on dental treatments.

However, fluoridated water does not fully reach the population that should benefit from it, as many people do not yet have access to basic sanitation, making caries a global public health problem.

Therefore, in order to combat tooth decay globally, investments in basic sanitation must be made aiming at providing people access to fluoridated water or minimum conditions to carry out oral hygiene.

REFERENCES

Balows, A. (2002). Molecular medical microbiology. Diagnostic Microbiology and Infectious Disease, 43(2), 173–174. https://doi.org/10.1016/s0732-8893(02)00377-2

Jovanovic, D., & Ristanovic-Ponjavic, I. (2017). Water, sanitation and hygiene in health care facilities: Challenges and priorities. Tehnika, 72(1), 143–146. https://doi.org/10.5937/tehnika1701143j

Castilho, A. R. F. d., Mialhe, F. L., Barbosa, T. d. S., & Puppin-Rontani, R. M. (2013). Influence of family environment on children's oral health: A systematic review. Jornal de Pediatria, 89(2), 116–123. https://doi.org/10.1016/j.jped.2013.03.014

Duijster, D., Monse, B., Dimaisip-Nabuab, J., Djuharnoko, P., Heinrich-Weltzien, R., Hobdell, M., Kromeyer-Hauschild, K., Kunthearith, Y., Mijares-Majini, M. C., Siegmund, N., Soukhanouvong, P., & Benzian, H. (2017). 'Fit for school' – a school-based water, sanitation and hygiene programme to improve child health: Results from a longitudinal study in

Cambodia, Indonesia and Lao PDR. BMC Public Health, 17(1). https://doi.org/10.1186/s12889-017-4203-1

Martins Júnior, J. C., Abreu, M. H. N. G. d., Vieira, L. C., Gaudereto, D., Andrade, D. A., Pinto, R. d. S., & Lucas, S. D. (2020). Association between water sanitation and living conditions and dental caries in brazilian schoolchildren. Pesquisa Brasileira em Odontopediatria e Clínica Integrada, 20. https://doi.org/10.1590/pboci.2020.114

Mock, C. N., Donkor, P., Gawande, A., Jamison, D. T., Kruk, M. E., & Debas, H. T. (2015). Essential surgery: Key messages from Disease Control Priorities, 3rd edition. The Lancet, 385(9983), 2209–2219. https://doi.org/10.1016/s0140-6736(15)60091-5

Oral health in america: A report of the surgeon general. (2000). U.S. Public Health Service, Dept. of Health and Human Services.