

Prescribing health to unveil the enemy. Restricting sugars consumption for oral and systemic health.

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If you ask anyone: What should you do to keep your teeth healthy? Probably the only answer you would hear would be: brush your teeth after each meal or at least two times per day. In fact, the Centers for Disease Control and Prevention (CDC) of the United States recommends that brushing twice per day is effective to prevent dental caries (Available at: https://www.cdc.gov/healthywater/hygiene/disease/dental_caries.Html). Is that true?

A recent systematic review and meta-analysis raised the same question.¹ Believe it or not and despite the intense investigative activity over the years, only 33 scientific articles were considered eligible to be included in a review about toothbrushing frequency and caries, something that should be widely investigated and already defined. Interestingly, the authors could only detect small differences on the incidence of carious lesions between people who brushed infrequently and those who did it on a regular basis, either comparing ≥ 2 times a day *versus* < 2 times a day, or ≥ 1 time a day *versus* < 1 time a day. Thus, toothbrushing frequently does not seem to impact that much on the caries outcome. Would it be then fluoride the “magic bullet” for caries control? The evidence is clear to show that fluoride is effective in decreasing the magnitude of the problem, yet, it is also clear to show that it does not eliminate the disease and has only limited impact.²

So, how can we cope with the caries pandemic-level problem? Untreated caries has repeatedly been reported as the most common human condition,³ affecting all ages and all socioeconomic backgrounds, unfortunately, with a social gradient and mirroring inequities in other areas.

Common sense mandates that caries should be rationally tackled, based on the cause of the problem. Sugars consumption is the main and probably the only etiological factor for caries, from a pathogenesis standpoint. That does not mean that other factors, especially social,⁴ are not associated in explaining the disease. It is necessary to clarify that we are focusing on different things. In an explanatory model of the disease, many factors contribute to caries. That does not mean that they are capable of demineralizing the tooth. It is important to distinguish the variables involved in caries causation from the biological phenomena, in which only sugars interacting with the dental biofilm are responsible to create an ecological shift in the bacterial consortium, creating acidic conditions leading to a net mineral loss.⁵ So, in practice, sugars consumption is the main causative element and must not be confused with other “modulating factors” that can be associated with the disease from a statistical point of view and for research purposes.

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There is no need to explain that sugars are the common enemy to cope with obesity, diabetes and dental caries. Despite the obvious deleterious effect sugars have on our health, people keep eating high amounts of them, particularly, sucrose, the most cariogenic of all fermentable carbohydrates. Recently, the WHO has delivered guidelines for reducing the consumption and has set a desirable goal of less than 5% of total energy intake daily per capita of sugars consumption, which approximately means 25 grams or 5 teaspoons per day for a 2,000 Kcal/day (Available at: http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/).

If the caries-inducing effect of sugars is already well defined, the question becomes, therefore, why when people and dentist are asked about effective ways to cope with the main oral disease, caries, they do not readily say: suppress or at least decrease sugars consumption? There may be many reasons, but the fact is that we are not conveying the message in a clear way. Without using conspiracy theories or anything similar, it is easy to speculate where this distorted preventive message is coming from. There are many companies that sell toothbrushes and toothpastes and other fluoridated products, not to say other “commercial armamentarium” with putative and unproven anticaries effect. It is very convenient for them and the multimillionaire budgets involved, that the dentists immediately mention their products and prescribe them to as much people as possible. Dentists are professionals and should not be an easy prey for the market. Dental schools must reinforce the message during dental training that sugars are the foe to beat in caries prevention and control.

Thus, the first measure to take when treating someone with the active disease is to cut down sugar consumption and prioritize that among other measures that include, an appropriate dose of fluorides, the stimulation of the salivary flow and the biofilm control.

But in reality, how many of us are doing that? For how

many of our patients the take-home message is to avoid sugars, at least in frequency? One of the few studies dealing with nutritional counseling reported that only 63% of the dentists are providing dietary recommendations to their patients Arheiam *et al.*⁶ Too few, considering the sugars-related etiology of the problem. This situation is as nonsensical as treating lung emphysema without mentioning the need to quit smoking. Sugars are addictive, so education on the risk they pose to health is not only desirable, but an ethical duty.

A simple and cheap way to start is to prescribe sugar restriction on a medical prescription (*Rx* in English and *Rp* in Spanish, both from the Latin recipe), along with an explanation of the risks involved in consuming frequently and high quantities of sugars on caries, diabetes and obesity (among other medical conditions). Dentist prescribe drugs, toothpastes, toothbrushes and all sort of devices using these medical prescription forms. Also, *Rx* (*Rp*) is used to certify a medical condition to be presented at schools and at work. Why not to use it, then, to make the most important recommendation to promote health and oral health?

All dentists have these forms, so next time you see a patient, new or old, consider prescribing sugars restriction and start changing the paradigm we have been fruitlessly using for decades (based on the epidemiology) of preventing caries with the improvement of oral hygiene techniques and the use of fluoridated products. Changing habits requires this and other actions, usually involving the family and the social environment, but this simple method can be a good first step.

We also need to make intense advocacy to convince policymakers on the need to focus on sugars restriction at all ages, and to include oral health in any public program intended to reduce the burden of diabetes and obesity. The benefit will be not only limited to a very low caries incidence, but can also impact on multiple other medical conditions, finally contributing to a better quality of life.

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