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Guest Editorial

Dental Erosion in Pediatric Dentistry: What is the Clinical Relevance?

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The Dental erosion is not a new phenomenon and should be used to refer to the chemical process — tooth demineralization without the involvement of bacteria. Dental erosion has for many years been a condition of little interest to clinical dental practice or dental public health.

The relevance of dental erosion has increased substantially over recent years since dental caries has been decreasing in many societies, although it is still much more spread compared to erosive tooth wear. This fact is supported not only by daily observation in dental practice, but also by the large number of academic publications on the subject. In the 1970s, fewer than five publications per year addressed dental erosion, whereas this had doubled to approximately 10 a year in the 1980s. In the late 2000s, there were more than 100 publications on the topic every year. This striking number reflects several factors, including the declining occurrence of caries in recent decades, which has allowed erosion to gain prominence, and altered dietary habits, which have had a marked effect. The consumption of soft drinks has tripled since the late 1980s. Additionally, the manner of consumption has changed, particularly by children and young adults (sipping, sucking on bottles, and through teeth). The increasing occurrence of erosion can be considered a direct consequence of those factors. The pH of foods and beverages is also of importance; however, it would be wrong to attribute the etiology of erosions to one single factor, where it is clearly a multifaceted process.

Early diagnosis of dental erosion is of paramount importance. It starts with a softening of the outermost surface by (extrinsic and intrinsic) acids of different origins. This softened layer is vulnerable for abrasion and needs a long time (weeks to months) until it is resistant against abrasive forces such as from toothbrushing. Only if a strong acidic insult is present, e.g. after vomiting, will dental hard tissue dissolve without any abrasive forces involved. In this context it is important to stress that there is in most cases an overlapping between dental erosion and abrasion. Therefore, today the combination of these two processes, that occurs in daily life, is called erosive tooth wear.

Dental professionals may dismiss minor tooth surface loss as a normal and inevitable occurrence of daily living, and thus not appropriate for any specific interceptive activity. While a certain degree of erosive tooth wear – dependent on the patient's age – may be called physiological, it is nevertheless important to detect early stages of the erosive process. Only at the later stages in which dentine has become exposed and possibly sensitive, and the appearance and shape of the teeth altered that the condition becomes evident at routine examination.

The prevalence of dental erosion is rising among children and adolescents in different age groups in many countries, related to the physiological process of aging of dentition and to the erosive effect of dietary factors. As Pediatric Dentistry professionals, we are expected to prevent the process at an early stage because children might suffer perceptiveness and also pulpal pathology caused by the morphology of deciduous teeth. We must understand that identifying different risk and protective factors are a prerequisite to initiate adequate preventive measures. First, a detailed children assessment and record a complete dietary intake should be performed. Evaluation of the erosive potential of acidic drinks, foods and medications commonly consumed by children allows the pediatric dentist to determine the daily acid challenge and patient's risk. In addition, severe systemic diseases such as gastroesophageal reflux or vomiting should be taken into account as a risk factor. Parallel to this approach the patient's oral hygiene should be optimized, being advised to use products that strengthen the tooth surface against acidic attack. In other words, for a comprehensive preventive approach these preventive actions should be considered in pediatric patients to reduce the progression of the erosive process in the permanent dentition in their adulthood, as well as other general and oral diseases later in life.

The final dilemma involves the need for special training of the dental professionals who treat children and adolescents in their clinical practice to perform an adequate and appropriate clinical diagnosis of erosive tooth wear. Moreover, it is necessary to organize preventive programs in the communities focusing on changes in lifestyle and eating and drinking habits.