Approaches for Prevention & Control of Dental Erosion

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In light of increasing reports of the incidence and prevalence of dental erosion, it is now necessary that dental practitioners are familiar with the etiological and predisposing factors of dental erosion, as well as the possible ways of its prevention and control.

It may be easier to gain patients' compliance with the advice of administering a remineralizing agent immediately following an acidic challenge to enhance rapid remineralization of the softened tooth surface as well as serve as a mouth refresher, or alternatively, a neutralising solution to buffer the acidic oral environment. Effective counseling on erosion prevention regimens should involve all healthcare personnel, dentists, doctors, pharmacists, nurses/hygienists, and clinical psychologists.

Dental erosion, otherwise known as erosive tooth wear, is the loss of dental hard tissue either through a complex etiological solution by acids of non-bacterial origin or by chelation. The incidence and prevalence of dental erosion is increasingly being reported. This is evident from prevalence studies conducted in different parts of the world, which showed the percentage of individuals affected by erosion (Table 1) among various age groups. This has prompted a series of research on the possible approaches for prevention and control of dental erosion, while its management is now an area of clinical practice that is undoubtedly expanding.

This article describes an overview of the up-to-date information on the factors that predispose individuals to the risk of dental erosion, and the possible strategies to prevent and control the development of this disorder.

Predisposing Conditions

An important step towards prevention of dental erosion should be the identification of those individuals who are at risk of dental erosion. Evidence based on case reports, clinical trials, epidemiological, cohort, animal, in vitro and in vivo studies has described certain acids that could cause dental erosion as originating from gastric, dietary or environmental sources. Based on this fact, certain factors, classified as either intrinsic or extrinsic, have been identified as the predictors of susceptibility to dental erosion.

Dental erosion due to intrinsic factors is caused by gastric acid reaching the oral cavity and the teeth, and acting regularly on the dentinal surfaces over a period of several years. This may be the result of chronic vomiting, persistent regurgitation or rumination. The acidity of the gastric juice ranges from pH 1 to 3, so it is conceivable that regurgitation or vomiting into the mouth might result in marked tooth destruction in the form of erosion.

Conditions that are associated with chronic vomiting or regurgitation and therefore can predispose an individual to the risk of erosion are: 1) certain medical conditions such as bulimia nervosa, gastro-esophageal reflux disease (GERD), cyclic vomiting syndrome (CVS), psychogenic vomiting syndrome, pregnancy-induced vomiting, and lifestyle such as chronic alcoholism and binge drinking.

Extrinsic factors that can predispose an individual to the risk of dental erosion have been grouped under the headings of dietary, occupational, medications and lifestyle.

The conditions discussed above as predisposing individuals to the risk of dental erosion highlight the fact that individuals who are susceptible to dental erosion have either psychological or habitual or professional inclination to the factors predisposing them to the disorder. This would obviously pose difficulty in obtaining full compliance with preventive advice, even when the causative factor is identified. However, if implemented, the following steps may prevent occurrence, limit the damage, modify habit or protect the remaining tooth tissue.

Step 1: Early diagnosis

Patients can barely detect early enamel erosion due to its smooth and shiny appearance (Fig. 1). Even when detected they rarely seek treatment until it gets to an advanced stage, when it either becomes symptomatic (sensitivity) or affects the esthetics of their teeth. The responsibility of early detection and treatment therefore falls on dental professionals.

Once dental erosion is detected, there is a need for a full case history, which should include dietary history, medical history, dental history and any past treatment (lifestyle) history. This would establish the etiological factor and help in development of individualized counseling. Following diagnosis of an early lesion of the patient's susceptibility, the following recommendations may be considered as a “damage-limiting” policy as well as a preventive policy.

Step 2: Record the clinical situation

The severity and extent of the wear must be recorded to establish the clinical baseline so that progression can be detected, and the effects of preventive measures assessed. For this, the following techniques are useful.

• The Silicone Index, described by Shaw et al. 1984, in which a silicone putty impression of the teeth is taken in a sectional tray, is one of the easiest and most useful methods of monitoring tooth wear.

• The Tooth Wear Index of Smith and Knight 1994, which records the degree of wear on all tooth surfaces, allows monitoring of the effectiveness of preventive measures.

• Serial (reference) impression casts or study models recommended by Wicksen's can be used at follow-up visits for macrosopic comparison with the teeth to monitor wear.

• Clinical photographs are obviously useful for monitoring wear, but the dexterity of the photographer and ambient conditions such as light reflections affect the quality of the product.

Step 3: Treatment of the underlying medical disorders and diseases

Some patients may not be aware of their underlying medical condition, but in search of treatment for the deteriorating condition of their teeth, the dentist may be the first healthcare personnel to observe the underlying medical disorder. Others may not recognize their condition as a disorder, especially with amoxycillin based antibiotics, audience would not seek medical attention until it starts affecting the aesthetics, function or comfort of their teeth. Patients should be referred to the appropriate specialist (doctor or
et al. 36 have shown that a 4-minute

to use a remineralizing agent

individuals suffering from GERD
decreases its wear-resistance,

b. Change of condition method

of drinking.

The temperature of an acidic and

potentially reducing its erosive
effect. 26–28

contact of the teeth by the erosive

agent and enhances rapid clear-

ance of the transient ameloblasts

of the oral cavity. 38

The drink should be

slowly or sipped “washed” over the

mouth.

c. Use of operative devices

Insertion of a close fitting oc-

cclusal guard to neutralize any acid

contact of the teeth by the erosive

denture. This would enable the information

to be given on the importance of

counseling. This should be modi-

fied for children and adolescents.

D. Dental professionals should

accumulate in the demineralized

and advice given on the impor-

tance of tobacco cessation. 34

clude: periodic professional appli-

cation of fluoride varnish, use of

mastication on dental erosions.

Prevention of dental decay

Dental professionals should

be as proactive as they are with

dental caries in health education

relating to the prevention of dental

erosion. They should be informed of the
dental questions discussed above; how to

prevent or minimize the problems and the

importance of full compliance

with the preventive advice.

There is a need for the dental

profession to work closely with

medical colleagues to alert them to the

dental consequences of certain medical condi-
tions, and how to minimize them. 14

This would enable the information

regarding preventive regimes to be

passed to the patients at an early

stage, before the damage is done.
Mission of Mercy offers the flexibility to work at your own pace through the material from any number of perspectives that you choose to incorporate into your learning experience. The option to complete the program at your own pace gives you the freedom to learn at your own schedule and setLocation at any time. The content is international, drawn from the upper echelon of dental medicine, but also presents a regional outlook in terms of perspective and subject matter.

How can professionals enroll? They can either sign up for a one-day (10 exercises) by dentists provided child care in a neighboring community for the past year, seemed to marvel at the efficiencies of the volunteers and professionals who made the system work.

Not all activity was based in the Events Center, as Soroptimist International and a variety of volunteer groups sponsored events in the community for the past year, which included music, food, and fun. Some dentists were so well known that they were expected to reach into eastern Wyoming, Montana, and Colorado as people found out that dental care was available in that area.

As he sat in one of the sections waiting for a root canal, one individual from Wyoming, Montana, and Colorado as people found out that dental care was available in that area.

We can see a lot of patients,“ said Schoelcher, who, despite promoting the event throughout the community for the past year, seemed to marvel at the efficiencies of the volunteers and professionals who made the system work.

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