Dental Erosion In Patients With Gastro-Esophageal Reflux Disease: Review Of Literature

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ABSTRACT

The Gastro-Esophageal reflux disease (GERD) is a condition resulting from the anatomical and/or functional failure of the containment mechanisms of gastric contents, having as one of its main consequences in the oral cavity dental erosion. The aim of this work is to carry out a showdown between publications that have rated the relationship GERD and dental erosion. Systematic review of the literature conducted in Science Direct databases and Pubmed with articles of the last ten years, including all articles available in full for free and in English, Spanish and Portuguese and excluding reviews of literature and those who did not have a relationship between GERD and dental erosion. All the articles showed possible associations between GERD and dental erosion. The high association between GERD and dental erosion makes the dentists of fundamental importance in the diagnosis of the disease.

Keywords: Gastro-Esophageal Reflux. Dental Rrosion. Acids. Review.

Introduction

The Gastro-Esophageal reflux disease (GERD) is a condition resulting from the anatomical and/or functional failure of the containment mechanisms of gastric contents. Is related to the incompetence of the lower esophageal sphincter and esophageal emptying ineffective by decreased peristalsis (Gavazzoni et al, 2002).

In the oral cavity lesions most associated with reflux disorders are: burning or itching affecting the mucosa, ulceration, tooth erosion, halitosis, alteration of salivary flow, and complaining of unpleasant taste (Huber, 2008; Lazarchik & Filler, 2000).

The erosion is a type of non-caries lesion that develops as a result of the loss of tooth structure caused by chemical action, without the involvement of bacteria and can have intrinsic or extrinsic source (Sobral et al, 2000). Dental caries and erosion are consequences of acid contact with the tooth structure. The acids responsible for the erosion of the teeth are derived from extrinsic sources (sodas, acidic foods) and/or intrinsic (gastric acid content) (Wang & Lussi, 2010).

On dental erosion associated with GERD places most affected are the Palatine teeth upper surfaces, the first to be affected, after the occlusal surfaces of posterior teeth of both arches, and finally the lower lingual surfaces. Clinically the erosion is a smooth, glazed, concave, and the area to be sensitive to thermal stimuli and prone to fractures (Huber, 2008). In this sense, one of the most important causes of dental erosion palatal is the regurgitation of gastric juice caused by GERD (Bartlett et al, 2000).

The diagnosis of dental erosion is based on a full history and oral examination. Due to the multifactorial nature of the lesions, the clinical examination must include a detailed discussion of intrinsic and extrinsic factors that can cause erosion, including oral hygiene habits and diet, gastric symptoms, and abuse of drugs, alcohol, environmental factors, parafunctional habits, salivary gland function and medication (Lazarchik & Filler, 2000).

The involvement of teeth is a process that takes years of duration and, therefore, in most cases, it is difficult to reach an etiologic diagnosis. The prevalence of dental erosion among people with GERD vary between 17 to 68% (Arias et al, 2008).

Objectives

The present work aims to carry out a systematic review of the literature on Science Direct databases and Pubmed on the existing relationships between GERD and dental erosion.

Methodology

Studies on GERD and dental erosions have been identified through searching the electronic Science Direct database and Pubmed with keywords: Gastro esophageal reflux disease and acid reflux and dental erosion and tooth erosion. As a criterion for inclusion was restricted the choice of articles in English, Spanish and Portuguese, published in the last 12 years and available in full (2000 to 2012). Were deleted articles and literature review that did not contain the target of this research information.

Result/Findings

The search strategy used for this review found 1227 articles, of these 32 reported to the subject discussed, and 11 repeated between the bases and 3 were deleted, leaving 7 articles. Selected articles were analyzed according to Table 1.
Table 1: Studies That Assessed The Association Of Gastro-Esophageal Reflux Disease (GERD) And Dental Erosion. Christmas, December 2012

<table>
<thead>
<tr>
<th>Research</th>
<th>Sex</th>
<th>Age group (years)</th>
<th>Number of participants</th>
<th>Number of erosion lesions</th>
<th>Number of patients with GERD</th>
<th>Erosion/GERD</th>
<th>Erosion/With out GERD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wang et al (2010)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>116</td>
<td>80</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

M= Male, F= Female; NR = Not reported.

Discussion

Starting from the premise that one of the most important causes of dental erosion is the regurgitation of gastric acid that occurs in cases of GERD, several studies have been carried out, seeking to show the frequency of this association.

Gregory-Head et al (2000) evaluated the association between the loss of tooth structure, as a result of erosion and GERD by performing a study with 20 individuals referred to the Division of Gastro-enterology at the San Francisco General Hospital, of which 10 have been diagnosed with GERD from endoscopic examination and pH manometry-24 hours and 10 individuals presented manometry scores below the level that indicates GERD. To quantify loss of tooth structure was used the Tooth Wear Index (TWI). The authors noted that individuals diagnosed with GERD showed significantly higher TWI scores compared with control individuals, concluding that there is a relationship between the loss of tooth structure, as measured by the index, TWI, and encountering GERD.

Dahshan et al (2002) evaluated the presence of GERD and dental erosions in children with deciduous and permanent dentition. The children have undergone elective endoscopy for diagnosis of GERD in addition to dental clinical evaluation in order to search for the presence, intensity, pattern of erosion and teething phase. In a total of 24 patients, dental erosions were identified in 20 and all had GERD. Showing that in addition to erosion being more frequent in patients with GERD, its severity is greater than in normal population.

Among other variables, the presence and number of dental erosions, its location and severity, according to the index of Eccles and Jenkins (1979), modified by Hattab & Yassin (2000) in 181 patients with GERD and 72 healthy volunteers (Muñoz et al, 2003). The authors observed that compared with the control group, the percentage of dental erosions in patients with GERD was significantly higher in both number and severity of erosion.

Corroborating with the previous study Benages et al (2002) conducted a study which analyzed two groups of individuals: 181 patients with GERD and 72 healthy volunteers. In all patients a clinical evaluation, including sex, age, body mass index and tobacco and alcohol consumption, as well as a dental exam performed by a dental surgeon. The parameters evaluated were the presence and the number of dental erosions, location and severity, according to the index of Eccles & Jenkins, modified by Hattab & Yassin. The clinical parameters were similar in both groups compared with the control group, the percentage of dental erosions was significantly higher in the group with GERD, as well as the number and severity of dental erosions. The location of dental erosions were significantly different between the groups. It was observed a high prevalence of dental erosions in patients with acid reflux.

In one study sought to evaluated prevalence of dental wear, the symptoms of reflux and salivary parameters in a group of patients referred for investigation of GERD in comparison with a control group of individuals, and it was observed that patients with symptoms of GERD and which were subsequently diagnosed with the same from esophageal manometry and pH monitoring for 12:00 am, presented more dentine wear involving in Palatine teeth face, less ability to stimulate the release of saliva and less buffering capacity in the saliva that the control group (Moazzez et al, 2004).

The high and increasing incidence of illness, can manifest through typical symptoms (pyrosis and regurgitation) and atypical (pulmonary, ENT and dental). In this context, a study was conducted to analyze the changes in the oral cavity of patients with gastro-oesophageal reflux disease. In the sample was of 100 patients, 50 being affected by Gastro-Esophageal
reflux disease (Group 1) and 50 (Group 2). All patients underwent oral clinical examination and specific questionnaire, and those of Group 1, upper gastrointestinal endoscopy, esophageal manometry and pH monitoring. The high digestive endoscopy showed esophagitis in all patients, and erosive in 20, non-erosive in 30 and hiatal hernia in 38. In 42 patients of Group 1 (84%) was observed gastro-oesophageal reflux disease. The oral clinical examination showed: dental erosions in the Group 1:273 faces and in Group 2:5; decayed teeth in the Group 1:23 and 115 in Group 2; abrasion in Group 1:58 and in Group 2:95; friction wear: 408 in Group 1 and 224 in Group 2. Dental face most affected was the Palatine. In Group 1, 21 patients referred complaints of canker sores, 35 tooth sensitivity, blazing 26 42 sour taste in mouth and lips. Those of the Group 2 these complaints were observed in fewer patients. That way the suffering with gastro-oesophageal reflux disease have a higher incidence of dental erosions, ulcers, oral burning, tooth sensitivity and sour taste in patients with frequent respiratory symptoms in patients with vestibular erosion in upper incisors had palatal erosion, except for one patient in Group III. In patients with gastroesophageal reflux, dental erosions are more prevalent in patients with occasional and without respiratory symptoms. Palatal erosion of upper incisors is the main manifestation in patients. Acid reflux is the main cause of dental erosion in patients with gastro-oesophageal reflux with airway symptoms. On the basis of the studies concluded that the dental erosion is associated with Gerd, so that erosion despite multifactorial etiology, is, among others, one of the main consequences of this disease. Therefore, the importance of dental surgeon (DS) because it is often the first health professional to diagnose the erosion, with subsidies to suspect the occurrence of Gerd. In addition to that, the treatment of dental erosion and Gerd involves a multidisciplinary approach among the family, psychologist, doctor, DS, prosthodontist, and gastroenterologist. Being the DS a fundamental piece in the restorative treatment of erosion that must be tended with minimal intervention, including control of the microflora, remineralization, bonded restorations and biomiméticos materials.

References

