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ORAL HYGIENE IN PATIENTS WITH AUTOIMMUNE BULLOUS DISEASES

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ABSTRACT

Pemphigus vulgaris (PV) and mucous membrane pemphigoid (MMP) are immunologically mediated mucocutaneous disorders denoted by blistering mucous membranes, skin, and oral cavity lesions. The buccal mucosa, soft palate, and lips are often the first sites involved in PV and MMP patients. The oral blisters blasted fast, exiting painful erosions and ulcers. Gingival involvement (desquamative gingivitis) consists of an erythematous lesion accompanied by dryness, desquamation, and bullae. Although gingivitis desquamative is autoimmune e non induced by the accumulation of plaque and tartar, careful oral hygiene prevents secondary inflammation, with consequent clinical worsening of the primary pathology. The present work aims to review the recent literature regarding oral hygiene protocols applied to patients suffering from vesiculo-bullous diseases, with a critical evaluation of the advantages and limitations of the therapy.

KEYWORDS: *vesicle, pain, gingival, inflammation, hygiene, protocol*

INTRODUCTION

Pemphigus and pemphigoid are two of a group of autoimmune bullous diseases affecting oral mucosa and skin. "Pemphigus" is defined as a group of vesiculo-bullous pathologies of an autoimmune nature involving the skin and mucous membranes covered by stratified paving epithelium, characterized by keratinocyte dissociation. This phenomenon is called acantholysis (1).

There are two varieties: low acantholysis pemphigus (vulgar, vegetative) and high acantholysis pemphigus (foliaceus, erythematosus). In low acantholysis, cell detachment is the lower half of the spinous layer with frequent oral injuries; on the contrary, in high acantholysis, cell detachment is found in the upper half of the spinous layer with cutaneous lesions (2).

In particular, the most common and most represented form of pemphigus in the oral cavity is Pemphigus Vulgaris. It mainly affects female patients aged between the third and sixth decade.

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In genetically predisposed subjects, triggering agents, such as drugs, viruses, neoplasms, and pregnancy, can cause the onset of pemphigus. Autoantibodies, belonging to the IgG class, directed against adhesion proteins such as Desmoglein 3 (auto-ab anti Dsg3), would induce plasmin synthesis, an effector molecule of acantholysis typical of this pathology (1).

The intraepithelial fissures, due to acantholysis, are filled with transudative fluid, with the consequent formation of vesicles. The intraepithelial vesicle represents the elementary lesion of the pemphigus. The basement membrane constitutes its floor, while the other epithelial layers form its roof. Inside is a serous liquid rich in leukocytes and dysmorphic epithelial cells and a fair presence of eosinophilic granulocytes. The blister, however, inside the oral cavity does not persist for long. It readily undergoes rupture, becoming an erosion. There is also notable salivation and fetor ex ore. Clinical diagnosis is carried out with an objective examination in which the presence of vesicles or erosions and positivity to Nicolsky's sign must be accompanied by cytological, histological, direct, and indirect immunofluorescence tests (1,3). In most cases, the prognosis is benign, following cortisone or immunosuppressive therapy; in 10% of cases, the prognosis is poor, mainly due to dehydration and secondary systemic infections (4).

Benign mucous membranous pemphigoid is an autoimmune disease that mainly affects the mucous membranes and, in a few cases, the skin. There is a predilection for women starting from the fifth decade of life. The most accredited pathogenetic hypothesis suggests that the lesions are caused by antibodies of the IgG and IgM type directed against a series of antigens (i.e. BP180, BP230, Laminin-5, Laminin-6, beta4-integrin, alpha6- integrin) located at the level of the basement membrane, in particular the lower portion of the lamina lucida. The chorion-epithelial detachment causes the infiltration of exudate with the formation of sub-epithelial vesicles (5).

The lesions predominantly affect the gum. The tissues are erythematous and shiny because the epithelium flakes quickly show a bleeding and painful surface (3); in other areas of the mouth, such as cheeks, soft palate, and tongue, blisters that erode causing the formation of ulcers, filled with flaking material and fibrin.

In most cases, the extraoral lesions involve the ocular mucous membranes. The formation of blisters occurs, which, by healing, can determine the union between the conjunctival mucosa and the eyelid or the union between the two eyelids. Differential diagnosis is made with pemphigus using direct immunofluorescence testing and laboratory tests to search for circulating autoantibodies. Therapy involves the administration of topical and/or systemic cortisone and immunosuppressants (6).

Vesiculo-bullous diseases, with the onset of erosions and/or ulcers, determine inaccurate oral hygiene in most patients due to the burning and/or pain due to the lesions, with consequent plaque accumulation (7). This accumulation causes inflammation of the periodontal tissues, halitosis, and possible candidiasis, with consequent clinical worsening of the primary pathology.

The present work has the purpose of reviewing the recent literature regarding oral hygiene protocols applied to patients suffering from vesiculo-bullous diseases, with a critical evaluation of the advantages and limitations of the therapy.

MATERIALS AND METHODS

The search engine used is PUBMED, and the search has been refined using MESH terms. No filters were used. The following search terms (MeSH terms) were utilized: (“’Root Planing” AND “Dental Scaling” AND “Pemphigus”), (“Root Planing” AND “Dental Scaling” AND “oral lichen planus”), (“Root Planing” AND “Dental Scaling” AND “Pemphigoid”), (“Oral Hygiene” AND “Pemphigus”), (“Oral Hygiene” AND “Pemphigoid”), (“Oral Hygiene” AND “oral lichen planus”), (“periodontal status” AND “Pemphigoid”), (“periodontal status” AND “Pemphigus”), (“periodontal status” AND “oral lichen planus”).

Qualitatively different scientific works were examined: case-control studies, case report studies, randomized controlled experimental studies, case series, and pilot studies.

RESULTS

The initial electronic search turned out 79 results. Titles and abstracts derived from the investigation were independently screened. Comparing the labels of the initial 79 results, 16 were duplicates, and 37 were eliminated after having screened the titles and the abstract. Then, 26 full-text articles were obtained for all titles agreed upon, and disagreements were resolved by discussion. A total of 9 studies were excluded because they were not related to aspects concerning hygiene protocols. Finally, 17 studies were included in the present study, as reported in Table I.

DISCUSSION

The periodontal state of patients suffering from vesiculo bullous diseases, such as pemphigus and mucous membranous

Table I. *Characteristics of the 17 included studies.*

Reference (First Author + Year)	Cases and controls (n)	Study design
Akman et al.[8] 2008	20 PV; 20 healthy subjects.	*Case-control study*
Arduino et al.[9] 2011	29 MMP; 30 healthy subjects.	*Case-control study*
Arduino et al.[10] 2012	12 MMP	*Case*–series *study*
Azizi et al.[11] 2012	32 OLP; 32 healthy subjects.	*Case-control study*
Ertugrul et al.[12] 2013	27 OLP; 30 healthy subjects.	*Case-control study*
Guiglia et al.[13] 2007	30 OLP	Clinical trial
Holmstrup et al.[14] 1990	11 erosive OLP	Clinical trial
Lo Russo et al.[15] 2010	8 OLP; 4 MMP	Pilot study
López-Jornet et al.[16] 2012	80 OLP; 40 healthy subjects.	*Case-control study*
Nagao et al.[17] 2011	9 OLP-HCV	Clinical trial
Orrico et al.[18] 2010	1 MMP	Case report
Ramón-Fluixá et al.[7] 1999	90 OLP; 52 healthy subjects.	*Case-control study*
Scattarella et al.[19] 2010	1 OLP	Case report
Schellinck et al.[20] 2009	10 MMP; 10 healthy subjects.	*Case-control study*
Stone et al.[21] 2013	82 OLP	Randomized controlled study
Thorat et al.[22] 2010	50 PV and 50 healthy subjects.	*Case-control study*
Tricamo et al.[23] 2006	20 MMP 20 healthy subjects.	*Case-control study*

Abbreviations: PV, Pemphigus Vulgaris; PMM, Mucous Membrane Pemphigoid; OLP, Oral Lichen Planus; HCV, Hepatits C Virus.

pemphigoid, is compromised. Several authors have carried out scientific research in this regard, carrying out clinical studies and laboratory analyses (8) to verify the hypothesis that vesiculo-bullous pathologies may influence the onset or progression of periodontal disease. Almost all the studies confirmed the hypothesis: subjects suffering from vesiculo-bullous diseases have more compromised periodontal conditions than control patients. The results can be interpreted as follows: due to the painful symptoms caused by the vesiculo-bullous lesions, these patients tend not to follow a scrupulous home oral hygiene and do not even undergo professional oral hygiene sessions; moreover, the unstable immune system, typical of autoimmune diseases, does not protect against the onset or worsening of periodontal disease (9).

Some Authors (10), on the other hand, do not value the hypothesis of a more compromised periodontal state in patients suffering from vesiculo-bullous diseases. This study explains that there are no significant differences between case and control patients from a periodontal point of view: the highest gingival inflammation values found in the cases are not the result of inflammation due to periodontal disease but the outcomes of nature erythematous of the PMM itself.

Faced with these results, several authors have conducted clinical studies to prove the efficacy of non-surgical periodontal therapy and home oral hygiene instructions: the protocols applied to prove to be a valid resource as an adjunct therapy to drug therapy. Arduino et al. (11) use only oral hygiene protocols, not drug therapy, to measure the effective

contribution of non-surgical periodontal therapy in the remission of vesiculo-bullous lesions. After three weeks, patients undergo supragingival and subgingival scaling, use a soft filament brush performing the modified Bass technique, and a medium filament toothbrush and interdental brush. The contribution of periodontal therapy proves to be effective but insufficient for the complete remission of the lesions, for which it is necessary to support pharmacological therapy.

The professional oral hygiene protocols used vary according to the authors, but the scaling and polishing procedures are constant.

Polishing is carried out with a rubber cup. In particular, Orrico et al. (12) specify the use of the cup at low speeds with non-abrasive polishing paste and recommend carrying out the procedures in a very delicate manner to avoid laceration of the gingival tissues compromised by vesiculo-bullous lesions. Therefore, the only ones to carry out root-planing are Orrico et al. (12) and Scattarella et al. (13).

As for the home oral hygiene protocols, all the authors follow the same guiding thread: traumatic procedures but effective in removing plaque accumulations and disinfecting the mucous membranes.

Recommended brushing techniques range from modified Bass (11, 14) to Stillman's (12). The toothpaste should be non-abrasive (12), free of flavourings, and high in fluoride (13).

The use of interdental brush varies according to the studies: Guiglia et al. (14) recommend its use from the beginning of therapy. Other authors, Arduino et al. (11) and Otrico et al. (12), on the other hand, recommend using the brush following the re-epithelialization of the lesions to prevent further lesions of the mucous membranes.

In principle, chlorhexidine-based mouthwash is recommended in different formulations, 0.12% (12) and 0.20% (14). In particular, according to Orrico et al. (12) and Scattarella et al. (13), chlorhexidine can be used in an alcohol-free formulation following re-epithelialization of the lesions, except for Guiglia et al. (14), which recommends its use, in a formulation at 0.20% twice / day for seven days, at the beginning of therapy. In the initial phase, however, they recommended bicarbonate rinses (13), which are less traumatic than a strong antibacterial agent, such as chlorhexidine.

To promote patient motivation, Scattarella et al. (13), in addition to recommending the use of an electric toothbrush with an ultra-soft filament head, proposes plaque-revealing substances, also used by Guglia et al. (14) in giving home oral hygiene instructions.

In addition, Scattarella et al. (13) recommend a diet free of spices and alcohol, substances considered aggressive in patients affected by pemphigus and pemphigoid, and provide anti-smoking counselling.

CONCLUSIONS

The present review aimed to report and describe evidence in the scientific literature about which oral hygiene protocols for plaque and tartar removal should be used in patients with oral pemphigus and oral pemphigoid. In particular, from the analysis of the literature, it was possible to deduce the following indications:

professional oral hygiene sessions must be gently performed in order to avoid laceration of the gingival tissues already compromised by vesiculo-bullous lesions;

perform scaling and polishing sessions using inserts and materials suitable for the patient, such as low-speed rubber cups and non-abrasive polishing paste;

home oral hygiene instructions must be suitable for the patient, preferring soft or extra-soft toothbrushes, non-abrasive toothpaste without aromas, floss, and extra-soft brush recommended following the re-epithelialization of the lesions, rinsing with bicarbonate in the phases acute lesions and subsequently rinsing with 0. 12% chlorhexidine-based mouthwashes;

motivate the patient to oral hygiene, proposing, as appropriate, an electric toothbrush with soft filaments and plaque-revealing substances;

recommend diets free of foods irritating the oral mucosa, such as spicy, spicy, too hot, and too cold foods;

motivate the patient to avoid and/or limit the consumption of alcohol as, in addition to being irritating to the oral mucosa, it is a predisposing factor to the onset of oral cancer, especially in subjects who, having ulcerative lesions, are more prone to degeneration malignant;

carry out anti-smoking counselling since, in addition to being extremely harmful to general health, it slows down tissue healing and is also an irritant for the oral mucosa and a risk factor for the onset of malignant degeneration.

In conclusion, considering that the accumulation of plaque and tartar causes gingival inflammation and, in the long run, in predisposed subjects, causes periodontitis and that patients suffering from vesiculo-bullous diseases have a destabilized immune system, in addition to following a pharmacological therapy based on corticosteroids and/or immunosuppressants, it is strongly recommended that the latter, undergo professional oral hygiene sessions. In addition, the patient must follow the most suitable home oral hygiene instructions for the case to achieve faster healing of the lesions and avoid enlargement of periodontal involvement.

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