

Original Article

A descriptive study of the oral status in subjects with Sjögren's syndrome

Sergio Olate^{1,2}, Daniella Muñoz¹, Stephanie Neumann¹, Leandro Pozzer³, Lucas Cavalieri-Pereira³, Márcio de Moraes³

¹Division of Oral and Maxillofacial Surgery, Universidad de La Frontera, Chile; ²Center for Biomedical Research, Universidad Autónoma de Chile, Chile; ³Division of Oral and Maxillofacial Surgery, State University of Campinas, Brazil

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Abstract: Sjögren's Syndrome (SS) is an autoimmune pathology of varying prevalence. Its involvement in exocrine glands requires that greater attention be paid to patients' oral health. A cross-sectional study was designed to assess the oral health of subjects with SS in constant medical follow-ups. Variables such as the presence of periodontal infections, decay and alterations in the oral mucosa were analyzed, and the individual's salivary flow was measured. The data were analyzed descriptively and with the chi-squared test, considering $p < 0.05$ as statistically significant. 35 subjects of both sexes were studied, aged between 25 and 82 years, with an age average of 53.9 years; they presented on average 7.9 years after the initial diagnosis. The subjects reported a dental check-up every 6 months in only 9% of cases, whereas the rest had one every 1 or 2 years. All the subjects recounted presenting with dry mouth and associated significantly the ingestion of fluids and teeth brushing to improve the sensation of dryness. The salivary flow was objectively seen to be compromised, showing a significant reduction in those with more time since diagnosis of the disease; more than 90% of subjects exhibited periodontal inflammation and a high level of caries. The mucosa presented a low level of pathology. In conclusion, education in oral health is imperative for subjects with this pathology and more frequent check-ups may be useful in decreasing the levels of oral pathology.

Keywords: Sjögren's syndrome, autoimmune disease, oral health

Introduction

Sjögren's Syndrome (SS) is an autoimmune exocrinopathy with lymphocyte infiltration of the exocrine glands and epithelium at multiple sites, and involvement of the salivary and lacrimal glands is common [1]. SS is classified according to the presence or absence of other, generally rheumatoid, diseases: Primary SS (SS1) occurs by itself, whereas secondary SS (SS2) occurs alongside other diseases [1]. SS is the second most frequent connective tissue disease [2].

According to the San Diego criteria, the incidence of SS is 0.5%, whereas for the European study group it varies between 3 and 5% [2] in the population over 55 years of age. SS2 occurs in 20 to 40% of rheumatoid arthritis (RA) cases and 5 to 25% systemic lupus erythematosus [3].

The clinical presentation produces dryness in the eyes, oral cavity, skin, pharynx and vagina. The lack of body fluids can cause significant problems in the oral cavity (increase the number of caries and periodontal disease), eyes (corneal ulcers, frequent conjunctivitis), trachea (respiratory infections, dry cough), nose (reduced sense of smell), esophagus (difficulties swallowing) and vagina [4].

The clinical symptoms have been previously described; salivary involvement is not a pathognomic element of the pathology, but it is a good indicator of the presence of SS [3, 5]. According to Mignogna [5], at the onset there may be greater alterations in the salivary composition than in the amount of fluid. On the other hand, a study by Al-Hashimi [6] evaluated 169 patients of whom 92% presented SS1; the study found that the best predictor of disease

Table 1. Relationship described by subjects in terms of the subjective conditions of SS

Item Evaluated	YES	NO
Dry mouth	100%	0%
Bad taste in the mouth	57%	43%
Wounds in the mouth	71%	29%
Bad breath	43%	57%
Loss of taste	34%	66%
Ingestion of fluids for dry mouth	100%	0%
Need to brush teeth due to dry mouth	80%	20%
Need to use salivation stimulants	77%	23%
Change in eating habits	46%	54%

was "dry mouth", followed by "cracked skin on the mouth" and finally "dry eyes", a symptomatology that was concomitant with gastric and muscular involvement.

In terms of periodontal health, Boutsis [7] compared patients with SS (SS1 and SS2), patients with other autoimmune disorders and systemically healthy patients (women average age 48 years). No significant differences were found between the groups in terms of periodontal health; the results revealed that the deepest periodontal probing did not exceed 6 mm, while 58% presented periodontal pockets between 4 and 5 mm. Schiodt [8] obtained similar results in probing depth although he indicated that the patients with SS1 had better hygiene indicators; likewise, Kuru [9] found similar periodontal characteristics even though his study only had a sample of 8 subjects.

In the caries analysis, Patinen [10] compared groups with celiac disease, SS and both; the study showed that decay was similar in all the patients who presented SS and greater in those patients with celiac disease. Schiodt [8], in a retrospective study, indicated that the group of 53 patients with SS had a higher number of extracted teeth, greater concern for their oral health and spent more on their dental treatment than the group control.

The analysis of the oral mucosa revealed that patients with SS presented higher Albicans Candida counts and also had higher rates of reddening of the oral mucosa, cracking on the tongue and angular cheilitis [10]. Lundstrom [11] observed that subjectively, dryness was reported in 98%, loss of taste in 63%, angular lesions in 70%, and mucosal ulcerations in 40% of patients. Candidiasis was present in 30

patients (75%), and angular cheilitis in 14 (35%).

Thus, the aim of this investigation was to recognize the oral pathology present in subjects with Sjögren's Syndrome in treatment.

Material and methods

This study was conducted in the Division of Oral and Maxillofacial Surgery of the Universidad de La Frontera and the Internal Medicine Unit of the Hernán Henríquez Aravena Hospital in Temuco, Chile. A cross-sectional cohort study was designed to analyze the subjects of SS currently in treatment and follow-up. Subjects were selected who had up-to-date follow-ups of the disease, with no distinction as to age or gender.

All the subjects presented with a diagnosis of SS1 or SS2 according to established criteria (clinical and biopsy) and the diagnoses were made by expert personnel with at least 5 years' experience in the handling of patients with SS.

The selected patients signed an informed consent to participate in the study; the recruited patients underwent an integral clinical assessment of their oral health, beginning with the presence of plaquebacteria, an analysis of periodontal health by means of manual probing depth and a caries analysis, using a probe and mirror for their evaluation; Periodontal and DMF(decay, missing and filled index) indices were used for this analysis. Moreover, the oral mucosa and the salivary flow were inspected by collecting saliva in a test tube for 5 minutes. Finally, the prosthetic systems in use were analyzed. Later, each subject was provided instruction on techniques for maintaining oral health and those who were diagnosed with some type of pathology were directed to receive regular dental treatment.

The data collected were analyzed descriptively and the chi-squared statistical test was used, considering a value of $p < 0.05$ where necessary.

Results

35 subjects between 25 and 82 years of age were studied, but the greatest prevalence was found in subjects 41 to 60 years of age. The

Table 2. Distribution of the salivary flow in subjects with SS according to years from diagnosis of SS

Salivary flow	Years since diagnosis				Total
	1-5 years	1-5 years	1-5 years	>15 years	
1 (1 ml/min)	3	1	1	0	5
2 (1-0.8 ml/min)	3	2	0	0	5
3 (0.8-0.5 ml/min)	7	2	1	0	10
4 (less than 0.5 ml/min)	2	4	4	5	15
Total	15	9	6	5	5

Table 3. Subjective conditions of health of the oral mucosa in 35 subjects with SS

Item Evaluated	Present	Absent
Pseudomembranous candidiasis	0%	100%
Erythematous candidiasis	3%	97%
Ulcers	3%	97%
Cheilitis	14%	86%
Stomatitis	26%	74%
Aphthas	31%	69%

average age of the subjects was 53.9 years (± 15.5 years) and SS was diagnosed on average 7.9 years (± 6.9 years) from the date of the initial diagnosis, whereas treatment had begun on average 1.2 years after the initial diagnosis. In these subjects, the dental check-up occurred every 6 months in 9%, every 12 months in 23% and every two years in 60%; the main reason for consultation was for the likely presence of caries (60%) and the need for preparation or modification of prosthetic devices (23%).

All the subjects reported feeling dry mouth and ingested liquids to control the sensation of mouth dryness ($p < 0.05$). They also indicated that they used teeth brushing for oral hydration ($p < 0.05$) as well as the spontaneous use of salivation stimulants to improve their oral condition. Additionally, 71% of the subjects reported presenting intraoral wounds associated with intraoral dryness (**Table 1**). The subjects' salivary flow was seen to be compromised at different levels (**Table 2**), where the subjects with the longest amount of time since diagnosis of the disease presented higher hyposalivation levels ($p < 0.05$).

From the dental health and periodontal inspection it was observed that the subjects had a COPD index of 7, considered a high level of disease. In the periodontal analysis, 37% of the

subjects in the study registered a value of 2, 44% a value of 3 and 19% a value of 4, demonstrating the presence of periodontal disease in a significant number of subjects. Of these, 24% exhibited spontaneous periodontal bleeding and 93% bleeding stimulated by probing, indicating a constant and elevated level of periodontal inflammation. The objective analysis of lesions of the oral mucosa can be seen in **Table 3**, where no lesion type was significantly associated with patients with SS ($p > 0.05$).

Discussion

The patients analyzed presented at different ages and with differing levels of involvement; patients under 40 years of age (23%) were diagnosed early with SS, which requires palliative and educational measures to control the concomitant pathology of the oral cavity. SS2 in most of the subjects was likely due to their age; the concomitant diseases were exclusively rheumatoid arthritis or systemic lupus erythematosus. Nevertheless, Antero [12] indicated that SS2 was not associated with the time from the diagnosis of RA or with its aggressiveness, functioning as two independent entities, and Baer [13] reported that systemic lupus erythematosus presented clinical and laboratory differences with SS, although they share some clinical findings, thereby demonstrating a lack of relation between them. 83% of the patients in our group presented SS2, sharing the diseases described without exhibiting significant relationship between them.

Prior to the intraoral examination, the patients were asked about recurring lesions in their mouth, tongue or lips, and those who recognized having them also presented reduced salivary flow; in fact, in 25 of the patients there was a considerable reduction in saliva, coinciding with the findings by Mignogna [5] and Delaleu [14], who indicated that reduction in saliva is a classic sign of the disease, and this is also used to estimate the advancement of SS. This

finding may be related to the presence of caries [15], which in these patients was very high.

In our sample, the youngest subjects had a higher incidence of caries; in fact, the trend in subjects 41 to 60 years of age is the increase in treated teeth, while after 60 the trend is the increase in extracted teeth. Christensen [8] reported that subjects with SS presented a higher number of extracted teeth, greater concern for their oral health and spent more on health; nevertheless, in this group of patients 60% of the subjects attended dental consultations every two years, demonstrating their low level of education in terms of oral care.

Boutsi [16], comparing patients with SS (SS1 and SS2), patients with other autoimmune disorders and systematically healthy patients reported that no significant differences were found between the groups in terms of periodontal health, whereas Pedersen [15] indicated that in subjects with SS there was considerable periodontal inflammation. In our results almost 80% of patients presented some level of periodontal disease, whereas 97% had levels of gingival inflammation that involved bleeding, a condition fundamentally associated with SS more than to a lack of instruction and education in oral hygiene. Although Lundström [11] observed ulcerations of the mucosa in 40% of patients with SS (angular lesions in 70%, candidiasis in 75% and angular cheilitis in 35%), our sample presented a low level of disease of the oral mucosa, and Torres [17] reported that chronic erythematous candidiasis was highly prevalent in these subjects (70-89%); in our study it was observed in 3% of the subjects.

Finally, we can conclude that oral conditions are altered severely in subjects with SS, which without adequate dental follow-up can cause serious health problems; patients undergoing follow-up present a low level of pathology.

Disclosure of conflict of interest

The authors declare that they have no competing financial interests.

Address correspondence to: Dr. Sergio Olate, Facultad de Odontología, Universidad de La Frontera, Claro Solar 115, 4to Piso, Oficina 414-A, Temuco, Chile. Tel: (56) 45-2325000; E-mail: sergio.olate@ufrontera.cl

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