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The Importance of Dry Mouth Care in Patients with Sjögren's Syndrome and Current Approaches

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Abstract

Sjögren's syndrome is a significant health problem and the second most common autoimmune rheumatic disease, which can cause common systemic symptoms and negatively affect patients' quality of life and survival. The main symptoms of Sjögren's syndrome include dry mouth and eyes. According to the guidelines, the treatment and management of dry mouth should be done by a multidisciplinary team. It is recommended to evaluate salivary gland function before starting treatment for dry mouth. It is very important to enquire about the drugs used by the patient; to obtain a comprehensive medical history, including physical examination; to perform special function tests; and to evaluate the symptoms. It is recommended to use topical fluoride and fluoride remineralizing agents in patients with Sjögren's syndrome and dry mouth. The responsibilities of nurses include making evaluations, providing oral care, preventing symptoms that may develop in the mouth, providing support to patients when necessary, and training patients. Nurses make valuable contributions in standardizing the symptoms of patients, managing the care interventions to be applied, training to be given to the patients, and preventing their repeated admissions to the health institutions. The aim of this review is to examine the importance of oral care, current approaches, and nursing interventions in patients diagnosed with Sjögren's syndrome.

Keywords: Sjögren's syndrome, dry mouth, current approaches, nursing care

Introduction

Sjögren's syndrome is a chronic autoimmune rheumatic disease characterized by lymphocytic infiltration of exocrine glands and other organs associated with the production of various autoantibodies in the blood.[1-3] This syndrome usually progresses insidiously, and ocular and oral symptoms appear first, which can cause common systemic symptoms and adverse effects on patients' quality of life and survival.[4-7]

Sjögren's syndrome is the second most common autoimmune rheumatic disease.[8] According to the European League Against Rheumatism [EULAR] 2019 data, the incidence of this syndrome is 2.3 per 100 000 people.[9] According to American College of Rheumatology [ACR] 2016 data, 2.2 per 100 000 new cases of Sjögren's syndrome were diagnosed in the United States in the same year.[10] Sjögren's syndrome is more common in women, and the female/male ratio is approximately 9:1. Its incidence generally increases with age.[1,11]

Although the treatment type of patients diagnosed with Sjögren's syndrome varies, chemotherapy and radiotherapy treatment is usually applied, according to the degree of the autoimmune disease. This syndrome is a complex disease that can involve many areas, such as the skin, the thyroid gland, the musculoskeletal system, and cardiovascular, urogenital, and hematological systems. Dry cough, enlargement of the submandibular gland, keratoconjunctivitis sicca, erythema, xerosis, pneumonia, pericarditis, and gastrointestinal system diseases can result due to the disease. The most prominent symptoms of Sjögren's syndrome include dry mouth (xerostomia) and dry eyes (xerophthalmia).[12-14] Dry mouth is a distinctive symptom in patients with Sjögren's syndrome, and aphthae, tongue bifurcation, dental caries, chronic oral candidiasis, and swallowing problems are the most important symptoms of dry mouth.[15-17] The presence of dry mouth and dry eyes associated with the disease and treatment negatively affects their psychological, social, physical functions, and quality of life.[18-20]

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Due to the uncertain nature of Sjögren's syndrome and the gradual onset of its symptoms, patients can have high healthcare needs.[2,21,22] As healthcare professionals, nurses have important responsibilities in the detection, control, and prevention of symptoms. The use of evidence-based data and up-to-date guidelines is effective in symptom management.[4,5,23] In this review, current approaches to dry mouth care are reviewed, and guidelines/guide recommendations are included. Evidence-based guides/guidelines and levels of evidence are described according to the evidence-rating systems presented in Table 1.[9,10,24]

Sjögren's Syndrome and Dry Mouth

Sjögren's syndrome is characterized by lymphocytic infiltration and inflammation of the salivary and lacrimal glands. In addition, more than one system is affected by this syndrome, and immunological and hematological problems can be observed.[25-27] The main cause of dry mouth and dry eyes is periepithelial lymphocyte infiltration, which originates from exocrine glands and causes autoimmune dysfunction. The disease resulting from these symptoms is called primary Sjögren's syndrome.[28,29] In addition to these definitions, secondary Sjögren's syndrome is mentioned when other autoimmune diseases, such as systemic lupus erythematosus, rheumatoid arthritis, and thyroiditis, are accompanied.[6,7,30,31] Dry mouth and salivary gland hypofunction are the most common oral complications of Sjögren's syndrome. While dry mouth is defined as the patient's perception of dry mouth, salivary hypofunction can be diagnosed with specific tests done in this process.[3,7,18,32]

Compared to the general population, the prevalence of dry mouth and eyes in patients with Sjögren's syndrome is approximately twice as high, and oral health-related quality of life is significantly poor in these patients.[2,22,32] Dry mouth also predisposes patients to periodontal diseases and opportunistic infections. Decreased salivation reduces immunity against fungal infections, such as candidiasis, and leads to a decrease in the levels of salivary proteins, such as histamine, mucin, and immunoglobulin A.[6,31,33,34]

The main goal of treatment, in most patients, is to improve their quality of life by treating symptoms of dry mouth, eyes, and fatigue. Treatment and care for Sjögren's syndrome can be very difficult for health professionals due to the scarcity of evidence-based treatment options and the fact that most therapeutic approaches are only symptomatic.[6,12,20,35] In general, treatment should be conducted by a multidisciplinary team, including dentists as well as rheumatologists, family practitioners, ophthalmologists, and nurses. It is recommended that the treatment should be individualized according to disease activity and the presence and degree of extraglandular symptoms.[36] In addition, taking a comprehensive medical history from the patient—including physical examination, questioning the medications used, doing special function tests—and evaluating symptoms are considered very important.[3,12,37]

In their study with dentists and rheumatologists, in which they applied a multidisciplinary approach to the oral problems of patients with Primary Sjögren's syndrome, Lopez-Pintor et al[5] mentioned the importance of correct diagnosis and treatment. In the study, it was determined that patients with dry mouth mostly visited the dentist first and were referred to rheumatologists after the diagnosis of hyposalivation. As a result, it was emphasized that correct diagnosis of oral symptoms, correct guidance on diet and hygienic measures, and correct management of hyposalivation were important.

In the study of Hackett et al.[4] in which mixed-methods was applied to identify key intervention targets to increase participation in activities of daily living in patients with Sjögren's syndrome, group concept mapping and semi-quantitative and mixed-method approaches were used to define and structure the ideas of adult household members and healthcare professionals. The ideas that were summarized in the presence of brainstorming were organized into separate themes, and each statement was graded in the order of importance. As a result, in addition to managing the symptoms of Sjögren's syndrome, interventions that are intended to improve areas such as patient empowerment, general well-being, access to health care, patient education, and social support are stated to be important to facilitate participation in activities of daily living.

In the study of Mays et al.[18] in which they examined oral symptoms in systemic autoimmune and inflammatory diseases, the need for a multidisciplinary healthcare team, including dentists, was emphasized to protect oral cavity lesions in the optimal management of complex autoimmune diseases. As a result of the study, it was reported that good clinical judgment, appropriate oral medication intervention, and early detection of symptoms were important.

Treatment Recommendations for Sjögren's Syndrome

Treatment recommendations for Sjögren's syndrome are examined in 2 groups: pharmacological and non-pharmacological treatment.[10,22]

Table 1. EULAR, ACR, and RNAO Evidence Levels

EULAR/ACR	RNAO	Description
A	Ia	Evidence was obtained from meta-analyses of randomized controlled trials.
A	Ib	Evidence was obtained from at least one randomized controlled trial.
B	IIa	Evidence was obtained from at least one well-designed non-randomized controlled trial.
B	IIb	Evidence was obtained from at least one other non-randomized quasi-experimental study.
C	III	Evidence was obtained from well-designed non-experimental descriptive studies such as comparative studies, correlation studies, and case studies.
D	IV	Evidence was obtained from expert committee reports or opinions and/or clinical experience of prestigious authorities.

EULAR, European League Against Rheumatism; ACR, American College of Rheumatology; RNAO, Registered Nurses' Association of Ontario.
Source: Ramos-Casals et al.[9]; Shiboski et al.[10]; Ontario Nurses' Association-RNAO.[24]

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Pharmacological Treatment

Pharmacological treatment with muscarinic agonists is considered in patients with moderate glandular dysfunction. Therefore, despite the unwanted safety profile of these drugs, muscarinic agonists are recommended in patients with moderate glandular dysfunction or refractory mild dysfunction, who do not want non-pharmacological treatment. Based on outcomes, the use of hydroxychloroquine, oral glucocorticoids, or immunosuppressive agents for the treatment of dry mouth should be limited in patients with Sjögren's syndrome. [9,10,38] The EULAR guideline recommendations/levels of evidence are presented in Table 2,[9,10] and the ACR guideline recommendations/levels of evidence are given in Table 3.[35]

In the study of Demarchi et al.[39] in which they applied hydroxychloroquine treatment to patients with Sjögren's syndrome who showed extraglandular symptoms, patients who were followed up for at least one year were retrospectively examined. Accordingly, extraglandular symptoms were observed in 52% of the patients, and hydroxychloroquine treatment was applied. This treatment was found to positively affect the oral cavity.

Non-pharmacological Treatment

In patients with mild glandular dysfunction, non-pharmacological glandular therapy, such as sweetening stimulants (sugar-free acidic candies, lozenges, xylitol) and/or mechanical stimulants (sugarless gum), is recommended as the preferred first-line therapeutic approach. In patients with severe glandular dysfunction, however, there is no strong evidence for therapeutic interventions based on the degree of salivary gland dysfunction. These interventions are stated to alleviate only some subjective symptoms with no severe glandular dysfunction.[9,10,38]

In a randomized controlled trial of the effect of sodium bicarbonate spray combined with professional oral hygiene procedures in patients with Sjögren's syndrome, Gambino et al[23] evaluated the findings of

Table 2. EULAR Recommendations for the Treatment of Sjögren's Syndrome with Topical and Systemic Therapies

	Level of Evidence
A. Patients with Sjögren's syndrome should be managed with a multidisciplinary approach in specialized centers or in close cooperation with these centers.	It should not be recommended
B. The initial therapeutic approach for dry mouth should be symptomatic relief using topical treatments.	It should not be recommended
C. Systemic therapies may be considered for the treatment of active systemic disease.	It should not be recommended
1. A baseline assessment of salivary gland function is recommended before starting treatment for dry mouth.	D
2. Preferred first therapeutic approach for dry mouth based on salivary gland function:	
2.1. Non-pharmacological treatment for mild dysfunction	B
2.2. Pharmacological treatment for moderate dysfunction	B
2.3. For severe dysfunction, saliva substitution is recommended.	B
3. The first-line therapeutic approach to ocular dryness includes the use of artificial tears and ocular gel/ointment.	B
4. Refractory/severe ocular dryness can be managed using eye drops containing topical immunosuppressants and autologous serum eye drops.	B/D
5. Comorbidities should be evaluated in patients who present with fatigue/pain and whose severity must be scored using specific tools.	D
6. For musculoskeletal pain, analgesics or other pain-modifying agents should be considered, and the balance between potential benefits and side effects should be taken into account.	C
7. Treatment of systemic disease should be adjusted to organ-specific severity using the definitions of the EULAR Sjögren's Syndrome Disease Activity Index.	C
8. Glucocorticoids should be used at the minimum dose required and for as long as considered appropriate to control the active systemic disease.	C
9. Immunosuppressive agents, mainly glucocorticoids, should be used as protective agents. There is no evidence to support the selection of one agent over another.	C
10. B-cell targeted therapies may be considered in patients with severe, refractory systemic disease.	B
11. As a general rule, systemic organ-specific therapeutic approaches can follow the sequential (or combined) use of glucocorticoids, immunosuppressive agents, and biologics.	D
12. Treatment of B-cell lymphoma should be individualized according to the specific histological subtype and disease stage.	C

EULAR, European League Against Rheumatism.
Source: Ramos-Casals et al.[9]

Table 3. Classification Criteria Recommendations of the ACR Guidelines for Sjögren's Syndrome	
	Level of Evidence
Fluoride use	
Topical fluoride should be used in patients with Sjögren's syndrome who have dry mouth.	A
In patients with primary Sjögren's syndrome, a topical fluoride agent may be more effective than the other in reducing the incidence, stopping, or reversing root caries.	It should not be recommended
Saliva stimulation	
Chlorhexidine applied as a gel or rinse may be considered in patients with Sjögren's syndrome who have dry mouth and a high rate of root caries.	C
Antimicrobial	
Based on, expert opinion patients with Sjögren's syndrome who have dry mouth may be advised to increase saliva through sweetener, chewing stimulation, and pharmaceutical agents.	C
Non-fluoride remineralizing agents	
Fluoride remineralizing agents may be considered as additional therapy in patients with Sjögren's syndrome who have dry mouth and high rate of root caries.	B

ACR, American College of Rheumatology.
Source: Shiboski et al.[10]

22 women and 2 men prospectively. The patients were divided into three groups. Group A received non-surgical periodontal treatment with Cariex spray for oral hygiene and training for oral hygiene motivation. Group B was applied with only Cariex spray, and Group C received non-surgical periodontal treatment and training for oral hygiene motivation. As a result, reported pain decreased in all groups and positive improvements were reported in patients who received periodontal treatment with Cariex spray.

Recommendations for Current Approaches to Nursing Care of Patients with Dry Mouth

Dry mouth causes serious complications in Sjögren's syndrome. Oral care of patients becomes an important health problem in this process. Patients may experience problems, such as adhesion of dry foods to the oral mucosa, sticking of the tongue to the dry parts of the mouth while consuming such foods, the need to drink water at night, speech problems, dental caries, deterioration in the sense of taste, oral infections due to candidiasis, and nutritional problems.[12,35,37] Recommendations for current approaches to nursing care in patients with dry mouth are given in Table 4. It is necessary for nurses to question the practices and beliefs of patients with dry mouth regarding individual oral care, collect detailed data on oral care, and evaluate oral health and dry mouth using reliable and valid oral assessment tools. It is important that they apply evidence-based oral care to patients with dry mouth and perform oral care routinely twice a day in patients with progressive dry mouth or at risk of aspiration. In addition, it is recommended that nurses provide training on oral care and the use of oral care products for patients with dry mouth and their family members, assess the effects of other drugs and treatments used by the patient on oral health, and make contributions to the prevention of complications and patients' compliance with treatment.[10,12,20, 27,35,37,38,40]

In a review conducted by Visvanathan and Nix on the management of symptoms in patients presenting with dry mouth, little correlation was reported between salivary flow and patient symptoms and target tests. For this reason, it was reported that clinical treatment needed to be based on patient symptoms and that symptoms needed to be followed regularly by healthcare professionals and treated.[41]

In another review conducted by Vega on the importance of nursing management of patients with dry mouth, it was stated that nurses' awareness of evidence-based practices in the care of dry mouth needed to be increased. Also, it was mentioned in this study that diagnosis, treatment, and follow-up were very important in the management of dry mouth and that nurses needed to play an active role in the management of dry mouth.[42]

Conclusion and Recommendations

As a result of complications related to Sjögren's syndrome, patients may become prone to periodontal diseases and opportunistic infections. Therefore, patients' life expectancy and quality of life decrease, and economic problems arise. In the management of dry mouth and eye, which are among the most important symptoms of Sjögren's syndrome, appropriate oral care is required. Nursing care has a very important place in raising awareness about this issue. Accordingly, it is recommended to follow current evidence-based approaches in the treatment of Sjögren's syndrome and oral care, to prevent the complications related to the disease, and to ensure the compliance of the patients with the treatment. In this process, nurses can contribute to the management of patients' symptoms with standardized care interventions, education of patients, and prevention of unnecessary presentations to health institutions. Current evidence-based approaches should be followed continuously and integrated into nursing care to achieve these contributions.

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Table 4. Recommendations for Current Approaches to Nursing Care of Patients with Dry Mouth	
	Level of Evidence
1. Nurses should be aware of their individual oral care practices and beliefs. This situation may affect the nursing interventions to be given to patients with dry mouth.	III
2. Hygiene practices, beliefs, and the status of dry mouth should be evaluated during the clinical admission evaluation process of patients with dry mouth.	IV
3. Nurses should develop standardization by using reliable and valid oral assessment tools in the intraoral evaluations of the initial and advanced stages of patients with dry mouth.	IV
4. Dry mouth status and changes of patients should be stated in the care plan by healthcare professionals.	IV
5. Nurses should ensure and supervise the application of oral care routinely twice a day in patients with progressive dry mouth and eyes.	IV
6. Nurses should provide and supervise oral care if there is a risk of aspiration in patients with dry mouth.	III
7. Nurses should provide education to patients and family members about oral care in patients with dry mouth.	III
8. Nurses should be knowledgeable about the use of oral care products for patients with dry mouth.	IV
9. Nurses should be aware of the effects of medications and treatments applied to patients with dry mouth on the development of oral health.	IV
10. Appropriate techniques should be used when oral care is applied to patients with dry mouth.	IV
11. Nurses contribute to the education of patients with dry mouth and prevent unnecessary presentations to health institutions.	III
12. The detailed history of oral care of patients with dry mouth should be evaluated and recorded.	IV
13. Nurses are encouraged to participate in professional training programs to improve their knowledge and attitudes about oral care and health.	IV
14. Nurses develop collaboration between caregivers and patients to provide common practice models to improve oral care and health care quality for patients with dry mouth.	IV
15. Nurses provide standardization of oral care hygiene and monitor outcomes based on the strongest evidence available for the delivery of quality oral care and services.	III
16. Nurses provide prevention of complications of patients with dry mouth and their compliance with treatment.	III
17. Nurses monitor and evaluate oral care by using qualitative and quantitative approaches within the quality program.	IV
18. With time or resources, nurses support and encourage patients to participate in studies by helping them better understand oral care issues.	IV
19. Nurses inform patients with dry mouth about the importance of good practice methods for oral care.	III
20. Nurses ensure that current evidence-based approaches in oral care are followed continuously.	III
Source: Shiboski et al.[10]; Vivino et al.[12]; Pinto,[20]; Valim et al.[27]; Shirlaw ve Khan[35]; Kahramanoğlu ve Yavuz,[37]; Serror et al.[38]; Sousa et al.[40]	

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