BASIC CONCEPTS OF SJÖGREN'S SYNDROME (SS)

Abstract

Sjögren's syndrome (SS) is an autoimmune disease characterized by Sicca syndrome, dry skin, vaginal dryness, and also associated with other autoimmune disorders like Rheumatoid arthritis, Systemic lupus erythematous due to lymphoproliferation. It is classified into Primary & Secondary Sjögren's syndrome (SS)& the current European-American Criteria have been given and validated for the Primary Sjögren's syndrome (SS). It is multifactorial disorder& affects the age group of 40-50 years. Investigation is based upon imaging technology, schimmer'stest, Rose Bengal test& the treatment is given by the interdisciplinary team & immunosuppressive drugs.

Keywords: Autoimmune Disease, Xerostomia, Xerophthalmia, Lymphocyte, Epimyoepithelial islands, Immuno suppressive drugs, Disease-modifying antirheumatic drugs.

Authors

Dr. Nivedha. K
Department of Pathology
School of Allied Health Sciences
Vinayaka Mission's Research Foundation - DU
AVMC & H CAMPUS, PUDUCHERRY, INDIA
nivevanthina96@gmail.com

Dr. Savitha. G
Department of Pathology
School of Allied Health Sciences
Vinayaka Mission's Research Foundation - DU
AVMC & H CAMPUS, PUDUCHERRY, INDIA
savirocks4@gmail.com

I. INTRODUCTION

It is a chronic slowly progressive autoimmune disease mainly affecting the Exocrine glands (salivary&lacrimal glands).In 1933 Henrick Sjogren described Sjogren's Syndrome as a triad consisting of Keratoconjunctivitis sicca, Xerostomia & Rheumatoid arthritis. It mostlyaffects the females in the age group of 40 – 50 years. Environmental &Genetic are the predisposing factors & it is caused by excessive infiltration of lymphocytic cell and leads to the production of systemic autoantibodies. This disease is also associated with other autoimmune conditions.

II. CLASSIFICATION

Sjögren's syndrome (SS) are classified into two types Primary and Secondary. Primary SS is Sicca Syndrome, Xerostomia, and Xerophthalmia. Secondary SS is Sicca Syndrome plus Autoimmune Disease (rheumatoid arthritis, SLE, or scleroderma).

Table 1: Current European–American consensus criteria for the classification of primary Sjögren's syndrome[1]

ITEM	WEIGHT/SCORE
Labial salivary gland with focal lymphocytic sialadenitis and focus score of ≥1 foci/4mm2	3
Ant-SSA/ anti – Ro positive	3
Ocular staining score≥5 (or van Bijsterveld score ≥4) in at least on eye	1
Schimer's test ≤5mm/5min in at least one eye	1
Unstimulated whole saliva flow rate ≤0.1ml min-1	1

III.ETIOPATHOGENESIS

It is a multistep process, mostly triggered by an environmental factor, genetic predisposing factor. Gene polymorphisms have been analyzed, but there is no clear cut idea of SS.

1. **Environmental Factor:** Immune reactivity is higher in females than males. So lymphocyte and monocytesfrom females shows increasing in the HLA antigens activity and mitogenic responses. Latent mechanisms of SS include disruption in apoptosis, circulating autoantibodiesagainst the ribonucleoproteins Ro and La or cholinergic muscarinic receptors in salivary and lacrimal glands or cytokines[2]. These action acts upon the normal exocrine glands, then the mucosal surface of the structure becoming chronic inflammation and it enter into the self-uninterrupted

2. **Genetic Factor:** Genetic factor plays an important role in SS pathogenesis. Twins are more prone to develop SS disease. Recently, associations between certain Human Leukocyte Antigen (HLA) alleles (e.g., HLA DRB1*03:01, DQA1*05:01, DQB1*02:01)

and SS susceptibility have been demonstrated by genomic studies[3,4]. In genetic factors, IRF5 gene were act as a pathogenetic mechanisms &it's maintaining the type I & II Interferon Pathway.

Among the others, the chemokine CXCR5, the B lymphoid kinase (BLK) and the Nuclear Factor (NF)-kB pathway are all involved in the control of B cell differentiation and proliferation and antibodies production [3, 5,6]. Later the SS disease can also develop intolymphomagenesis.

3. **Epithelial Cell:** Recently, the epithelial cell act as a major and double role action in pathogenesis of SS disease and it termed as epithelitis. As same as an environmental action, the consequences of the cell process will take place.Followed by there may be destruction in the tight junction of structural integrity of the epithelial cells and salivary gland dysfunction.

IV. CLINICAL FEATURES

Dry mouth, Dry eyes are the important clinical features of Sjogren's syndrome.

1. **Dental Conditions:** Dry mouth is also called as xerostomia.This is the most frequent oral signs and symptoms encountered by the dentist. The patient always have oral dryness,hypo salivation, or a decreased amountof salivary flow. The secretions of saliva are thick and frothy, difficulty in swallowing, difficulty wearing their dentures, difficulty in chewing, diffuse enlargement of the salivary gland and altered taste sensation. Dysguesia, burning tongue, oral candidiasis are due todiminished salivary flow rate. Fissured tongue, erythematous, carious teeth and sometimes depapillated mucosal surfaces.

   Diffuse enlargement of the salivary glands, occur either unilateral or bilateral of the gland. Initially parotid gland swelling is unilateral, later it becomes bilateral condition &it causes infection in the gland (sialadenitis) due to reduced salivary flow which stimulate pain to the patient. mostly occur in children.

2. **Dental Signs for Dry Mouth:** The examination gloves are sticking to the tongue or buccal mucosal surface due to the thick salivary secretions.

3. **Ocular Condition:** The patient has symptoms of dry eyes, a sensation of sand or gravel in the eyes, Corneal ulceration and even blindness will occur due to untreated keratoconjunctivitis sicca.

V. HISTOPATHOLOGY

In the first condition, Due to intense lymphocytic infiltration,the acinar structure is replacing the secretion of the salivary and lacrimal gland, but it's preserved the lobular structure. In another condition, epimyoepithelial islands have been seen. Becauseof proliferation in the ductal epithelium and myoepithelium. The third alteration, due to lymphocytic infiltration there will be continuous destruction in size of the glands**.**

VI. DIAGNOSIS

1. **Oral examination:** Conventional Sialography, Water-Based Radiopaque Dye, Puncquate Collection, Focsialography, CT&MRI, Sialometry

2. **Ocular examination:**
   - Schirmer's test is used to diagnose the tear production by using a sterile strips of filter paper should be placed just inside the lower lid, then tear production can be examined by measuring the length of wetness on the filter paper. if the wetness is less than 5mm in 5minutes, without LA it considered as a positive test.
   - Rose Bengal staining of the cornea test, this test is examined with the help of a slit-lamp,the stain will detect the emasculate tissue and this test is used to measure an increased intensity of dye.

3. **Biomarkers:** The most important biomarkers are Autoantibodies and Cytokines in serum, DNA and the most obvious sources of biomarkers are from saliva and tears.

VII. DIFFERENTIAL DIAGNOSIS

- Recurrent bilateral parotitis
- Sarcoidosis
- Rosacea
- Mumps
- Dehydration
- Use of medications- antidepressants, anticholinergics
- Mouth breathing
- Lymphoma
- Advanced age
- Parkinson disease
- Scleroderma
- Rheumatoid arthritis
- AIDS
- Lupus

VIII. MANAGEMENT

Treatment for Sjogren's syndromeis provided by the interdisciplinary team (Physicians, rheumatologist, ophthalmologists, ENT specialists, gynecologists, pulmonologist, neurologist & dentists) depending upon the clinical outcomes.

1. **Ocular Treatment:**
   - Advised the patient to take routine regular eye checkup& clean your eyes & eyelidsregularly
   - Avoid watching TV, using Laptop, mobile phones for a longer duration.
   - Wear sunglass when you are going to the polluted areas.
   - Avoid taking medicines that have side effect of dry eyes.
   - Pilocarpine eye drops & ointments are used twice a day to increase the salivary & lacrimal secretions.

- Steroids dropsare prescribed for the inflamed eyes for a shorter period.

2. Dental Treatment:

- Regular dental visit for every 3 months
- Use fluoride tooth paste twice a day to reduce the incidence of dental caries
- Don't take high sugary content food, snacks in between the meal, carbonated soft drink
- Take plenty of water & use antibacterial mouthwash.
- Avoid alcohol & smoking
- Avoid medicines that have side effects of dry mouth.
- Saliva substitutes like sprays, lozenges and gels used to keep your mouth moist.

IX. DERMATOLOGICAL TREATMENT:

- Emollient Soap Substitutesare used to treat the dry skin by keeping it moisturizers.

X. GYNAECOLOGICAL TREATMENT:

- Oestrogen hormone can be used inside the vagina to treat the vaginal dryness.

XI. RHEUMATOLOGICAL TREATMENT:

- Physiotherapists will recommend a proper exercise for the stiffness
- Take ibuprofen or Hydroxychloroquine medication to reduce the joint pain & stiffness.
- But Hydroxychloroquine has a side effect of tummy pain and feeling sick.

XII. CONVENTIONAL IMMUNOSUPPERSIVE DRUGS AND (NON-BIOLOGIC) SYNTHETIC DMARDS:

- It is primarily used for the Specific Organ Manifestation.
- Methylprednisolone and cyclophosphamide are used for the severe organ involvement. Cryoglobulinemia rituximab or plasmapheresis are the effective treatment option for severe vasculitis caused by Sjogren's Syndrome.
- Prednisolone is a preferred drug for SS. It is used to reduce the glandular enlargement. If the drug was used for a longer period, it shows some adverse effects such as osteoporosis,hyperglycemia,weight gain, agitation and some autoimmune disease
- Hydroxychloroquine: It is effective in subacute lupus condition.
- Methotrexate: Used for the improvement in dry mouth and eye, arthralgia, arthritis, parotid gland enlargement & purpura.
- Azathioprine –Used in the management of extra glandular involvement.

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