Autoimmune Rheumatic Diseases and the Eye:

Rheumatoid Arthritis, Lupus, Ankylosing Spondylitis Sjogren’s Syndrome,

I Autoimmune Epidemiology:

1. It is generally believed that rheumatic autoimmune diseases affect 5% of the population. The most prevalent of these diseases are RA, SS and SLE. There is a predominance of women affected by these diseases.

2. A recent CDC analysis demonstrated that the prevalence of RA has lessened and that the prevalence of SS may be higher than previously thought in the US. This review of surveys suggests that up to 3.1 million adult Americans (approximately 1%) suffer from Sjogren’s syndrome. It is also believed that 9 out of 10 of them are women. USA prevalence of all rheumatic AI diseases: 5-6% of the US population: 1% RA and SS. Mainly women.

II: Autoimmunity pathophysiology: How does our body learn to destroy itself? Sjogren’s syndrome is a good example of this pathophysiology.

The etiology of autoimmune diseases is still unknown. However, 2 major theories exist: a viral attack and a local loss of immune protection

1. Viral etiology: The ocular mucosal tissues are exposed to all forms of viral species. Viruses can travel from the surface to invade the lacrimal gland could certainly cause an autoimmune response. Changes in cytokine expression of lacrimal acinar cells would activate both T and B immune cells that are present in the healthy lacrimal gland.

2. Failed local immunity: Inflammation in and around the lacrimal gland from any cause could create a breakdown in immune protection. Sjogren’s syndrome, then, becomes a disease of failed local immunity as stimulated acinar cells become antigen presenting cells. MHC class II positive epithelial cells initiate an autoimmune response by presenting their own internal proteins on their surfaces to reactive T lymphocytes and thus activate these cells at the local level. This form of inflammation has been noted in several ocular conditions including corneal transplant rejection, uveitis and proliferative vitreoretinopathy. Dendritic, T and B cells also play a role in this process.

3. This same sort of pathophysiology applies to our understanding of RA, SLE and autoimmune thyroiditis.
III. When a patient presents with sore, red, inflamed eyes think about possible systemic involvement.

1. Rheumatoid arthritis:

Ocular examination: ocular surface staining, Schirmer's, corneal staining with fluorescein, episcleritis, scleritis, uveitis, vasculitis then ask about

Hy: pain and inflammation of joints, fatigue, skin rash, myalgia, morning stiffness

Lab tests: RA, snit-CCP

2. Systemic Lupus Erythematosus:

If you observe ocular surface stain, low Schirmer's, episcleritis, scleritis, uveitis, vasculitis then ask about

Hy: fatigue, pain, myalgia, arthralgia, rash butterfly

Lab tests: ANA, anti-dsDNA

3. Ankylosing spndilitis

If you observe uveitis especially in young men ask about

Hy: sore lower back

Lab tests: X ray and HLA-B27

4. Sjogren's Syndrome:

If you observe ocular surface stain and low Schirmer's then think about

Hy: dry eye, dry mouth, fatigue

Lab tests: Ro, La, ANA
IV: Differential Diagnoses:

1. dry eyes: primary or secondary Sjogren’s: secondary includes RA and SLE, CREST

2. scleritis, episcleritis, red eyes: primary or secondary SS: secondary includes RA, SLE and CREST, RA, RA, ankylosing spondylitis

3. uveitis: RA, ankylosing spondylitis, SLE

Yours observations are important and making a referral to family practice or rheumatology is essential.

V. Management of ocular diseases associated with rheumatic autoimmune diseases.


2. Dry eye: especially in Sjogren’s syndrome learn to emphasize lubrication, lid care, pulsed steroids, Restasis.

3. Scleritis: topical steroids and referral. They may need systemic IV steroids.

4. Episcleritis: depending on the severity, watch it, lubricate it, topical steroids.

VI. Main Clinical Points:

What we need to do in our eye examinations

1. A thorough history that identifies autoimmune disease. Ask about fatigue, myalgia, arthralgia, dry mouth and family history.

2. A series of questions of those patients presenting with prolonged and significant dry eye or acute red eyes that might identify autoimmune disease. Ask about fatigue, dry mouth and family history. Other systemic problems like joint pain or stiffness.

3. If suspicious, a look at the hands of patients with suspected or confirmed autoimmune disease to assess joint inflammation.

4. An observation of the tongue of those patients in whom you suspect Sjogren’s syndrome.
5. Extra attention to the ocular surface and anterior chamber to assess: corneal staining with fluorescein, conjunctival staining with lissamine green or rose bengal, Schirmer testing, close observation of episclera and sclera, anterior chamber observation to rule out cell and flare.

6. Findings of Schirmer scores <= 5mm in 5 min in 1 eye and/or total staining scores of <= 4/9 in at least 1 eye suggests the possibility of primary or secondary Sjogren’s syndrome. Assess the dry mouth status and refer where appropriate.

7. Significant peripheral corneal staining with inflammation and/or cell and flare requires immediate attention with topical and/or oral steroids. Hospitalization may be required.

8. Uveitis presentation requires careful observation and a thorough ophthalmic AND systemic workup.

Take Home:

1. All sore, red and dry eyes are NOT the same. Always think systemically. Ask about fatigue, joint pain, muscle pain, rashes and dry mouth. The HISTORY is the most important tool for rheumatology and for optometry.
2. Do a proper workup every time. Tear flow and use of fluorescein and lissamine green stain are essential for the diagnosis.
3. Watch for cell and flare and if present look for posterior segment involvement.