CSI UVEITIS: USING LABORATORY TESTING FOR SYSTEMIC ASSOCIATIONS

MARK SCHAFER, OD
BIRMINGHAM, ALABAMA
SCHAFER EYE CENTER

1. Idiopathic
2. HLA-B27 +
3. JRA
4. Herpes
5. Sarcoïdosis
6. Fuch’s
7. SLE

UVEITIS

1. Idiopathic
2. Toxoplasmosis
3. CMV
4. SLE
5. Birdshot
6. Sarcoïdosis
7. ARN

1. Idiopathic
2. Sarcoïdosis
3. Multifocal Choroiditis
4. Behcet’s
5. SLE
6. Syphilis
7. VKH

DISCLOSURES

- I have no financial or proprietary interest in any of the products discussed.
- I have received honoraria for speaking, writing, participating in an advisory capacity or research from Allergan, SANS, Optovue, Biotex, Vistakon, Valeant.
- Optometrist at Schaefer Eye Center, Birmingham, Alabama
- Member, Intrepid Eye Society
- Chair
  - Ok, MES Consulting.

IT’S NOT RARE, IF IT’S IN YOUR CHAIR...

MOST COMMON ETIOLOGIES

<table>
<thead>
<tr>
<th>Anterior</th>
<th>Posterior</th>
<th>Intermediate</th>
<th>Panuveitis</th>
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AUDIENCE PARTICIPATION POINTS

- WHEN DO YOU ORDER LABS?
SARCOIDOSIS
OCULAR INVOLVEMENT

\(\text{Adnexa}\)
- Lid/Lash Granuloma
- Lacrimal Gland Enlargement

\(\text{Anterior Segment}\)
- Keratoconjunctivitis Sicca
- Neuro-Ophtalmic

\(\text{Posterior Segment}\)
- Vitreitis
- Periphlebitis
- Optic Nerve Granuloma
- Cystoid Macular Edema
- Dalen-Fuchs Nodules

TREATMENT

- Immunosupression
- Corticosteroids
- Methotrexate
- Azathioprine
- InfliXimab
- Co-Management

TUBERCULOSIS

\(\text{Infection of Mycobacterium Tuberculosis through Lung or Mucous Membranes}\)
- Airborne Aerosol Deposited within Terminal Airspace of Lungs
- Humans only Reservoir for M. Tuberculosis
- Non-Specific, Vigorous Immune Response
- Casing Granulomas
- WHO estimated 1.7 million people died worldwide of TB in 2009
- 2800 in US
PURIFIED PROTEIN DERIVATIVE

- Intradermal test of tuberculin PPD
- Tuberculosis sensitivity to tuberculin
- Latent TB produces strong immune response
- Less than 5 mm = negative
  - HIV, immunocompromised, minimal CXR, recent contact to TB
- Less than 10 mm = indeterminate
  - IV drugs users, nursing home residents, impoverished, prisoners, minority groups
- Less than 15 mm = positive

TUBERCULOSIS

TUBERCULOSIS INVOLVEMENT

- Anterior Segment
  - Peritubular keratoconjunctivitis
  - Interstitial keratitis
  - Scleritis
  - Uveitis
- Endophthalmitis
- Posterior Segment
  - Ocular Tuberculosis
  - Retinal, uveal, and neurovascular phenomena
  - Association with Eelic disease
- Neuro-ophthalmologic deficit

TUBERCULOSIS TREATMENT

- Primary algorithm:
  - 2 months of Isoniazid, Rifampin, Pyrazinamide, Ethambutol
  - 4 months of Isoniazid / Rifampin
- Co-management
- Other considerations
  - Vitamin B6 - decrease peripheral neuropathy

SYSTEMIC LUPUS ERYTHEMATOSUS

- Chronic, microvascular inflammatory condition
- Generation of autoantibodies
- Defect in cell apoptosis signal
- Increased cell death
- Epidemiology
  - 5.1 per 10,000 (number on the rise)
- Patient Profile
  - F>>>M (7:1 and 11:1 during child bearing years)
  - Affects minorities more
  - Prognosis
  - Diagnostic Testing
ANTI-NUCLEAR ANTIBODY

- ANAs: Attack Own Body
- Non-Specific for Lupus
- Other Positives: Scleroderma, Collagen Vascular Disorder, Rheumatoid Arthritis, Myositis, Thyroid Disease
- Presented in a Titer
- Typically Low "Titer" is 1:40 - 1:60
- Double-stranded ANA (dsANA) more significant finding

SYSTEMIC LUPUS ERYTHEMATOSUS TREATMENT

- NSAIDs
- Corticosteroids
- Antimalarials
- PLAQUIN
- Guidelines for Monitoring
- Immune Suppression
- Azathioprine, Methotrexate, Mycophenolate
- Bellumab

RHEUMATOID ARTHRITIS

- Chronic Inflammatory Disease
- Persistent Symmetric Polyarthritis (Sinovitis) = Hallmark Symptom
- Destruction of Synovial Membrane (leads to Symptomatic, Affective Joints)
- Rheumatoid Factor (RF)
- Genetic Component 50% to Develop
- Difference Between RA and Other Types of Arthritis
- Presents: 40% Diagnosed Within 10 Years, Mortality Rate 2.5X Greater Than Normal Patients
- Testing:
  - Rheumatoid Factor (RF)
  - Antinuclear Stimulated Peptide Antibody (Anti-CEP)

RHEUMATOID ARTHRITIS SIGNS/SYMPTOMS

- Musculoskeletal
- Cutaneous
- Cardiovascular
- Pulmonary
- GI
- Vascular
- Ocular

HLA-B27 (SERONEGATIVE SPONDYLARTHROPATHIES)

- Seronegative = (-) RF
- Pathophysiology Theories
  - HLA-B27 structure makes that of a peptide on an infectious agent with body tissue targets
  - HLA Molecules Act as Peptide-Binding Molecules for Infectious Agents
- Conditions in HLA-B27
  - Ankylosing Spondylitis
  - Inflammatory Bowel Syndrome
  - Reactive Arthritis
  - Psoriatic Arthritis
ANKYLOSING SPONDYLITIS
- Chronic, progressive disease affecting the sacroiliac joint
- Sudden back pain and stiffness can affect hips and shoulders
- Leads to ossification and deformity
- Patient Profile
  - Most common
  - Aged 20-40
  - Often bilaterally symmetrical onset and pain worse
- Genetic
- Diagnostic Testing
- Treatment
  - NSAIDs
  - Anti-TNF

REACTIVE ARTHRITIS (REITER’S SYNDROME)
- Related to an spondyloarthropathy that occurs in conjunction with enteric or urogenital infection
- “Can’t see, can’t pee, can’t climb a tree”
- Predominantly affects lower extremities
- Dactylitis or “sausage digit”
- Uveitis - acute nonsuppurative
- Treatment
  - Avoid oral steroids
  - NSAIDs, typically Indomethacin

INFLAMMATORY BOWEL DISEASE
- Crohn’s and Ulcerative Colitis
- May develop sacroiliitis
- Diagnostic Testing
  - Radiograph - mild tissue swelling
  - X-ray shows spine changes indistinguishable from Ankylosing Spondylitis
- Blood work reveals intestinal disease
- Treatment
  - NSAIDs
  - Steroids
  - Immunosuppression

LYME DISEASE
- Systemic infection from spirochete Borrelia burgdorferi (deer ticks)
- Geographic Pattern
- Disease progression
  - Stage 1: Seropositive / Asymptomatic
  - Stage 2: Local inflammation / erythema migrans
  - Stage 3: Production of cytokines and immune complexes (mimics autoimmune response)
- Prognosis
- Diagnostic Testing
  - Lyme titer
  - Western Blot

LYME DISEASE
SIGNS / SYMPTOMS
- Erythema migrans
  - Bull’s eye rash
  - Usually large, circular, and well-defined
  - Progresses over days to weeks
- Borrelial lymphocytoma - deep purple/blue nodule
- Arthritis
  - Occurs in 15% of Lyme patients
  - Stage 1: Confluent arthritis and polyarthria
  - Stage 2: Neuro ophthalmic (Neurological, CN 7 pals)
  - Late stage 2 and 3: Inflammation

LYME DISEASE TREATMENT
- Antibiotics
  - Localized with no neuro defects:
    - 30 d of Doxycycline, Amoxicillin, or Cefuroxime axetil (Macrolide as an alternative)
  - Arthritis
    - 28 d of above meds
  - With neuro:
    - IV Penicillin, Ceftriaxone, Cefotaxime x 1 week
SY PHILIS

Infection of spirochete Treponema pallidum
Transmissible through sexual contact, mother-fetus in utero, blood transfusion, breaks in skin touching active lesions

Stages
- Primary (10-90d): infection occurs quickly
- Secondary (4-5 weeks post-primary lesion)
  - Fever, malaise, arthralgia, PAN, rash
  - 10% involvement in CNS
- Latent (5-10 years): seropositive but asymptomatic
- Terminal: high risk of cardiovascular failure
  - Retinopathy
- Ocular manifestations
- Diagnostic testing

RPR / VDRL / FTA-ABS

- Sensitivity
- RPR
- VDRL
- FTA-ABS
- Best one for monitoring treatment?
- False positives:
  - Lyme, HIV, malaria, SLE

SY PHILIS

TREATMENT

- IV Penicillin
- Alternatives
  - Tetracycline
  - Ceftriaxone
  - Erythromycin
  - Azithromycin*: can be used in early syphilis; single dose 2g

FUCH'S HETERCHROMIC IRIDOCYCLITIS

- Chronic, unilateral, iridocyclitis characterized by irs heterochromia
- Affected eye is usually larger
- Lesions in cornea, iris, ciliary body
- Heterochromia development
- Causes/Triggers
  - Tox, immune, idiopathic, chronic iridocyclitis, irritation of sensitized lymphocytes
  - Acute iridocyclitis, herpes

FUCH'S HETERCHROMIC IRIDOCYCLITIS

Signs / Symptoms

- Can be asymptomatic
- Typical uveitis complaints
- Floaters
- Cataracts
- Early cataracts -> ???

TOXOPLASMOSIS

- Infection of parasite Toxoplasma gondii
- Immunocompetent usually asymptomatic
- Fever, malaise, night sweats, myalgias
- 50% CNS involvement in immunocompromised (most AIDS)
- Brain involvement most common with AIDS patients
- Serology is diagnostic test
- IgG/IgM serology?
TOXOPLASMOsis
OCULAR MANIFESTATIONS
- Retinochoroiditis: Bilateral
  - More common in congenital vs acquired
- Uveitis
  - Headlight in the fog
- Papillitis
- Posterior synechiae
- Elevated IOP
- Anterior Uveitis
  - Granulomatous vs non-granulomatous

TOXOPLASMOsis
TREATMENT:
- Triple therapy
  - Pyrimethamine, Sulfadiazine, Prednisone
- Loading dose
- Quadruple therapy
- Azidothymidine
- Maintenance
  - Trimethoprim and Sulamethoxazole every 3.6

USING YOUR RESOURCES
- Great opportunity for collaboration across the board
- Get a good referral network for patients who need these doctors
- Use a thorough history to rule out conditions
- Open the Net to find out the underlying issue
- Prove systemic association
- Treat the patient as a whole
- Get involved with local groups of autoimmune disease
THANK YOU!