Systemic Lupus Erythematosus

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Objectives

• Basics of what is Systemic Lupus Erythematosus
• How to recognize SLE and when to refer to a Rheumatologist
• How to care for an SLE patient
Question 1

• What is the most SENSITIVE test for Lupus?

A) ANA
B) Anti-Smith
C) Anti-DsDNA
D) SSA/SSB
E) Anti-RNP
Question 2

• What is the most SPECIFIC test for lupus?

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• What test is a predictor of lupus activity and is checked every visit for lupus patients?

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• What condition is the most common cause of an elevated ANA in the outpatient population?

A) Autoimmune hepatitis
B) Lupus
C) Rheumatoid Arthritis
D) Hashimoto’s thyroiditis
Question 5

- Which patient is most likely to have lupus?

A) 50 year old with fatigue, joint pain, muscle pain, ANA 1:40
B) 20 year old with fever, sore throat, lymphadenopathy, canker sores, ANA 1:80
C) 40 year old with proteinuria, low platelets, and ANA 1:320
D) 25 year old with microcytic anemia, fatigue, ANA 1:40
Question 6

- Who is most likely to have Lupus?

A) 30 year old white female
B) 30 year old black female
C) 30 year old black male
D) 50 year old white female
E) 50 year old black female
F) 50 year old black male
Question 7

• Which biopsy warrants an URGENT Rheumatology referral? (more than one may apply)

A) Class I Lupus Nephritis
B) Class II Lupus Nephritis
C) Class IV Lupus Nephritis
D) Class VI Lupus Nephritis
Question 8

• Which medication should not be held if a patient is being admitted with infection? (more than one may apply)

A) Azathioprine
B) Mycophenolate mofetil
C) Hydroxychloroquine
D) Prednisone
Basics

- Inflammatory, multi-system, autoimmune disease of unknown etiology
- Can range from mild disease to life-threatening
- Diverse clinical symptoms, all organs are vulnerable
- Onset abrupt or gradual
- Characterized by periods of flare and remission
Epidemiology

- Women in their reproductive years
- Women are 9 times more likely to develop lupus than men
- Non-Caucasians have the highest prevalence:
  - Affects up to 1/250 Black women in US, 2-3 times higher risk than White women
  - Asian and Hispanic
  - Ethnic minorities have mortality rates 3 times as high as White
- Poverty, race, younger age have worse outcomes
What causes Lupus

Genetically susceptible individual

Damage

Environmental factors

Inflammation

Auto antibody production
Genetic Susceptibility

- Monozygotic twins 24%–35%
- Dizygotic twins 2%–5%
- 10%–12% of SLE patients have a relative with SLE compared to <1% in normal population
- Other family members with autoimmune diseases
Does positive ANA = Lupus?
ANA can be seen everywhere

<table>
<thead>
<tr>
<th>Rheumatic Diseases</th>
<th>Rheumatic Diseases</th>
<th>Other Autoimmune</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lupus</td>
<td>RA</td>
<td>Grave’s disease</td>
<td>Aging</td>
</tr>
<tr>
<td>Drug induced lupus</td>
<td>Polymyositis</td>
<td>Hashimoto thyroiditis</td>
<td>Family history of autoimmune</td>
</tr>
<tr>
<td>Sjogren’s</td>
<td>Dermatomyositis</td>
<td>Autoimmune hepatitis</td>
<td>Normal population</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>Vasculitis</td>
<td>Primary pulmonary hypertension</td>
<td></td>
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<tr>
<td>MCTD</td>
<td></td>
<td>Primary biliary cirrhosis</td>
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</table>
ANA is a test with:

High Sensitivity
Low Specificity
Higher titer = Higher specificity

<table>
<thead>
<tr>
<th>ANA Titer</th>
<th>Normal Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:40</td>
<td>30%</td>
</tr>
<tr>
<td>1:80</td>
<td>11%</td>
</tr>
<tr>
<td>1:160</td>
<td>5%</td>
</tr>
<tr>
<td>1:320</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>
## Other autoantibodies

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Lupus specificity</th>
<th>Clinical Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA</td>
<td>Low</td>
<td>Non-specific</td>
</tr>
<tr>
<td>Anti-dsDNA</td>
<td>High</td>
<td>Nephritis</td>
</tr>
<tr>
<td>Anti-histone</td>
<td>High</td>
<td>Drug induced lupus</td>
</tr>
<tr>
<td>Anti-Smith</td>
<td>High</td>
<td>Non-specific</td>
</tr>
<tr>
<td>Anti-RNP</td>
<td>Low</td>
<td>MCTD</td>
</tr>
<tr>
<td>Anti-SSA and Anti-SSB</td>
<td>Low</td>
<td>SICCA symptoms, SCLE, neonatal lupus, photosensitivity</td>
</tr>
<tr>
<td>Antiphospholipid</td>
<td>Intermediate</td>
<td>Clotting</td>
</tr>
</tbody>
</table>
Classification Criteria

Systemic Lupus International Collaborating Clinics (SLICC)
SLE considered if:

- Biopsy proven lupus nephritis with + ANA or Anti-DNA

OR

- ≥ 4 criteria (at least 1 clinical and 1 laboratory)

ACR Criteria

- At least 4/11 criteria met
ACR Criteria CIRCA 1997
4/11 to suspect lupus

1. Malar rash
2. Discoid Rash
3. Photosensitivity
4. Oral ulcers
5. Arthritis
6. Serositis
7. Renal: proteinuria
8. Neuro: seizures, psychosis
9. Heme: hemolytic anemia, cytopenias
10. Antinuclear antibodies (ANA)
11. Anti-dsDNA, anti-Smith, or antiphospholipid antibodies
SLICC CRITERIA

> 4 criteria (at least 1 clinical and 1 laboratory)

**Clinical**
1. Acute cutaneous lupus
2. Chronic cutaneous lupus
3. Oral or nasal ulcers
4. Non scarring alopecia
5. Arthritis
6. Serositis
7. Renal
8. Neurologic
9. Hemolytic anemia
10. Leukopenia
11. Thrombocytopenia

**Laboratory**
1. ANA positive
2. Anti-dsDNA positive
3. Anti-Smith positive
4. Antiphospholipid antibody positive
5. Low complement (C3,C4)
6. Direct Coombs test (do not count in the presence of hemolytic anemia)
Suggestion of questions to ask

• Any fevers, weight loss, abnormal fatigue?
• Do you get a rash when you go out in the sun, even for a few minutes?
• Any new hair loss in patches or hair on the pillow when you wake up?
• Any oral or nasal ulcers? How long do they last for?
• Any chest pain with taking deep breaths? Have you ever been told you had fluid around your heart or lungs?
• Do you get color changes in your hands in the cold (reaching into freezer or in air conditioning)? Please describe it
Rash

- Malar
- Acute cutaneous
- Subacute cutaneous
- Discoid lupus
- Oral/nasal ulcerations
Malar Rash
Malar Rash
Discoid Lesions
Subacute Cutaneous Lupus
“Skin Lupus”

• Should differentiate between patients with “skin lupus” only versus systemic (SLE)
Livedo Reticularis
Patchy Alopecia
Oral Ulcers
Raynaud’s
Lupus Nephritis

- Class I: minimal mesangial glomerulonephritis
- Class II: mesangial proliferative glomerulonephritis
- Class III: focal proliferative glomerulonephritis (lesions involve <50% glomeruli)
- Class IV: diffuse proliferative glomerulonephritis (lesions involve >50% glomeruli)
- Class V: membranous glomerulonephritis
- Class VI: advanced sclerosing lupus nephritis (sclerosis >90%)
Lupus nephritis

- When to worry:
  - Class III/IV
    - Class V – proteinuria
  - Class VI = too late (fibrosed)
  - Class I/II = good prognosis
Jacoud’s Arthropathy
Jacoud’s Arthropathy
A word on Antiphospholipid Syndrome

• Can be primary or secondary (usually with lupus)
• About 50% of patients with APS have lupus
• Definition:
  — Presence of HIGH TITER autoantibodies
    • Lupus anticoagulant
    • B2-glycoprotein
    • Anti-cardiolipin
  — History of clot
Case 1

• A 30 year old Hispanic female with no past medical history presents to her PCP with an 8 week history of:
  – Fever
  – Weight loss
  – Facial rash

• Treated with antibiotics for facial “cellulitis”
Case 1 Continued

- One week later, seen in ER with fever of 103, proteinuria, anemia. Told it was “viral syndrome” and discharged.

- Went back to her PCP with following:
  - Fever
  - Oral ulcers
  - Facial rash
  - Leg swelling
  - Lymphadenopathy
Case 1 Continued

• What is concerning about SLE in this case?

• What labs should you check at this point?

• Should you refer this patient to a Rheumatologist?
Case 2

- A 30 year old female with SLE presents to ER with fever and chills. Found on work-up to have pyelonephritis, admitted for IV antibiotics.

- Current medications:
  - Hydroxychloroquine
  - Prednisone 5 mg daily
  - Mycophenolate mofetil 1000 mg twice daily
Case 2

- What should you do with her medications?

Hydroxychloroquine ➔
Prednisone ➔
Mycophenolate ➔
Treatment

MILD
• Anti-Malarials – we love these, everyone else should too
  – Hydroxychloroquine most often used

PREDNISONE
• Immunosuppression and side effects depend on dose
• Low dose <10 mg daily, moderate 10-20 mg daily, high 40-60 mg daily
Treatment

• Moderate Oral
  – Mycophenolate mofetil (Cellcept) or Mycophenolic acid (Myfortic)
  – Azathioprine (Imuran)
  – Methotrexate/Leflunomide

• Moderate IV
  – Belimumab
Treatment

• “CHEMO”
  – Rituximab
  – Cyclophosphamide (oral or IV)
Management

• Avoid triggers: OCP, alfalfa, Echinacea
• Counseling on sun exposure
• Prevent atherosclerosis
• Prevent osteoporosis if on prednisone
• Immunizations: HPV, influenza
• Cancer screening
Back to Questions
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