Psoriasis

Jessica Kaffenberger, M.D.
Assistant Professor of Dermatology
Division of Dermatology
The Ohio State University Wexner Medical Center

Learning objectives

• Recognize the different types of psoriasis and how to effectively treat them

• Identify types of nail psoriasis

• Describe the pathogenesis of psoriasis and how it correlates with the newest therapies

• Identify frequent psoriasis co-morbidities that affect medication management
# The Basics

- **Onset**
  - Prevalence: 2-3% of world’s population
    - US = ? 4-5%
  - 2 peaks of onset: 20-30s* and 50-60s
    - Median age onset: 28 yo
  - “Type I”: early onset, HLA-Cw6, more severe
  - “Type II”: later onset, less severe disease

## Genetic role

- 2 parents affected, risk of child affected = 41%
- 1 parent affected, risk of child affected = 14%
- Monozygotic twin affected, risk = 35-70%
- 1 non-twin sibling affected, risk = 6%
Clinical appearance and treatments

Psoriasis Types
- Plaque
- Pustular
- Inverse
- Guttate
- Palmoplantar

Courtesy of B. Kaffenberger
Plaque Psoriasis

Severe plaque psoriasis
Severe plaque psoriasis

Plaque Psoriasis

- Most common type
- Elbows, Knees, Scalp, Sacrum, Fingernails
- Often itches
- Mild disease – treat with topical steroids
- More extensive or refractory disease - systemic medication
Guttate Psoriasis

- 2nd most common form
- More common in children
- Can be related to strep infections
- Trunk most involved
- Treatment:
  - Treat strep infection if present, topical steroids, if refractory send to a dermatologist
Inverse Psoriasis

- Can be difficult to diagnosis – no scale
- The maceration and skin on skin contact prevents the silver coloration
- Treatment: Low-potency topical steroid, tacrolimus ointment
Palmoplantar pustular psoriasis

- Significant morbidity
- Very difficult to treat
- Treatment:
  - High-potency topical steroids, urea 40% cream, tazarotene
    - Use any of above under occlusion
  - Systemic treatments (methotrexate, acitretin, biologics)
  - Be careful using ORAL steroids in these patients!
Pustular psoriasis (generalized)
Generalized Pustular Psoriasis

- Most acute type
- Can be life threatening
- May have fevers, elevated WBC, low calcium
- Can be caused by withdrawal of systemic steroids
- Treatment:
  - Call a dermatologist

Special presentations of psoriasis...
Nail psoriasis

• Caused by psoriatic lesions within nail matrix or nail bed
• Can be very resistant to treatment
• Treatment:
  • Topical steroids
  • Intra lesional steroids
  • Systemic treatments (methotrexate, acitretin, biologics)
Nail psoriasis

Matrix Problems!

Nail matrix problem
Nail matrix problem

Crumbling

Pitting

Nail psoriasis

Nail BED signs!!

Oil drop/salmon patch
Hyperkeratosis
Splinter hemorrhage
Nail bed problem

Hyperkeratosis
Topical treatment pearls for psoriasis

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaque: Thin plaque</td>
<td>hydrocortisone 2.5%, desonide 0.05%</td>
</tr>
<tr>
<td>Plaque: Moderate plaque</td>
<td>triamcinolone 0.1%</td>
</tr>
<tr>
<td>Plaque: Thick plaque</td>
<td>clobetasol 0.05%, augmented betamethasone 0.05%</td>
</tr>
<tr>
<td>Inverse:</td>
<td>hydrocortisone 2.5%, desonide 0.05%, tacrolimus 0.1%</td>
</tr>
<tr>
<td>Palmoplantar pustular psoriasis</td>
<td>clobetasol 0.05%, augmented betamethasone 0.05%, urea 40%, tazarotene</td>
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Topical treatment pearls for psoriasis

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<th>Treatment</th>
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<tr>
<td>scalp:</td>
<td>solutions, foams</td>
</tr>
<tr>
<td>body:</td>
<td>creams, ointments, spray</td>
</tr>
<tr>
<td>intertriginous:</td>
<td>cream, ointments</td>
</tr>
</tbody>
</table>
Topical treatment pearls for psoriasis

- Consider body surface area affected
  - 30 g = covers entire body for one application
  - If > 10% BSA, consider 454 g of triamcinolone
  - If low BSA, can give lower amounts

- Counsel patients on appropriate use to avoid topical steroid side effects

Pathogenesis of psoriasis and newest therapies
Predominant cytokines in psoriasis

- IL-12 – stimulates Th1 cells
- IL-23 – stimulates Th17 cells
- TH17 cytokines: IL-22, IL-17, TNF-α
- Pro-inflammatory cytokines: IL-1, IL-6, TNF-α

Psoriasis pathogenesis
IL-17 cytokines

- 6 members – IL-17A though IL-17F, active as homodimers or heterodimers
- IL-17A is the primary Th17 cell effector cytokine

Effects of IL-17

- Keratinocytes are the principal target for IL-17A
  - Receptors on the surface of keratinocytes throughout the epi
  - IL-17A stimulates keratinocyte expression of multiple chemokines, AMPs
    - CXCL chemokines cause neutrophil migration
    - AMP activate innate immune system
  - IL-17A also contributes to a feedback loop

- Th17 cells and serum IL-17A correlate with PASI
Psoriasis pathogenesis

Anti-IL17 medications

Secukinumab – Jan 2015
Ixekizumab – March 2016
Brodalumab – Feb 2017
Psoriasis pathogenesis

Anti IL – 23 medications

Guselkumab – July 2017
Tildrakizumab – March 2018

Several more in clinical trials....
Comorbidities of psoriasis and psoriatic arthritis

Psoriasis co-morbidities

- Psoriatic arthritis
- Hypertension
- Diabetes
- Dyslipidemia
- Obesity
- Crohn’s disease
- Uveitis
- Depression
- Alcoholism
- Liver disease
- Chronic kidney disease
- Lymphoma
Cost of psoriasis

- Pso pts in top 10% of healthcare costs -
  - More likely to have co-morbidities
  - More likely to have hospitalizations, ER visits

- Similar biologic use between pso pts in top 10% of healthcare costs and lower 90%

Psoriatic Arthritis

- ~ 1/4 of pts
- Decreases QoL
- Over 3/4 pts: skin 1\textsuperscript{st}, arthritis 2\textsuperscript{nd}
  - lag time 7 to 12 years
Psoriatic Arthritis

Clinical patterns:
- Peripheral (PIP/DIP)
- Axial (spondyloarthritis)
- Enthesitis
- Dactylitis

About 15% goes undiagnosed!

6 month delay in diagnosis

OR for:
- Deformed joints: 2.28
- Erosions: 4.58
- Osteolysis: 3.6
- Sacroilitis: 2.28
- Arthritis mutilans: 10.6
Inflamm articular dz + 3 or more of following 5 pts:

1. Evidence of psoriasis (a, b, or c)
   a. Current psoriasis (2 pts)
   b. Hx of psoriasis
   c. Fam hx of psoriasis
2. Nail psoriasis
3. Negative RF
4. Dactylitis (a or b)
   a. Current
   b. History
5. Radiological signs of juxtaarticular bone formation

PEST screening tool
“Psoriasis epidemiology screening tool”

1. Hx of swollen joint?
2. Past dx of arthritis?
3. Nail pits?
4. Heel pain?
5. Dactylitis?

Sensitivity 0.68, Specif 0.71
Psoriasis and obesity

“From a public health perspective, nearly a quarter of psoriasis cases could be attributed to overweight or obesity if the estimated associations reflect causal relations”

Psoriasis severity linked with BMI

- Weight loss helps pso
  - Greater PASI reduction
  - Need for less aggressive therapies
- Low calorie diet helpful
- Post gastric bypass –
  - HR of incident psoriasis 0.52 (95% CI, 0.33-0.81),
  - HR of progression to severe psoriasis 0.44 (95% CI, 0.23-0.86)
Psoriasis and heart disease

- Cardiovascular risk increases with severity of disease
- Likely secondary to inflammation
- Also increased risk of metabolic syndrome, DM, HTN

Systemic therapies (esp mtx and anti-TNF) can decrease CV disease and major adverse cardiovascular events
## Summary

- **Psoriasis** – many different forms
- Choose treatment based on type of psoriasis, and severity of disease
- **Pathogenesis** – Th17 (IL-23 and IL-17)
- Associated with many co-morbidities – look for them and treat them