Learning Objectives

Upon completion of this educational activity, participants should be able to:

• Summarize the epidemiology and pathophysiology of psoriasis and PsA.
• Describe the diagnosis, disease classification, and assessment associated with psoriasis and PsA.
• Incorporate patient preferences and shared decision making into tailored treatment plans for patients with psoriasis and PsA.
• Evaluate the efficacy and safety of recently available therapies for the management of psoriasis and PsA.
Psoriasis

- Chronic, immune-mediated skin disease
  - Most common autoimmune disease
  - Correlation between skin and systemic inflammation
- High comorbidity burden
- Affects almost 8 million Americans


Psoriasis

- Pediatric incidence: 40.8/100,000 population
- Adult incidence: 78.9/100,000 population

Psoriasis in Adults (n=2564)

![Age and Number of Patients with Psoriasis](image)


Impact of Psoriasis on QoL

Emotional and Physical Impact of Psoriasis

![Percentage of Patients with Psoriasis](image)

~80% to 90% of psoriasis patients experience significant impairment of QoL and work productivity

Psoriasis Assessment: Types

- Plaque psoriasis
  - Well-defined erythematous plaques
  - Elbows, knees, scalp, lower trunk
- Scalp psoriasis
  - Presentation ranges from slight scaling to thick, crusted plaques that cover the scalp
- Nail psoriasis
  - Nail pitting and crumbling, separation of nail plate from bed with white discoloration, nail thickening
- Inverse psoriasis
  - Shiny, erythematous plaques with minimal scaling
  - Groin and/or other intertriginous areas (eg, under breasts, in abdominal skin folds)
Psoriasis Assessment: Types (cont'd)

- Pustular psoriasis
  - Eruption of sterile pustules
  - Generalized and extensive or localized to existing plaques
- Palmoplantar pustular psoriasis
  - Yellow-brown sterile pustules on hands and feet
  - May include scaling and severe pruritis
- Erythrodermic psoriasis
  - Generalized exfoliative dermatitis, often with hair loss and nail dystrophy
  - Affects large body surface area (BSA); ≥80%
- Guttate psoriasis
  - Small, scattered, pink, oval-shaped papules
  - With silvery scaling
  - Affects trunk and extremities

Psoriasis Assessment

- Comprehensive exam
- Medication history
- Assess for comorbidity
  - Psoriatic arthritis (PsA) and other arthropathies
  - Diabetes
  - Hyperlipidemia
  - Obesity
  - Cardiovascular disease
  - Malignancy
  - Depression
- Differential diagnoses
  - Eczema
  - Contact dermatitis
  - Seborrheic dermatitis
  - Drug eruption
  - Tinea infections
  - Pityriasis rosea
  - Lichen planus
  - Candidal intertrigo
  - Onychomycosis

Psoriasis can be difficult to diagnose...
When in doubt, REFER!

Clinical Pearls for Diagnosis

- Distribution
  - Eczema common on flexors
  - Psoriasis common on extensors
- Auspitz sign
- Well-defined
  - vs eczema with diffuse border
- Consider treatment secondary infection
  - Inverse psoriasis vs candidiasis vs intertrigo
- Skin biopsy if unsure (punch biopsy)
Psoriasis Assessment: Severity

- Scoring tools:
  - PASI: Psoriasis Area and Severity Index
  - BSA: Body Surface Area
  - DLQI: Dermatology Life Quality Index

- Remember:
  - Severity ≠ amount of area affected
  - Consider
    - Area(s) of involvement
      - Palms, genitals, soles, scalp, nails
    - Interference with QoL

US Perspectives: MAPP Survey

- Multinational Assessment of Psoriasis and Psoriatic Arthritis (MAPP) survey
  - N=1,005 patients, 101 dermatologists, and 100 rheumatologists

- Key findings
  - Both psoriasis and PsA remain undertreated in patients with moderate-to-severe disease
  - Gaps in care include screening, assessing, diagnosing and treating psoriasis patients with symptoms of PsA


US Perspectives: MAPP Survey

- Key findings (cont’d)
  - Widespread dissatisfaction with current treatment options
    - Lack of efficacy
    - Long-term safety unknown
    - Administration challenges
    - Cost
  - Difference in perceptions of severity, treatment impact in patients vs clinicians

Perceptions of Disease Severity: MAPP Survey

- Perceptions of disease severity differ between patients and clinicians

Most important factors contributing to disease severity in psoriasis, as reported by patients and clinicians

<table>
<thead>
<tr>
<th>Factor</th>
<th>Patients (n=735)</th>
<th>Dermatologists (n=101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflamed patches</td>
<td>76.8</td>
<td>4.0</td>
</tr>
<tr>
<td>Scaling</td>
<td>36.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Pain</td>
<td>21.8</td>
<td>11.4</td>
</tr>
<tr>
<td>Sleep disruption</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Inability to work/school</td>
<td>2.3</td>
<td>0.0</td>
</tr>
</tbody>
</table>


Psoriatic Arthritis

PsA in Psoriasis Patients

- Up to 30% of individuals with psoriasis will develop PsA (higher than previously thought)
- Risk factors
  - Severe psoriasis
  - Psoriatic nail pitting
  - Uveitis

Photos courtesy of Margaret Bolash, CMF, FNP-C, GCPNP-FAANP. Used with permission.
PsA

- Inflammatory arthritis
  - Skin disease typically precedes joint disease
- Variable disease course
  - Flares and remission
- Severe disease is associated with:
  - Progressive joint damage
  - Increased mortality
  - Increase in cardiovascular risk

Photo courtesy of Margaret Bobonich, DNP, FNP-C, DCNP, FAANP. Used with permission.

Diagnosis of PsA

- High prevalence of undiagnosed PsA (~10%-15%)
- Patients with PsA report a mean interval of 12.4 years between onset of skin symptoms and onset of joint symptoms
- Arthritis symptoms precede skin involvement in 13% to 17% of patients
- 15% of patients have undiagnosed or unrecognized psoriasis

Joint symptoms represent DESTRUCTIVE, IRREVERSIBLE DISEASE.
Early diagnosis is critical for preventing progression.


Diagnosis of PsA

- Common signs and symptoms
  - Musculoskeletal (32.1%)
    - Joint symptoms (88.2%)
    - Tendon symptoms (50.4%)
      - Dactylitis
    - Low back pain (73.9%)
    - Peripheral arthritis
  - Psoriatic nail dystrophy (15.5%)
  - Enthesitis (4.6%-7.0%)
  - Uveitis
  - Plaque psoriasis

# Diagnosis of PsA

- **2 primary patterns**
  - Peripheral joint disease (~95% of PsA patients)
  - Axial involvement only (~5% of PsA patients)
- **Diagnosis is typically made in a patient with psoriasis and inflammatory arthritis in a PsA-type pattern**
  - Patients with psoriasis may have other types of arthritis including RA, OA, gout, reactive arthritis, and arthritis of IBD

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## Diagnosis Is Made Clinically

- **History**
  - Skin disease
  - Joints involved
  - Enthesitis, dactylitis, eye disease, inflammatory back pain (age <40, worse at night with AM stiffness, better with activity)
  - Family History
- **Physical exam**
- **Laboratory testing**
  - CBC
  - BUN, creatinine, uric acid, and UA
  - ESR and CRP (elevated in 40% of patients)
  - RF (2%-10%), anti-CCP (8%-16%) and ANA (low titer 50%)
  - HLAB27 (50%)
- **Arthrocentesis**
  - To rule out septic arthritis, gout and CPPD
- **Imaging**
  - Plain film, ultrasound, MRI
  - Co-existence of erosive changes and new bone formation may occur in same joint or within same digit

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## CIASsification Criteria for Psoriatic ARthritis (CASPAR)

- Valuable in clinical trials, can be used for diagnosis
  - Limited to peripheral arthritis, axial disease, and enthesitis
- Specificity of 98.7% and sensitivity of 91.4%
- Advantages over Moll and Wright Criteria*:
  - High specificity and sensitivity
  - Includes family history of psoriasis
  - Includes inflammatory articular disease
  - Includes RF status

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*To meet the Moll and Wright 1973 classification criteria for psoriatic arthritis, a patient with psoriasis and inflammatory arthritis who is seronegative for RA must present with 1 of 5 clinical subtypes: polyarticular, oligoarticular, symmetric, asymmetric, or psoriatic arthritis mutilans.

PsA is diagnosed when ≥3 points below are assigned in the presence of inflammatory articular disease (joint, spine, or enthesal).

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current or personal history of psoriasis</td>
<td>Psoriatic skin or scalp disease confirmed by dermatologist or rheumatologist; history of psoriasis from patient, family physician, dermatologist, rheumatologist, or other qualified practitioner</td>
<td>2</td>
</tr>
<tr>
<td>Family history of psoriasis</td>
<td>Patient-reported history of psoriasis in first- or second-degree relative</td>
<td>1</td>
</tr>
<tr>
<td>Psoriatic nail dystrophy on current physical exam</td>
<td>Includes onycholysis, pitting, and hyperkeratosis</td>
<td>1</td>
</tr>
<tr>
<td>Negative for RP</td>
<td>Enzyme-linked immunosorbent assay or nephelometry preferred (no latex) using local laboratory reference range</td>
<td>1</td>
</tr>
<tr>
<td>Current dactylitis or history of dactylitis documented by a rheumatologist</td>
<td>Swelling of entire digit</td>
<td>1</td>
</tr>
<tr>
<td>Radiographic evidence of juxta-articular new bone formation</td>
<td>Ill-defined ossification near joint margins excluding osteophyte formation on plain X-rays of hand or foot</td>
<td>1</td>
</tr>
</tbody>
</table>


### Treatment of Psoriasis and PsA

#### Treatment of Psoriasis

<table>
<thead>
<tr>
<th>Type of Treatment</th>
<th>Recommended for</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical Therapy (ointments, corticosteroids, vitamins D analogues, calcipotriene, tacrolimus, calcipotriol, anthralin)</td>
<td>Mild disease (standard)</td>
<td>Limited by poor adherence rates</td>
</tr>
<tr>
<td>Ultraviolet (UV) Light (UVB radiation, narrow-band UVB, phototherapy [PUVA])</td>
<td>Moderate-to-severe disease</td>
<td>Associated with accelerated photodamage and increased risk of malignancy; will not treat PsA</td>
</tr>
<tr>
<td>Methotrexate</td>
<td>Moderate-to-severe disease</td>
<td>Most widely used systemic treatment; inexpensive; pregnancy category X</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>Psoriasis flares</td>
<td>Used as a bridging agent during induction of other maintenance agents or for flares</td>
</tr>
<tr>
<td>Acitretin</td>
<td>Moderate-to-severe disease</td>
<td>Low toxicity and no immunosuppression; can be used in patients with infection, malignancy, or HIV; need to monitor LFTs and triglycerides; contraindicated if considering pregnancy</td>
</tr>
<tr>
<td>Biologic Agents (infliximab, adalimumab, etanercept, ustekinumab, secukinumab, tofacitinib, apremilast)</td>
<td>Moderate-to-severe disease</td>
<td>May be used as first-line systemic agent depending on comorbidities and other considerations; highly efficacious; expensive</td>
</tr>
</tbody>
</table>

Treatment Considerations

- Age
- Pregnancy/lactation (current or future)
- Patient/family medical history
  - Malignancies
  - Multiple sclerosis or CHF
  - Inflammatory bowel disease
  - Depression or suicide
  - Chronic infections
  - Other autoimmune diseases (ie, lupus)
- Exposure to fungus or TB
- History of HCV, HBV, HIV or high risk behavior
- Social – alcohol consumption

Psoriasis Treatment Algorithm

Psoriasis + PsA

Anti-TNF +/- MTX*

Mild (limited)
  - Topicals
  - Targeted phototherapy
  - UVB/PUVA
  - Systemic - Biological

Effective

Moderate/Severe (extensive)

- Topicals
- Targeted phototherapy
- UVB/PUVA
- Systemic - Biological

Not Effective†

*Patients with nondeforming PsA without any radiographic changes, loss of range of motion, or interference with tasks of daily living should not automatically be treated with tumor necrosis factor (TNF) inhibitors. It would be reasonable to treat these patients with a nonsteroidal anti-inflammatory agent or to consult a rheumatologist for therapeutic options.

†Patients with limited skin disease should not automatically be treated with systemic therapy if they do not improve, because treatment with systemic therapy may carry more risk than the disease itself.


Treatment of Mild-to-Moderate Psoriasis

- Topical therapy
  - Corticosteroids, vitamin D derivatives, tazarotene, anthralin, tacrolimus, pimecrolimus, newer tar formulations
  - Must be prescribed appropriately and used consistently for weeks to months for clinical improvement
  - Potential AEs
    - Cutaneous atrophy
    - Telangiectasias
    - Hypothalamic-pituitary axis suppression

Treatment of Mild-to-Moderate Psoriasis

- Topical therapy (cont’d)
  - Primary limitation is medication adherence
  - Strategies to optimize adherence:
    - Consider dosage/schedule, choice of vehicle
    - Fixed-combination gels, foams
    - Address patient preference about treatment
    - Address concerns about treatment-related toxicities
    - Manage patient expectations
- Assess patient response and know when to refer!
  - Up to 80% of psoriasis patients receive no treatment or only topical therapy


Treatment of Moderate-to-Severe Psoriasis

- Refer to dermatology
- Primary care:
  - Emphasize need for long-term follow-up and adherence to prescribed therapy
  - Encourage lifestyle changes
    - Smoking cessation
    - Decreased alcohol consumption
    - Healthy diet and increased physical activity
  - Monitor for AEs
  - Consider early screening/intervention for CVD and metabolic disease

Treatment Potential AEs

Phototherapy
- Squamous cell carcinoma, photaging

Methotrexate
- Hepatotoxicity, bone marrow suppression, pneumonitis

Cyclosporin
- Impaired renal function, hypertension, lymphomas, cutaneous malignancies

Adalimumab
- Mcuculaneous side effects, dyslipidemia

Biologics
- Tuberculosis, latent infections, hepatitis, CHS complications, cytopenia, multiple sclerosis, CHF


Treatment of PsA

- Treatment is guided by disease severity and symptoms
- Treat to target (T2T) approach
- Comorbidities may limit options (diabetes, metabolic syndrome, fatty liver, CAD)
- Screening
  - CV risk factors (BP, lipids, smoking)
  - Weight loss counseling
  - Ultrasound of liver with elevated LFTs
  - Hepatitis screening
  - Tuberculosis screening – quantiferon gold TB is standard (or PPD skin test)
  - Vaccinations
Treatment of PsA

**NSAIDs**

- Intra-articular injections

**Nonbiologic DMARDs**
- methotrexate, sulfasalazine, leflunomide, cyclosporin

**Biologic DMARDs**
- anti-TNF, PDE4 inhibitors, anti-IL-12/23, anti-IL-17A

**Will not affect plaque psoriasis**

**Can also treat plaque psoriasis**


Biologic Agents for Psoriasis/PsA

<table>
<thead>
<tr>
<th>Drug</th>
<th>Target</th>
<th>FDA-Approved for Psoriasis</th>
<th>FDA-Approved for PsA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etanercept</td>
<td>TNF-receptor</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Infliximab</td>
<td>TNF-alpha</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Adalimumab</td>
<td>TNF-alpha</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ustekinumab</td>
<td>Anti-IL-12/23</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Brodalumab</td>
<td>IL-17 receptor</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ixekizumab</td>
<td>IL-17A</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Secukinumab</td>
<td>IL-17A</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Apremilast</td>
<td>Phosphodiesterase 4 (PDE4)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tofacitinib</td>
<td>Janus Kinase (JAK-STAT pathway)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Golimumab</td>
<td>TNF-alpha</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Certolizumab</td>
<td>TNF-alpha</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>


Biologic Agents in PsA

**Benefits**
- Induce a durable long-term response
  - 56% improvement in tender joint counts
  - 70% improvement in swollen joint counts
  - 64% improvement in CRP level
  - 36% improvement in overall disease activity score (DAS)
- Improve Health Assessment Questionnaire (HAQ) scores
- Long-term safety confirmed

**Drawbacks**
- Potential AEs
  - Injection site reactions
  - Serious infections
  - Possible association with increase of some malignancies
- Lack of sustained response to TNF inhibitors in some PsA patients
- Intravenous dosing of some medications
- Cost

Treatment of PsA

- **Mild arthritis**
  - NSAIDs
- **Moderately severe arthritis or resistant to NSAID**
  - Methotrexate
  - Leflunomide
  - Apremilast
- **Severe peripheral arthritis/adverse prognosis**
  - TNF inhibitor
    - Etanercept
    - Infliximab
    - Adalimumab
    - Golimumab
    - Certolizumab pegol
    - Other biologic DMARDs
    - Secukinumab
    - Ustekinumab
- **Axial disease**
  - NSAIDs
- **Enthesitis**
  - NSAIDs
- **Dactylitis**
  - NSAIDs

Stay Tuned

- American College of Rheumatology and the National Psoriasis Foundation Guideline for the Management of Psoriatic Arthritis
  - Anticipated completion 2018

Monitoring

- National Psoriasis Foundation (NPF) treatment targets for plaque psoriasis
  - **Acceptable**: Either BSA ≤3% or BSA improvement ≥75% from baseline at 3 months after treatment initiation
  - **Target**: BSA ≤1% at 3 months after treatment initiation
- Monitor *at least* every 3 to 6 months during maintenance therapy
- Reassess if skin symptoms or arthritis not under control

Comorbidities Established in Psoriasis and PsA

- Cardiovascular disease (CVD)
- Metabolic syndrome
- Obesity
- Dyslipidemia
- Diabetes
- Mood disorders
- Inflammatory bowel disease
- Malignancy
- Uveitis
- Alcohol and addictive behaviors

Emerging Comorbidities

Risk of Cardiometabolic Disease in Patients with More Severe Psoriasis

Clinical significance:
- Increased risk of MI, stroke, CV death, and diabetes
- 5 years shorter life expectancy
- 10-year risk of major CV event attributable to psoriasis = 6%
- Risk of CV disease in patients with severe psoriasis similar to risk conferred by diabetes
- Patients treated for severe psoriasis are 30 times more likely to experience MACE (attributable to psoriasis) than to develop a melanoma

MI = myocardial infarction, MACE = major adverse cardiac events, RR = relative risk


Cardiovascular Comorbidity in PsA

- Rates of CVD and MACE are higher in patients with PsA compared to those without PsA

<table>
<thead>
<tr>
<th></th>
<th>PsA patients IR/1000 PYs</th>
<th>Non-PsA patients IR/1000 PYs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rates of incident CVD – All</td>
<td>12.8</td>
<td>9.6</td>
</tr>
<tr>
<td>Rates of MACE</td>
<td>4.6</td>
<td>3.5</td>
</tr>
</tbody>
</table>

IR = incidence rate, PY = person-years.


Case Study

28-year-old female nurse being followed in rheumatology clinic for fibromyalgia diagnosed 5 years prior presents c/o worsening back and hand pain over the last several months.

- History
  - Inflammatory back pain
  - Somewhat responsive to NSAIDs, h/o gastric ulcer
  - No h/o psoriatic disease

- Physical exam
  - Scalp psoriasis
  - Dactylitis right second finger

- Laboratory
  - ANA 1:40
  - Neg RF, anti-CCP
  - ESR 35, CRP 7
  - HLAB27 positive

Case Study

- Diagnosed with psoriasis and PsA after review of labs and films
- Treatment considerations
  - Negative hepatitis and TB screening
  - History of gastric ulcer
  - Considering pregnancy in the next year
- Options
  - Methotrexate
    - Unable to tolerate: GI distress and hair loss
  - TNF inhibitor
    - Etanercept
      - At 3-month follow-up, dactylitis absent, scalp psoriasis clear, AM stiffness 30 minutes, back pain improved though not gone
Case Study

• Two years later, stopped etanercept with pregnancy confirmation
• Back pain worse during pregnancy
• At 2 months postpartum
  – Scalp psoriasis worse, patches on elbows and hands
  – Joint pain and stiffness in hands and knees
  – Difficulty with ADLs
  – Resumed etanercept with reduction in symptoms

Primary Care Pearls

• Take a good history from the patient
• Complete a thorough skin examination
• Assess for joint signs and symptoms
• Monitor patients for comorbidities sooner than the general population
• Monitor for side effects and treatment complications

Primary Care Pearls

• Assess for adherence to therapy
• Ensure all age-appropriate screening
• Assess for QoL and ADLs
• Assess for psychosocial
• Patients on biologics or immunosuppressants
  – Do not give live vaccines
  – Notify specialist (dermatology or rheumatology) if patient develops
    • Serious signs or symptoms of infection
    • Change in medical condition
**Updates in Psoriasis and Psoriatic Arthritis Management: Best Practices for Effective Care**

**References**


