The Nurse Practitioner & Psoriatic Disease

CLARRISA MICHALAK
DNP, ACNPC-AG, CCRN, RN-BC

Objectives

- Define psoriatic disease
- Characterize diagnostic criteria
- Identify comorbidities
- Describe treatment options

Defining Psoriatic Disease

- Why you should know
  - Psoriasis
  - Psoriatic Arthritis
What is psoriatic disease?

Psoriasis
- Chronic autoimmune skin disease that speeds up the growth cycle of skin cells

Psoriatic Arthritis
- An inflammatory type of arthritis that eventually occurs in 10% to 20% of people with psoriasis
- Different from more common types of arthritis: OA, RA
- Presumed to be related to the underlying problem of psoriasis

Disease Impact: Quality of Life

ICF Components
- Activities & Participation (42.6%)
- Body Function (29.4%)
- Body Structure (10.3%)

Study Findings
- Ability to work or volunteer, social participation (90.9%, 10 studies)
- Activities and recreation (63.6%, 7 studies)


Systematic literature review:
- Search terms: “psoriatic arthritis” AND “quality of life” OR “impact”
- Concepts linked to International Classification of Functioning categories and levels
  - 11 studies, 25 domains
  - 258 concepts, 217 linked to 136 ICF categories

Disease Impact: Disability

- High premature work cessation:
  - RA: 50% at 10 years disease duration
- Pa, AS, and other spondyloarthropathies
  - 5-6.2 million adults
  - Joint pain, inflammation, stiffness, fatigue, disease flare, and remission
  - Invisible

**Disease Impact: Financial Burden**


**Disease-modifying antirheumatic drugs (DMARDs), Biologics**
- Out of pocket costs: $128 per prescription
- From 2004-2013: 284% OOP cost increase among most HMO plans
- Biosimilars may offset cost, but also may limit efficacy

---

**Psoriasis**

**What you need to know**
- Pathophysiology
- Phenotypes
- Diagnosis & Differentials

---

**Psoriasis**

**Epidemiology, globally**
- Equal prevalence across genders
- 0.9 to 11.4% adults
- 0 - 1.4% children
- Peak onset ages: 30-39, 50-69

**Risk factors:**
- Genetics
- Stress
- Vitamin D Deficiency
- Smoking, BOH
- Obesity
- Medications
  - Beta-blockers, Antimalarials, Lithium
Psoriatic Disease Pathophysiology

- Own tissue destruction
- Abnormal organ growth
- Altered organ function
- Genetics, Epigenetics
- Environment, Microbiome
  - Viral, Bacterial
  - Toxins, Drugs

Psoriasis:
- IL1B, IL8, IL12B, IL17A, IL17C, IL17F, IL19, IL20, IL22, IL26, IL36A, IL36G, TNF

Psoriatic Arthritis:
- TNF, IL1, IL6, IL9, IL10, IL12, IL15, IL17A/F, IL22, IL23a, INTERFERON-Y

Psoriasis Pathophysiology

- Overstimulation of Th1 pathway response
- Th1 cytokines and interleukins (IL-12, IL-17, IL-23) → hyperproliferation of epidermal keratinocytes
- Keratinocyte cell cycle: 36h
- Epidermis turnover time: 4 Days
- Psoriatic Plaques form

Psoriasis Diagnosis

What to ask
What to see
What to do
Differentials
Psoriasis Diagnosis

**History & Physical**
- Family History
- Risk factors
- Ask about any lesions, itching, joint pain
- Scalp, ear, nails, anogenital areas
- Five Phenotypes

**Diagnostics**
- Body Surface Area:
  - Limited: Less than 3%
  - Moderate: 3-10%
  - Severe: Greater than 10%
- Biopsy: Consider to rule out other conditions
  - Punch biopsy
  - Shave biopsy of mid-dermis
- Inflammatory Markers
  - CRP
  - ESR

**Plaque Psoriasis**
- **Chronic Plaque Psoriasis**: Raised, erythematous plaques with well-defined margins and thin silvery scale
- **Most Common Variant**: 79% adult onset cases, 74% pediatric onset cases
- **Symmetrical Distribution Among Common Sites**:
  - Scalp
  - Elbows, Knees
  - Gluteal Cleft
- **Pustulosis
- **Dark Skin**: Residual hyperpigmentation

**Guttate Psoriasis**
- Multiple small psoriatic papules and plaques
  - Less than 1cm in diameter
- Trunk and proximal extremities
- **Abrupt onset**
  - Acute among children, young adults without a history of psoriasis
  - High association between recent infection, streptococcal pharyngitis
Pustular Psoriasis

- Widespread erythema, scaling, sheets of superficial pustules
- Pustular plaques

Associated signs and symptoms, Complications
- Malaise, fever, leukocytosis, diarrhoea, hypocalcaemia
- Nephrotic, hepatic, respiratory abnormalities
- Septicaemia
- Onset often abrupt

Causes:
- Pregnancy (impetigo herpetiformis)
- Infection
- Discontinuation of oral glucocorticoids

Erythrodermic Psoriasis

- Acute or chronic
- Generalized erythema and scaling of entire body
- High risk, requires inpatient care
- Infection, sepsis
- Insensible losses
- Electrolyte imbalances

Inverse Psoriasis

- No visible scaling
- Reverse of typical location on extensor surfaces
- Intertinguinal areas:
  - Inguinal
  - Perineal
  - Genital
  - Intergluteal
  - Axillary
  - Inframammary
- Often misdiagnosed as bacterial or fungal infections
Nail Psoriasis

- Often with cutaneous manifestations, but may occur independently
- Nail Plate:
  - Pitting, crumbling
  - Leukonychia
  - Lunula red spots
- Nail Bed:
  - Localized color change
  - Onycholysis
  - Subungual hyperkeratosis
  - Splinter hemorrhages

Psoriatic Arthritis

Differential Diagnoses

- Seborrheic Dermatitis
- Nummular Eczema
- Atopic Dermatitis
- Lichen Simplex Chronicus
- Fungal Infection
- Plaque Psoriasis

Psoriatic Arthritis

- What you need to know
- Pathophysiology
- Phenotypes
- Diagnosis & Differentials
Psoriatic Arthritis

- Inflammatory arthritis associated with psoriasis.
- Concurrent disease: 4-30%

**Epidemiology, globally**
- Equal prevalence across genders
- 0.9 to 11.4% adults; 0.2 to 1.4% children
- Peak onset ages: 30-39, 50-69

**Risk factors:**
- Genetics
- Stress
- Vitamin D Deficiency
- Smoking, BOH
- Obesity
- Medications
  - Beta-blockers
  - Antimicrobials
  - Lithium

---

Psoriatic Arthritis Pathophysiology

- T-cell expression of human leukocyte antigen (HLA) leads to proinflammatory cytokines
- Cytokines cause increased proliferative activity of skin and synovial fibroblasts
- Signs and symptoms of arthritis in joints, dermatological eruptions

---

Psoriatic Disease Pathophysiology

- Genetic/epigenetic factors:
  -psoriasis
  -psoriatic arthritis
- IL1, IL6, IL12, IL17, IL22, IL23, IFN-γ
Psoriatic Arthritis Diagnosis

- Early detection, diagnosis, and treatment can minimize joint destruction and comorbidities
- Signs & Symptoms
  - Fatigue
  - Stiffness
  - Range of Motion
  - Dactylitis
  - Enthesitis, Tendonitis
- Moll & Wright Criteria
- PEST: Psoriasis Epidemiology Screening Tool
- CASPAR: Classification Criteria for Psoriatic Arthritis

What to ask
What to see
What to do
Differentials

Psoriatic Arthritis Diagnosis

<table>
<thead>
<tr>
<th>Finding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inflammatory arthropathy (joint, spine, enthesis)</td>
<td></td>
</tr>
<tr>
<td>2. Psoriasis</td>
<td></td>
</tr>
<tr>
<td>3. Nail dystrophy</td>
<td></td>
</tr>
<tr>
<td>4. Negative rheumatoid factor</td>
<td></td>
</tr>
<tr>
<td>5. Dactylitis</td>
<td></td>
</tr>
<tr>
<td>6. Radiographic changes</td>
<td></td>
</tr>
<tr>
<td>(hand or foot)</td>
<td></td>
</tr>
<tr>
<td>PSA = 1. if ≥ 3 scores of the categories 2–6</td>
<td></td>
</tr>
</tbody>
</table>

Psoriasis Epidemiology Screening Tool (PEST)

- Presence of Psoriasis
- History of Psoriasis
- Family history of Psoriasis
- Age ≥ 45 years
- Sex (female)
- Race (Caucasian, Hispanic, African American)
- Occupation (sedentary)
- Smoking status (current)

Classification Criteria for Psoriatic Arthritis (CASPAR)

- Psoriatic arthritis
- Classification based on clinical, laboratory, and imaging findings
- Scoring system to identify patients with Psoriatic Arthritis

Screening Tool for Psoriatic Arthritis
Psoriatic Arthritis: Symmetrical Polyarthritis

- 30-50% of Psoriatic Arthritis Cases
- Five or more joints
- Metacarpophalangeal joint involvement
- Erosive

Psoriatic Arthritis: Asymmetric Oligoarthritis

- One joint at a time
- Four or less joints involved
- “Dactylitis” or sausage digit

Psoriatic Arthritis: Distal Interphalangeal Joint (DIP)

- Frequently associated with nail psoriasis
Psoriatic Arthritis: Mutilans

- Destructive erosive arthritis and osteolysis
- Disorganization of joints with subluxation and deformities

Psoriatic Arthritis: Axial Arthritis

- Inflammatory lower back pain
- Radiographic evidence of sacroilitis
  - Spondylitis
  - Spondyloarthropathy
  - Ankylosing Spondylitis

Psoriatic Arthritis: Diagnostics & Differentials

- Laboratory
  - ESR: Erythrocyte Sedimentation Rate
  - CRP: C-Reactive Protein
  - CCP: Cyclic citrullinated peptide
  - RF: Rheumatoid Factor

- X-Ray Imaging
  - Joint Destruction
Psoriatic Disease & The Nurse Practitioner

**COMORBIDITIES**

**REFERRALS**

**TREATMENT**

**Disease Impact: Comorbidities**

- Inflammatory Bowel Disease
  - Crohn’s Disease
  - Ulcerative Colitis
- Cardiovascular Disease
  - ACS
  - CVA
- Hearing Loss
- Depression
- Osteoporosis
- Uveitis
- NASH: Non-alcoholic steatohepatitis
- Obesity
- Metabolic Syndrome
- Diabetes

**Diagnosis & Referral**

**Dermatology**

- Confirmation of psoriasis is needed
- Inadequate response to treatment
  - Patient
  - Provider
  - Both
- Impact on quality of life
- Knowledge and/or experience by PCP
- Severe disease

**Rheumatology**

- Confirmation of psoriatic arthritis is needed
- Suspected cases of other rheumatological conditions
Psoriatic Disease: Treatment Targets

Psoriasis
- Minimal to no skin involvement with a well tolerated treatment regimen
- 3 months:Less than 3% BSA involvement
- 6 months:
  - 75% improvement
  - Less than 1% BSA

Psoriatic Arthritis
- Remission or low/minimal disease activity
- MDA: Minimal Disease Activity
- DAPSA: Disease Activity in Psoriatic Arthritis

Psoriatic Disease: Treatment & Prevention
- Minimize Stress
- Maintain a healthy weight
- Anti-inflammatory diet
- Smoking cessation
- Alcohol consumption
- Exercise & Stretching
- Physical Therapy
Treatment Agents: Psoriasis & Psoriatic Arthritis

- Topicals & Phototherapy
- DMARDs
- Biologics

Light Psoriasis: Topicals

Over the Counter
- Emollients
- Tar
- Moisturizers
- Keratolytics (scale lifters)
- Light Therapy
- Nonsteroidal (NSAIDs)
- Phototherapy
- Home Phototherapy
- Excimer laser
- Saltwater baths

Non-Steroidal Topical Treatments
- Calcineurin inhibitors: pimecrolimus, tacrolimus
- Dovonex (Calcipotriene): Synthetic Vitamin D3
- Tazorac (tazarotene): Vitamin A derivative
- Vectical (Calcitrol): Natural Vitamin D3
- Zithrinol-RR (anthralin)

Steroidal Topical Treatments
- Tecno (Calcipotrine and betamethasone) VitaminD Analog
- Clobetasol
- Diflucortone
- Flucinolone
- Betamethasone
- Hydrocortisone

Moderate to Severe Psoriasis & Psoriatic Arthritis: Systemics & DMARDs

- Immunomodulatory
- High risk of infections
  - Hepatitis
  - HIV

- Pregnancy
Moderate to Severe Psoriasis & Psoriatic Arthritis: Biologics

<table>
<thead>
<tr>
<th>TNF-Alpha Blocker</th>
<th>IL-17</th>
<th>IL-23</th>
<th>IL-12/23</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cimzia</td>
<td></td>
<td></td>
<td></td>
<td>Infliximab, Vedolizumab</td>
</tr>
<tr>
<td>Secukinumab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ustekinumab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steukinumab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orencia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abatacept</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infliximab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simponi (Aria)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golimumab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Biologics:

- **TNF-Alpha Inhibitors**
  - **Adalimumab (Humira)** (Subcutaneous)
    - Once every other week
  - **Certolizumab pegol (Cimzia)** (Subcutaneous)
    - Week 0, 2, 4, then every other week
  - **Etanercept (Enbrel)** (Subcutaneous)
    - Psoriasis: Twice weekly for 3 months; then weekly
    - Psoriatic Arthritis: Weekly
  - **Golimumab (Simponi, Simponi Aria)**
    - Simponi
      - Subcutaneous
      - Weekly
    - Simponi Aria:
      - IV Infusion
      - Week 0, 4, then every 8 weeks
  - **Infliximab (Remicade)**
    - IV Infusion
    - Weekly 0, 2, 6; then every 8 weeks

**TNF Potential Side Effects**
- Infections: Respiratory, urinary
- Injection site reactions
- Headache
- Rash
- **Simponi Aria**:
  - Leukopenia
  - Hypertension
  - Transaminitis

**Warning & Precautions**
- Serious infection
- Fungal infection
- Serious allergic reaction
- Hepatitis B Reactivation
- New or worsening heart failure
- Nervous system problems, Multiple Sclerosis
- Low blood count
- Lupus-like syndrome
- Lymphoma, other malignancies
## Biologics: IL-17 Blockers

- **Brodalumab (Siliq)** *(Subcutaneous)*
  - **Psoriasis only**
  - **Week 0, 1, 2; then every two weeks**
- **Ixekizumab (Taltz)** *(Subcutaneous)*
  - **Psoriasis: Week 0, then every 2 weeks for 3 months, then every 4 weeks**
  - **Psoriatic Arthritis: Week 0, then every 4 weeks**
- **Secukinumab (Cosentyx)** *(Subcutaneous)*
  - **Week 0, 1, 2, 3, 4; then every 4 weeks**

### Side Effects, Warnings, Precautions

- **Side Effects**
  - Injection site reaction
  - Infections: Respiratory, fungal
  - Cold or flu-like symptoms
  - Diarrhea, nausea
  - Muscle, joint pain*
- **Warnings & Precautions**
  - Serious infection, allergic reaction
  - Inflammatory Bowel Disease, Crohn’s Disease

## Biologics: IL-23 Blockers

- **Ilumya (Tildrakizumab-asmn)** *(Subcutaneous)*
  - **Psoriasis: Week 0, 4, then every 12 weeks**
- **Tremfya (Guselkumab)** *(Subcutaneous)*
  - **Psoriasis: Week 0, 4, then every 8 weeks**

### Side Effects, Warnings, Precautions

- **Side Effects**
  - Diarrhea
  - Injection site reaction
  - Infections: Respiratory, fungal
  - Herpes simplex*
  - Joint pain, headache*
- **Warnings & Precautions**
  - Serious allergic reaction, infection

## Biologics: Others

- **Orencia (Abatacept)** *(Subcutaneous, IV)*
  - **Psoriasis & Psoriatic Arthritis**
  - **Week 0, 4, then every 12 weeks**
- **Stelara (Ustekinumab)** *(Subcutaneous)*
  - **Psoriasis & Psoriatic Arthritis**
  - **Week 0, 4, then every 12 weeks**

### Side Effects

- Cold or flu-like symptoms
- URI, headache
- Fatigue

### Warnings & Precautions

- Serious infections, allergic reactions
- Malignancies
- Reversible posterior leukoencephalopathy syndrome
**Psoriasis**
- Soriatane (acitretin): PO daily
- Synthetic Vitamin A
- Controls cell multiplication, growth, ad shedding
- Contraindications:
  - Pregnancy: Category X
  - Stop 3 years before pregnancy
  - Do not drink alcohol
  - Do not donate blood
- Breastfeeding
- Severe liver, kidney diseases
- Hyperlipidemia
- Monitoring:
  - CBC, BUN/Cr, LFTs, Lipids, Dexa Scan
- Side Effects
  - Hair loss
  - Dry skin, eyes, mucosa
  - Epistaxis, bleeding gums
  - Nail changes
  - Joint pain
  - Transaminitis
  - Hyperlipidemia
  - Headache
  - Depression
  - Psychosis

**Psoriatic Arthritis**
- Otezla (Apremilast): Oral chemotherapy
- Bone marrow toxicity
- Long-term side effects
- 6-thioguanine: Oral chemotherapy (leukemia)
- Pregnancy: Category D
- Bone marrow suppression
- Hepatotoxicity
- Photosensitivity

**Psoriasis & Psoriatic Arthritis: Systemics & DMARDs**

- Soriatane (acitretin):
  - Oral retinoid
  - Safer than Soriatane (acitretin)
  - Birth defect, birth control 1 month before and after starting and discontinuing
  - Monitoring:
    - CBC, ESR, CPK, Lipids, LFTs
  - Side Effects
    - Hair loss
    - Dry skin, eyes, mucosa
    - Spots, bleeding gums
    - Nail changes
    - Joint pain
    - Transaminitis
    - Hyperlipidemia
    - Headache
    - Depression
    - Psychosis

- Hydrea (hydroxyurea): Oral chemotherapy
  - Bone marrow toxicity
  - Long-term side effects

- 6-thioguanine: Oral chemotherapy (leukemia)
- Pregnancy: Category D
- Bone marrow suppression
- Hepatotoxicity
- Photosensitivity
Psoriatic Arthritis: Systemics & DMARDs

- **Tofacitinib (Xeljanz):** Targeted Janus kinase (JAK) inhibitor
  - Side Effects: URI, Headache, Diarrhea
  - Warnings: Infections, malignancy, GI perforation
  - Monitoring: CBC, LFTs

- **Hydroxychloroquine sulfate (Plaquenil):** Antimalarial
  - May worsen psoriasis
  - Ophthalmology: Toxic maculopathy

- **Methotrexate:** Dihydrofolate reductase inhibitor (chemotherapy)
  - Pregnancy Category: X
  - Side Effects: GI, liver toxicity, Pancytopenia
  - Warnings: Photosensitivity
  - Monitoring: CBC, Creatinine, LFTs, BMP, CXR, Liver Biopsy

- **Leflunomide (Arava):** Immunomodulator
  - Pregnancy Category: X
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Immune reactions, infections, malignancy
  - Monitoring: CBC, LFTs

- **Azathioprine (Imuran):** Immunosuppressant
  - Pregnancy Category: D
  - Side Effects: Hair loss, nausea
  - Warnings: Malignancy, infections, hematologic toxicity
  - Monitoring: CBC, LFTs

- **Cyclophosphamide:** Chemotherapy
  - Pregnancy Category: D
  - Monitoring: CBC, BMP, LFTs

- **Sulfasalazine (Azulfidine):** Combination anti-inflammatory & antibiotic
  - Contraindication: Sulfa allergy
  - Side Effects: Nausea, vomiting, loss of appetite
  - Monitoring: CBC, LFT, Creatinine

- **Leflunomide (Arava):** Immunomodulator
  - Pregnancy Category: X
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Immune reactions, infections, malignancy
  - Monitoring: CBC, LFTs

Moderate to Severe Psoriasis & Psoriatic Arthritis: Systemics & DMARDs

- **Methotrexate:** Dihydrofolate reductase inhibitor (chemotherapy)
  - Pregnancy Category: X
  - Side Effects: GI, liver toxicity, Pancytopenia
  - Warnings: Photosensitivity
  - Monitoring: CBC, Creatinine, LFTs, BMP, CXR, Liver Biopsy

- **Leflunomide (Arava):** Immunomodulator
  - Pregnancy Category: X
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Immune reactions, infections, malignancy
  - Monitoring: CBC, LFTs

- **Auranofin (Proguanil):** Immunosuppressant
  - Pregnancy Category: D
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Malignancy, infections, hematologic toxicity
  - Monitoring: CBC, LFTs

- **Hydroxychloroquine sulfate (Plaquenil):** Antimalarial
  - May worsen psoriasis
  - Ophthalmology: Toxic maculopathy

- **Methotrexate:** Dihydrofolate reductase inhibitor (chemotherapy)
  - Pregnancy Category: X
  - Side Effects: GI, liver toxicity, Pancytopenia
  - Warnings: Photosensitivity
  - Monitoring: CBC, Creatinine, LFTs, BMP, CXR, Liver Biopsy

- **Leflunomide (Arava):** Immunomodulator
  - Pregnancy Category: X
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Immune reactions, infections, malignancy
  - Monitoring: CBC, LFTs

- **Auranofin (Proguanil):** Immunosuppressant
  - Pregnancy Category: D
  - Side Effects: Nausea, vomiting, loss of appetite
  - Warnings: Malignancy, infections, hematologic toxicity
  - Monitoring: CBC, LFTs
Moderate to Severe Psoriasis & Psoriatic Arthritis: Systemics & DMARDs

- **Otezla (Apremilast):** Phosphodiesterase 4 inhibitor
  - **Pregnancy:** Category C
  - **Side Effects:** Diarrhea, nausea, headache, URI
  - **Warnings:** GI changes, weight loss, neuropsychiatric effects
  - **Monitoring:** Mood

- **Mycophenolate mofetil (Cellcept):** Immunosuppressant
  - **Pregnancy:** Category D
  - **Side Effects:** Hypertension, rash, GI disturbances, infections
  - **Warnings:** Infections, lymphomas
  - **Monitoring:** CBC, BMP, LFTs

- **Cyclosporine:** Interleukin 2 (IL-2) inhibitor
  - **Pregnancy:** Category C
  - **Side Effects:** Hypertension
  - **Increased hair growth:** Face, chest, back
  - **Renal Insufficiency
  - **Warnings:** Infections, hepatotoxicity, nephrotoxicity, skin cancer
  - **Monitoring:** Blood Pressure, CBC, BMP

Psoriatic Arthritis: NSAIDs

- **Clinoril (sulindac)**
- **Daypro (oxaprozin)**
- **Feldene (piroxicam)**
- **Indocin (indomethacin)**
- **Lodine (etodolac)**
- **Meclomen (meclofenamate)**
- **Mobic (meloxicam)**
- **Aleve, Anaprox, Naprelan, Naprosyn (naproxen sodium)**
- **Orudis (ketoprofen)**
- **Relafen (nabumetone)**
- **Tolectin (tolmetin sodium)**
- **Voltaren, Arthrotec (diclofenac)**

Make the Referral
- **Rheumatology**
- **Dermatology**

Start the Treatment
- **Typicals**
- **Systemics**
- **DMARDs**
- **Biologics**

Follow the Care
- **Treat to target**
- **Ensure adequate monitoring**
Works Cited