Identification of Psoriatic Arthritis and Ankylosing Spondylitis—Early Detection to Facilitate Appropriate Care

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Disclosures

• None
Learning Objectives

• Understand the evolving concept of spondyloarthritis (SpA)
• Recognize the signs and symptoms of psoriatic arthritis (PsA)
• Recognize the signs and symptoms of ankylosing spondylitis (AS)
• Understand how to screen and when to refer to a rheumatologist for further evaluation
PsA and AS: Part of the Spondyloarthritides (SpA)

Psoriatic Arthritis
Enteropathic Arthritis
Reactive Arthritis
Ankylosing Spondylitis
Undifferentiated SpA

Two Subtypes of SpA

Predominantly Axial Disease

- Ankylosing spondylitis (radiographic SpA)
- Nonradiographic axial SpA

Predominantly Peripheral Disease

- Psoriatic arthritis
- Reactive arthritis
- Inflammatory bowel disease-associated arthritis
- Undifferentiated SpA

Co-management of the AS/PsA Patient

Primary caregivers

- Perform baseline screening with history, examination +/- testing
- Recognize the signs and symptoms of AS/PsA
- Refer to specialist to ensure appropriate diagnosis and management

Rheumatologist

- Confirm diagnosis
- Educate patient
- Prescribe and monitor therapy
- Coordinate SpA care with other providers when appropriate (PCP, ophthalmologist, physical therapy, et cetera)
- Monitor patient’s progress and adjust therapy when appropriate

Psoriatic Arthritis (PsA)
What Is PsA?

• An inflammatory spondyloarthropathy associated with psoriasis
• Characterized by inflammation in joints and surrounding bone, ligaments, and tendons

Plaque psoriasis

Who Does PsA Affect?

- PsA affects females and males in equal ratio
- The most typical age of onset is from 30 years old, but it may occur at any age
- The prevalence is estimated to range from 0.1% to 1.0% of the general population, with an incidence of about 3 to 23 new cases per 100,000 people
  - Up to 42% of patients with psoriasis will develop PsA
  - In about 84% of patients, skin disease precedes joint disease

Importance of Early Diagnosis and Appropriate Management

• Early recognition and appropriate management of PsA are important to:
  – Reduce symptoms such as pain, stiffness, and skin lesions
  – Prevent further joint damage and improve physical function

• In one study, up to 47% of PsA patients with disease duration of 2 years had evidence of radiographic damage

What Are the Most Common Manifestations of PsA?

- Recognizing some of the most common signs, symptoms, and manifestations of PsA can improve early recognition
  - Psoriatic skin lesions
  - Peripheral arthritis
  - Axial disease
  - Dactylitis
  - Enthesitis
  - Nail disease
  - Elevated acute phase reactants

Psoriasis

• Chronic inflammatory disease of the skin
• Occurs in approximately 2% of the population
• Plaque psoriasis characterized by raised plaques with scale
• Common locations include:
  – Scalp
  – Knees/elbows
  – Hands/feet
  – Lower back/buttocks

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Peripheral Arthritis

- Pain and swelling in any joint outside of the spine and pelvis
- Occurs in 95% of patients with PsA
- Fluctuating course of flares and improvement
- May cause joint damage and deformities
- Distal interphalangeal (DIP) involvement can help distinguish PsA from other types of inflammatory arthritis, but may not always be present
- About 5% may develop arthritis mutilans with substantial bone loss and deformities
Peripheral Arthritis (cont’d)

• X-rays may be normal
• Erosive bone loss may cause irreversible joint damage
• Fusion with bone growth across joints (ankylosis) can occur

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Note the ankylosis of all interphalangeal joints, except for the thumb

© 2013 ACR; used with permission.
Subchondral bone resorption of the distal interphalangeal joint of the thumb and middle fingers has resulted in the “pencil-in-cup” appearance.

Axial Involvement in PsA

- Inflammation in sacroiliac joints and/or spine
  - 20% to 50% have both peripheral and axial disease
  - 5% have axial disease without peripheral disease

- Inflammatory back pain
  (more to come in AS review)

Dactylitis

• Inflammation of tendons in fingers and toes
• Occurs in approximately 30% to 40% of PsA patients
• Differs from arthritis on exam in that there is tenderness and swelling between the joints as well as around the joints
• Causes the digit to have “sausage” appearance
• Most commonly involves 1 or 2 digits at a time

Bruce IN. In: Rheumatology. 5th ed. 2011;1138-1194.
Enthesitis

• Inflammation where tendons and ligaments insert into bone
• Symptomatic enthesitis occurs in 20% to 40% of patients with PsA
• Most common sites are Achilles and plantar fascia insertions
• Usually presents similarly to mechanical enthesopathy, but more refractory and often at more than one site
• Characterized by tenderness on examination, swelling may not be apparent on examination

Nail Disease in PsA

60% to 80% of patients with PsA have psoriatic nail diseases

Characterized by:
- Pitting
- Thickening of nails (hyperkeratosis)
- Separation of nails from nail bed (onycholysis)

The nail thickening and separation in PsA can be indistinguishable from fungal infections on examination

References:
Bruce IN. In: Rheumatology. 5th ed. 2011:1183-1194.
PsA: Laboratory Measures

• Acute phase reactants have value in assessing active inflammation in peripheral joints
• Increased CRP* levels are less commonly observed in PsA vs RA, but are associated with poorer outcomes in PsA
• 5% to 9% of patients with PsA can be rheumatoid factor (RF) positive

*CRP=C-reactive protein.

Flags for Referral

You should refer **all patients with any of the following** to a rheumatologist for suspected PsA:

• Psoriasis or a family history of psoriasis with a suspicion for inflammatory arthritis

• Psoriasis or a family history of psoriasis with a suspicion for enthesitis

• Psoriasis or a family history of psoriasis and either swollen or painful joints

• Suspicion for dactylitis

• Suspicion for inflammatory spine disease
Sample Screening Questions

The following screening questions can be used to identify appropriate candidates for referral:

• Have you had swelling in your joints for no apparent reason?
• Do you have a history of psoriasis?
• Do you experience morning stiffness for longer than 30 minutes?
• Do you have chronic pain in your back that improves with exercise, not with rest?
• Have you had tenderness or swelling in your heel(s) for no apparent reason?
• Have you had a finger or toe that became completely swollen from tip to base for no apparent reason?
• Do you have pits in your nails?
PsA Case Study
FK, a 32-year-old female, is a dedicated long-distance runner

She presents in the office with a 1-year history of left ankle pain and a 2-month history of right knee pain

No history of psoriasis, but has had “dandruff” for 3 months
Case Study: Clinical Assessment

• Cutaneous exam
  – Nail dystrophy of the right 2nd and 3rd digits
  – Scaling plaque, right occiput

• Peripheral articular exam
  – Right knee swelling
  – DIP swelling of the right 2nd and 3rd digits

• Labs

<table>
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<td>Mildly elevated</td>
</tr>
<tr>
<td>RF</td>
<td>Negative</td>
</tr>
</tbody>
</table>
Case Study: Conclusion

- Provisional diagnosis: psoriatic arthritis
- Prescribe naproxen 500 mg BID
- Refer to rheumatologist for an early appointment and consider dermatology referral for skin management
Therapeutic Management of PsA

Goals of therapy:

• To improve signs and symptoms
• Prevent progression of joint damage
• Improve physical function
Ankylosing Spondylitis (AS)
What Is AS?

• AS is a chronic inflammatory disease
• Most commonly affected sites:
  – Axial skeleton (sacroiliac joints and the spinal column)
  – Entheses (sites where the tendons and ligaments attach to bones)
  – Peripheral joints
• Over time, in severe cases, may cause progressive, vertebral fusion (ankylosis)

Who Does AS Affect?

Age of onset, AS vs RA

- Symptoms usually start between 20 and 30 years of age (rarely after age 40)
- Unfortunately, most patients with AS are either diagnosed late or already compromised upon diagnosis
- Traditionally, AS has been a disease thought to be more prevalent in males than in females, with a ratio of about 2 to 3:1. However, data suggest that the percentage of women with AS is dependent on the year of diagnosis, and in recent years the gender ratio has approached 1:1

Prevalence of Axial SpA, Including AS, vs RA

• The age-adjusted prevalence of axial SpA varies from 0.9% to 1.4%
  – Approximately 1.7 million to 2.7 million patients with axial SpA
  – Estimate based on adults aged 20 to 69 years examined in the 2009-2010 US NHANES who fulfilled the Amor or ESSG criteria

• The estimated reported prevalence of AS is 0.52%
  – Estimates based on moderate or severe radiographic sacroiliitis on pelvic radiographs in men, aged 25 to 74 years, and women, aged 50 to 74 years
  – Questions regarding inflammatory back pain were not asked; therefore, the exact prevalence of AS cannot be ascertained

• The estimated prevalence of rheumatoid arthritis (RA) is 0.6%

There was a significantly longer delay in diagnosis in women compared to men (9.8 vs 8.4 years; \(P<0.01\))
Barriers to Early Diagnosis: A Survey of 127 AS Patients

• Patients slow to seek care:
  – 35% delayed consulting a health care professional for >12 months after symptom onset
  – 71% assumed that their symptoms would resolve

• AS is difficult for providers to recognize:
  – Prior to diagnosis:
    • 68% consulted a physical therapist (3 or more: 16%)
    • 44%, a chiropractor (3 or more: 9%)
  – Diagnosis of SpA was suspected in <2%

Importance of Early Diagnosis and Appropriate Management in AS

Early diagnosis and appropriate management are important for several reasons:

• Appropriate treatment can help improve symptoms
• Patients in the early course of disease have a similar burden of disease to those in later stages
• An early diagnosis avoids unnecessary diagnostic procedures and inappropriate treatment

Evolution of AS

Nonradiographic stage of Axial SpA

Back pain

Radiographic stage (AS)

Modified New York Criteria 1984

Back pain
Radiographic sacroiliitis

Back pain
Syndesmophytes

Time (years)

• It is not yet known if every patient in the nonradiographic stage of axial SpA will progress

Classification Criteria for Ankylosing Spondylitis (AS): 1984 Modified New York Criteria

A: Diagnosis

• Clinical criteria:
  – Low back pain and stiffness for >3 months, which improve with exercise but are not relieved by rest
  – Limitation of motion of the lumbar spine in both the sagittal and frontal planes
  – Limitation of chest expansion relative to normal values correlated for age and sex

• Radiologic criterion:
  – Sacroiliitis (grade ≥2 bilaterally or grade 3–4 unilaterally)

B: Grading

Definite AS = radiological criterion present + ≥1 clinical criterion
Probable AS = 3 clinical criteria present or radiologic criterion present without any signs or symptoms satisfying the clinical criteria

What Does AS Look Like?

Recognizing the common manifestations of AS can improve early recognition:

- **Axial disease**
  - Inflammatory back pain
  - Sacroiliitis
  - Range of motion limitations and postural changes
- **Peripheral arthritis**
- **Enthesitis**
- **Uveitis**
Inflammatory Back Pain (IBP)

- Not all back pain is the same:
- The character of SpA back pain is different than mechanical back pain in that it is of inflammatory origin
- 1 out of every 3 chronic back pain patients has IBP
- What does IBP look like?
  - Onset before the age of 40
  - Worse at night or early morning after prolonged immobility
  - Improves with exercise or activity, not relieved by rest
  - Morning stiffness for >30 minutes
  - Alternating buttock pain

Sacroiliitis

- Sacroiliitis on imaging is considered the hallmark of AS
- Imaging is not generally suggested for screening in primary care settings due to costs, radiation exposure, and difficulties in interpretation. However, if available, an imaging result showing clear sacroiliitis warrants immediate referral to a rheumatologist.

Range of Motion Limitations and Postural Changes

• Fusion of vertebrae restricts spinal motion
  – This feature is more evident in later stages of disease, thus is less useful in identifying early AS
  – Patients often complain about difficulty looking upward and over their shoulder
  – Over time patients may “stoop forward”

• In one study of patients with AS, radiographs were scored according to disease duration. Complete spinal fusion occurred in 28% of patients with disease duration >30 years and 43% with disease duration >40 years

Peripheral Arthritis

- Classically oligoarticular, large joints of lower extremities, but may affect any joint
- Inflammatory hip disease occurs in 30% to 50% of AS patients and is associated with more severe disease
- Can cause erosive bone loss or bony fusion across joints, similar to PsA

© 2013 ACR; used with permission. Advanced narrowing of the entire hip joint space characteristic of inflammatory arthritis.

Enthesitis

- May occur anywhere tendons and ligaments attach to bone, but occurs most often in Achilles and plantar fascia
- Diagnosed by applying enough pressure to blanch your fingernail
- Diagnosis can be confirmed with ultrasound or MRI

Acute Anterior Uveitis

- Uveitis occurs in about one-third of AS patients
- Sudden onset pain, redness, and blurred vision
- Although uveitis rarely precedes the clinical onset of AS, it is often the first clue to the recognition that low back pain is inflammatory
- 80% of HLA-B27+ people with recurrent uveitis have SpA
- Diagnosis requires slit lamp exam
- Patients suspected of having uveitis should be referred to an ophthalmologist for further evaluation

HLA-B27

- Estimates from 2009 National Health and Nutrition Examination Survey (NHANES) demonstrated a 6.1% prevalence rate of HLA-B27 in adults aged 20 to 69 years
- The strength of disease association varies among the different forms of SpA and the many ethnic and racial groups worldwide
  - Among whites, 4% to 13% of the general population possess HLA-B27, but more than 90% of the patients with AS possess this gene
  - Among African Americans, 2% to 4% of the general population possess HLA-B27, whereas 50% to 60% of patients with AS possess this gene
- HLA-B27 testing is diagnostically useful only in combination with other features of SpA
  - For example, axial SpA diagnosis occurs in 58% of patients with both HLA-B27 and inflammatory back pain

Improving Early Recognition of AS

- Chronic inflammatory back pain is the leading symptom in patients with axial SpA, including AS, and should serve as a key screening parameter
  - No incremental cost for assessment
  - Sensitivity of inflammatory back pain for AS is 75%

Recognizing Inflammatory Back Pain

Assessment in SpondyloArthritis International Society (ASAS), criteria for IBP present a standard framework for screening patients

In patients with chronic back pain (>3 mo), IBP criteria are fulfilled if at least 4 out of 5 parameters are present*

1. Insidious onset (Odds ratio [OR]=12.7)
2. Pain at night (with improvement upon getting up) (OR=20.4)
3. Age at onset <40 years (OR=9.9)
4. Improvement with exercise (OR=23.1)
5. No improvement with rest (OR=7.7)

*Sensitivity of 79.6% and specificity of 72.4% based on expert clinical judgment from ASAS Validation Study; n=648.


IBP Ascertainment Tool

The following screening questions can be used to help identify patients with inflammatory back pain:

Adapted from Development and Validation of a Case Ascertainment Tool for AS

<table>
<thead>
<tr>
<th>Question item</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is your gender?</strong></td>
<td>Historically there has been a 2:1 male to female ratio in the diagnosis of AS, however, recent data suggest the ratio is approaching 1:1</td>
</tr>
<tr>
<td>Have you experienced pain or stiffness that lasted for at least 3 months? If so, please indicate the location(s).</td>
<td>ASAS IBP criteria are to be applied to patients with chronic back pain lasting for at least 3 months. Presence of neck and/or hip pain has a significant positive association with AS</td>
</tr>
<tr>
<td>Approximately how old were you when you first had pain or stiffness in your back that lasted for at least 3 months?</td>
<td>Based on IBP criteria, age of onset is &lt;40 years old with a duration of back pain &gt;3 months</td>
</tr>
<tr>
<td>Approximately how long have you had back pain or stiffness?</td>
<td></td>
</tr>
<tr>
<td>Have you felt numbness or tingling that spread into or down your leg(s) that you think or have been told might have been caused by your back pain or stiffness?</td>
<td>If answer is “Yes,” back pain is likely mechanical vs inflammatory</td>
</tr>
<tr>
<td>Is the pain or stiffness due to fall, sprain, or other incidents, such as twisting or lifting?</td>
<td></td>
</tr>
<tr>
<td>How does exercise affect the pain or stiffness in your lower back or buttocks?</td>
<td>Exercise typically alleviates IBP/stiffness</td>
</tr>
<tr>
<td>How does daily physical activity affect the pain or stiffness in your lower back or buttocks?</td>
<td>IBP/stiffness tends to decrease with daily physical activity</td>
</tr>
<tr>
<td>Do you take any NSAID medication(s)? If so, do they help reduce your back pain or stiffness within 48 hours?</td>
<td>Patients with IBP/stiffness generally have a good response to NSAIDs within 48 hours</td>
</tr>
<tr>
<td>Have you been diagnosed with iritis?</td>
<td>Uveitis is a common extra-articular manifestation, occurring in 25%-40% of AS patients</td>
</tr>
</tbody>
</table>

A Guide to Referring for AS Evaluation

- Patients with chronic low back pain with the onset of symptoms <45 years old should be referred to a rheumatologist in the presence of:
  - IBP
  - HLA-B27
  - Sacroiliitis

- Chronic diarrhea, enthesitis, uveitis and psoriasis are also considered valuable clues for identifying patients that should be referred to a rheumatologist for further assessment

Refer to rheumatologist for further evaluation

AS Case Study
Case Study: Presentation

- JD, a 28-year-old male, is a mechanic
- He comes into your office complaining of worsening back pain and stiffness for >2 years
- History of neck spasms since age 18
- Regularly sees a chiropractor for his lower back pain
Case Study: Clinical Assessment

Signs and symptoms

- Back pain that is worse at night and often awakens him from sleep
- Marked early morning stiffness that improves after walking around for about 45 minutes
- His heel has been sore for months

Physical exam

- Reduced forward flexion at the waist
- Tenderness at the Achilles insertion of R heel

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</table>
Case Study: Conclusion

- Provisional diagnosis: inflammatory back pain and enthesitis
- Prescribe indomethacin 50 mg BID and physical therapy
- Refer to a rheumatologist, suggest early appointment
2010 ASAS/EULAR Recommendations for the Management of AS

- The optimal management of patients with AS requires a combination of nonpharmacological and pharmacological treatments. Some nonpharmacological options include physical therapy/rehabilitation, exercise, and patient help groups.
- NSAIDs recommended as first line of therapy for AS patients with pain and stiffness.
- Extra-articular manifestations, such as psoriasis, uveitis and IBD, should be managed in collaboration with appropriate specialists.
- Biologic therapy should be given to appropriate patients with persistently high disease activity despite conventional therapies according to the updated ASAS recommendations.

Conclusions

Spondyloarthritis includes heterogeneous diseases that are challenging to diagnose.

Early diagnosis and treatment are important.

Psoriasis patients should be screened for PsA risk and educated about PsA symptoms.

Chronic back pain patients should be screened for and educated about inflammatory back pain (consider referring to back pain project website).

Refer to a rheumatologist early if you suspect any type of SpA.