RECOGNISING INFLAMMATORY BACK PAIN

This programme is supported and funded by Pfizer
Date of preparation: December 2011
Project code: ENB 248
Contents

• Inflammatory back pain: overview
• Spondyloarthropathies
• Ankylosying spondylitis: overview
• Ankylosying spondylitis: diagnostic challenges
• Diagnostic and referral algorithm
• Summary
Inflammatory back pain: overview
Back pain: scope of the issue

• Back pain is common; 60-80% of UK population report back pain at some point in their life\(^1\)

• One fifth to one quarter of all GP consultations are musculoskeletal related\(^2\)

• Approximately 5% of patients with chronic back pain have ankylosing spondylitis\(^3\)

• Differentiating chronic simple back pain from other more serious kinds of back pain is difficult, especially in a typical GP consultation period

---

Common causes of low back pain (LBP)\(^1\)

- **Mechanical**
  - Unknown cause, degenerative disc/joint disease, vertebral fracture, congenital deformity, spondylolysis

- **Neurogenic**
  - Herniated disc, spinal stenosis, osteophytic nerve root compression, infection (e.g. herpes zoster)

- **Non-mechanical spinal conditions**
  - Neoplastic disease, inflammatory diseases (e.g. spondyloarthritis), infection (e.g. osteomyelitis), Paget’s disease

- **Referred visceral pain**
  - GI disease (e.g. IBD, pancreatitis), renal disease

- **Other**
  - Fibromyalgia, somatoform disorders

---

Inflammatory back pain (IBP)

- IBP is an inflammatory disease of unknown cause\textsuperscript{1A}
- IBP primarily affects the lower back, buttocks, structures of the spine and large peripheral joints\textsuperscript{1B}
- Inflammatory back pain may lead to ankylosis \textsuperscript{2}

IBP – relevant signs can include:¹

- Age at onset of back pain <45 years (Peak age of onset 15 – 35yrs)
- Back pain lasting > 3 months (possibly intermittent)
- Night pain
- Early morning pain and stiffness lasting more than one hour
- Pain improves with exercise
- Tenderness/inflammation over SI joint(s) (often seen as alternating buttock pain)
- Insidious onset (often distinguishes from mechanical back pain)

Early diagnosis is key for IBP, as it is the main symptom of the spondyloarthopathies

Overview: spondylarthropathies
Spondyloarthropathies (SpA)

- A heterogenous group of immune-mediated inflammatory diseases\(^\text{1A}\)
- Can be divided into two subgroups according to the predominant symptoms (though may overlap):\(^\text{1B}\)
  - Axial SpA (spine)
  - Peripheral SpA (peripheral joints)
- SpA can result in abnormal bone formation with eventual ankylosis of the spine, resulting in substantial disability\(^\text{2}\)
- Diseases belonging to this group share clinical and genetic characteristics, which distinguish them from rheumatoid arthritis\(^\text{3}\)

3. Burgos-Vargas, R. From retrospective analysis of patients with undifferentiated spondyloarthritis (spa) to analysis of prospective cohorts and detection of axial and peripheral spa. *Rheum* 2010;37:6
Ankylosing spondylitis is the prototype axial SpA\textsuperscript{1}

- Although each condition has its own characteristics, there is significant overlap between them and one can evolve into another\textsuperscript{2,3}

2. Burgos-Vargas, R. From retrospective analysis of patients with undifferentiated spondyloarthritis (spa) to analysis of prospective cohorts and detection of axial and peripheral spa. \textit{Rheum} 2010;37:6
Graphic taken from Wyeth AS training module
Jeyni Gnanapragasam, 08/03/2011
Ankylosing spondylitis
Ankylosing spondylitis (AS)

- AS is the major subtype and a main outcome of SpAs\textsuperscript{1A}
- Clinical features include:\textsuperscript{1B}
  - IBP
  - Peripheral oligoarthritis (predominantly of lower limbs)
  - Enthesitis
  - Specific organ involvement (including anterior uveitis, psoriasis, IBD)
- Pain generally felt deep in the buttock and/or lower lumbar regions\textsuperscript{1C}
- Age of onset is usually from late teens and early adulthood\textsuperscript{1D}
- Strong genetic association
  - 90-95% of patients are positive for HLA B27\textsuperscript{1E}
- Family history in associated conditions has a strong effect on the risk of developing the disease\textsuperscript{1F}

## Epidemiology of AS

<table>
<thead>
<tr>
<th>Gender differences</th>
<th>Men more affected than women, with 2-3:1 ratio(^\text{1A})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom onset</td>
<td>~80% develop first symptoms &lt;30 years, &lt;5% present at &gt;45 years(^\text{1B})</td>
</tr>
<tr>
<td>Prevalence</td>
<td>2-5 per 1000 in UK(^\text{2A})</td>
</tr>
<tr>
<td></td>
<td>In 2006 an estimated 200,000 were diagnosed in UK(^\text{2B})</td>
</tr>
<tr>
<td>Incidence</td>
<td>~7 per 100,000 people per year(^\text{3A})</td>
</tr>
<tr>
<td></td>
<td>2,300 new diagnosis England and Wales per year(^\text{3B})</td>
</tr>
<tr>
<td>Prevalence amongst populations</td>
<td>Differs depending on ethnic background; AS is more prevalent in Caucasian population, and rare in black populations(^\text{1C, 4})</td>
</tr>
<tr>
<td>Mean age at diagnosis</td>
<td>33(^\text{5})</td>
</tr>
<tr>
<td>Mean diagnostic delay</td>
<td>10 years(^\text{2C})</td>
</tr>
</tbody>
</table>

---

Pain and disability of AS can be similar to that of rheumatoid arthritis\textsuperscript{1A}

UK data from 2001 shows 31\% patients with AS unable to work\textsuperscript{2}

Standard mortality ratio (SMR) of 1.5 (similar to RA) – cardiac valve disease and fractures\textsuperscript{1B}

Quality of life studies indicate:\textsuperscript{1C}
- Stiffness 90\%
- Pain 83\%
- Fatigue 62\%
- Poor sleep 54\%
- Concerns about appearance 51\%
- Worry about the future 50\%
- Medication side effects 41\%

AS in women

- Historically, AS was considered a disease that overwhelmingly affects men\textsuperscript{1A}
- Recent studies have shown a significant proportion are women, with a ratio of men:women approaching 2:1 as opposed to 3:1\textsuperscript{1B}
  - Women have a significantly earlier age of disease onset and worse functional outcomes despite more radiographic severity in men\textsuperscript{1D}
  - There is suggestion that women have more peripheral arthritis\textsuperscript{1E}
  - A greater proportion of first degree relatives have a history of the disease\textsuperscript{1C}
- The delay in diagnosis may be due to the lack of recognition of the disease in women\textsuperscript{1F}
- As the phenotype of the disease tends to differ between the genders, this may influence the timing of diagnosis and initiation of treatments\textsuperscript{1G}

AS/SpA is associated with co-morbidities

And is closely linked to the genetic marker, HLA-B27

<table>
<thead>
<tr>
<th>Articular</th>
<th>Extra-articular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pauciarticular asymmetric</td>
<td>Eye</td>
</tr>
<tr>
<td>Spondylitis</td>
<td>• Uveitis (acute anterior)</td>
</tr>
<tr>
<td>Sacroiliitis</td>
<td>Heart</td>
</tr>
<tr>
<td>Synovitis</td>
<td>Lungs</td>
</tr>
<tr>
<td>• Dactylitis</td>
<td>Gut</td>
</tr>
<tr>
<td>Enthesitis</td>
<td>• IBD</td>
</tr>
<tr>
<td>• E.g. Achilles tendinitis</td>
<td>Kidneys</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td></td>
<td>• Psoriasis</td>
</tr>
<tr>
<td></td>
<td>Urinary tract</td>
</tr>
<tr>
<td></td>
<td>• Reactive arthritis</td>
</tr>
</tbody>
</table>

These impact on patient Quality of Life

2. [www.spondylitis.org](http://www.spondylitis.org)
Graphics taken from approved AS training module (Wyeth)

Jeyni Gnanapragasam, 02/03/2011
• Enthesitis is an inflammation of the enthesis
  – Occurs in approximately one third of AS patients\textsuperscript{1A}
• Swelling of the tendon or ligament insertion results in painful and tender lesions
  – Reactive bone forms overgrowth or syndesmophyte\textsuperscript{1B}
• Occurs in the spine and in peripheral sites
  – e.g. the insertion of the Achilles tendon and the plantar fascia on the calcaneus\textsuperscript{1C} (see image)

The 1984 Modified New York criteria (mNYC) is used to classify and diagnose AS, and introduced the clinical parameter for IBP. The clinical criteria are as follows:

- Low back pain and stiffness for more than 3 months that improves with exercise, but is not relieved by rest
- Limitation of motion of the lumbar spine in the sagittal and frontal planes
- Limitation of chest expansion

Radiological: Sacroiliitis (Bilaterally Grade 2; Unilaterally 3-4)

Definite AS if the radiological criterion is associated with at least one clinical criterion

Diagnostic challenge of ankylosing spondylitis
Diagnosis of AS before occurrence of irreversible damage is a challenge\textsuperscript{1A}

The average time span for diagnosis is 8-11 years from onset of symptoms and definite diagnosis\textsuperscript{2A}

AS can be difficult to diagnose, mainly due to:
- Symptoms can easily be confused with other causes of back pain\textsuperscript{1B}
- Multiple tests are required to confirm a diagnosis\textsuperscript{2B}
- More difficult to diagnose in females\textsuperscript{3A}

Earlier recognition of AS is becoming more important with the advent of more effective treatments\textsuperscript{1C}

\textsuperscript{1} Elyan, M et al. Diagnosing ankylosing spondylitis. \textit{Rheum} 2006; 33(78):12-23
\textsuperscript{2} O’Shea F et al. The challenge of early diagnosis in ankylosing spondylitis. \textit{J Rheumatol} 2007;34:5-7
\textsuperscript{3} Lee, K et al. Are there gender differences in severity of ankylosing spondylitis? Results from the PSOAS cohort. \textit{Ann Rheum Dis} 2007;66(5):633-638
Red flag considerations

- Red flags\(^1\):
  - Progressive non-mechanical pain
  - Persistent severe restriction of lumbar flexion

- The differential diagnosis of AS should exclude:\(^1\)
  - Cancer/Tumours (primary tumours are rare)
  - Bacterial infections
  - Metabolic bone disease (osteoporosis)

NOTE:

- X-rays should be performed to examine vertebra is out of place\(^2\)
- Onset of any new or different back pain warrants investigation

Diagnostic and referral algorithm
Development of a diagnostic algorithm

- There is an unacceptably long delay between the onset of symptoms and time of diagnosis for AS – an average of 8-11 years delay has been reported\(^1\)
- The longer the diagnosis is delayed, the worse the functional outcome may be\(^2\)
- 5% of patients presenting to the GP surgery with chronic back pain will have AS\(^1\)
- To optimize diagnostic accuracy of early AS, a comprehensive approach is crucial, with an understanding of the disease and its clinical picture\(^2\)

To offer an optimum quality of service to these patients, early diagnosis, and appropriate physical and medical therapies can lead to complete symptomatic remission in a significant number of cases

How to make a diagnosis

- Elicit a history suggestive of IBP\(^1\)\(^A\)
- Ask about symptoms suggestive of HLA-B27 related diseases\(^1\)\(^B\)
- Examine the spine briefly to see if there is restriction of movement or tenderness\(^1\)\(^C\)
- If AS (or other SpA) is suspected, refer to rheumatologist\(^1\)\(^D\)

---

Diagnostic algorithm

Back pain
- < 3 months
- > 3 months

Onset
- Acute onset
- Insidious onset

Age
- < 40 years
- > 40 years

Early morning stiffness
- < 30 minutes
- > 30 minutes

Night pain
- Yes
- No

Buttock/thigh pain
- Yes
- No

Improvement
- Yes
- No

Loss of movement
- Yes
- No

Tender SI joint
- Yes
- No

Enthesitis
- Yes
- No

Associated problems
- Yes
- No

Family/previous history
- Yes
- No

Refer to rheumatologist

Consider other cause

© Susan Gurden
Secondary care pathway

- GP assessment
- Rheumatology consultant for diagnosis
- Physiotherapy led AS clinics, access to biologic clinic if appropriate
- Multi-disciplinary team, access to treatment psycho-social support medication counselling individual care planning referral to other services
- Physiotherapy treatment, exercise programmes, education, hydrotherapy
- Community programmes, self management, NASS, access to work, health promotion, rheumatology advice line
- GP/Shared care, regular physiotherapy, monitoring and measurement, access to appropriate care pathway

© Susan Gurden
Summary
Early diagnosis of inflammatory back pain has proved to be a challenge as symptoms are similar to other causes of low back pain.

Presentation of AS can be subtle, particularly in the early stages.

AS can be a progressive condition over time so the earlier an accurate diagnosis in the disease course, the better the outcome for the patient.

Referral should be considered in all patients under 40 years who present with inflammatory back pain.

The main value of history and physical examination is to determine which patients should be referred for further evaluation and this may facilitate prognosis.

Rheumatology services could provide optimum care for AS patients by an expert multi-disciplinary team.
For further information