

Pre-Ankylosing Spondylitis State

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Abstract

Ankylosing Spondylitis (AS) is a chronic inflammatory systemic disorder belonging to the SpondyloArthritides with axial joint involvement and enthesitis, with or without peripheral arthritis and systemic involvement. We know that AS has a strong genetic background especially HLA-B27 positivity and familial aggregation. HLA-B27 positivity and positive family history of AS and other SpondyloArthritides can increase the chance of occurrence of AS. This chance in monozygot twins is more than dizygot and in first degree family is more than second degree.

There are individuals who are not affected by AS currently but have the risk of progression towards AS in the future. This condition is called “Pre-Ankylosing Spondylitis state”.

The author of this letter wants to introduce and do define this state by using a “Scoring system” that is delivered here.

Keywords: Ankylosing Spondylitis, Pre-Ankylosing Spondylitis, Pro-Ankylosing Spondylitis

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Letter to Editor

Ankylosing Spondylitis (AS) is a chronic inflammatory systemic disorder belonging to the SpondyloArthritides with axial joint involvement and enthesitis, with or without peripheral arthritis and systemic involvement [1].

The early diagnosis of AS by Iran criteria [2] [that is created by the author of this letter] and then the early treatment of it can prevent; erosion, syndesmophyte formation and ankylosis.

But, here I want to introduce and do define individuals who are not affected by AS currently but have the risk of

progression towards AS in the future. This condition is called “Pre-Ankylosing Spondylitis state”.

If this state could be detected and these individuals could be followed, when the state of Pre-AS (no disease) changes to AS (disease); their treatment will be started without any lag period and pause.

On the other hand the detection of Pre-AS state and the differentiation of it from AS helps us prevent the delivery of unnecessary treatment for Pre-AS state.

At first we need to deliver a brief explanation about epidemiology and clinical/laboratory features of AS.

AS usually occurs in young adults with ages less than 40 and it may be more common in men [3]. Its common musculoskeletal manifestations are including [4 -7]:

- Inflammatory back pain and stiffness
- Inflammatory buttock pain
- Inflammatory neck pain and stiffness
- Spinal Limitation of Motion (LOM) in all directions especially back and neck LOM
- Positive sacral push test or clinical sacroiliitis
- Enthesitis especially plantar fasciitis, Achille tendinitis, costochondritis and paravertebral enthesitis
- Peripheral arthritis especially hip and shoulder arthritis and its common systemic manifestations are including [8-11]:
- Uveitis; especially acute anterior asymmetric uveitis
- Cardiac involvement; especially aortic regurgitation and heart blocks
- Renal involvement; especially IgA nephropathy and renal Amyloidosis
- Gastro-intestinal involvement; especially subclinical ileocolitis
- Pulmonary involvement; especially apical fibrosis of lungs

Bilateral sacroiliitis (with or without spondylitis) is the hallmark of AS in imaging [12].

Magnetic Resonance Imaging (MRI) is the most sensitive imaging for the early detection of sacroiliitis and Radiography can show it in intermediate to late stages of the disease [13]. Whole body bone scan or bone scintigraphy can help us detect subclinical or atypical forms of AS by showing inflammatory uptake in axial and peripheral joints along with enthesial sites [14].

We know that AS has a strong genetic background especially HLA-B27 positivity and familial aggregation. The percent of HLA-B27 positivity in the white and black patients with AS are 90% and 45% respectively while its percent in normal population is less than 10% [15].

HLA-B27 positivity and positive family history of AS and other SpondyloArthritides can increase the chance of occurrence of AS. This chance in monozygotic twins is more than dizygotic and in first degree family is more than second degree. The risks of AS within the relatives of an AS patient are: Monozygotic twins: 63 percent, first-degree families: 8.2 percent and second degree families: 1% [16].

We know that the prevalence of AS was estimated to be 0.2 to 0.5 percent [17]. On the other hand the risk of AS within normal population is 0.2 to 0.5 percent but in the HLA-B27 positive groups it is about 5%.

Here we need to explain some terms regarding AS:

- Subclinical AS
- Early AS
- Atypical AS

We have to differentiate above items from Pre-AS state. Subclinical AS is the disease of AS when it is too brief and slowly progressive that may be missed upon history and physical examination. It can be detected by paraclinical findings especially imaging. This form of AS is commonly occurred in women and it is rare in men.

Early AS is the disease of AS within the first 6 months to 2 years of the initial clinical presentation.

Atypical AS is the disease of AS with unusual or atypical clinical/imaging pictures such as priority and dominance of peripheral arthritis than axial involvement, unilateral sacroiliitis and descending spondylitis with skip area. It needs to be mentioned that typical AS starts from axial joints and the axial Involvement is the dominant feature of disease. Sacroiliitis is bilateral and spondylitis is ascending from low back towards upper back, thoracic and finally cervical spine.

So, all of the above terms are used for different pictures of AS disease while we know that Pre-AS is no-disease, on the other hand it is a state before disease.

Right now the author of this letter [as the creator of Iran criteria for early diagnosis of Ankylosing Spondylitis [2], 2016 Novel criteria for early classification of SpondyloArthritides [18] and scoring system and definition for Pre-Rheumatoid arthritis state [19]] wants to deliver a scoring system and definition for Pre-AS state that is showed in table A.

As we mentioned that the risk of AS is about 63% in monozygotic twins, when one of them have the disease of AS: The first one is AS patient and the second one before having AS is called Pro-AS patient with a risk of more than 60% for progression towards AS. We can call them; the patients with potential of having AS.

Table A: Scoring system for Pre-Ankylosing Spondylitis State**Pre-Ankylosing Spondylitis State^a****Domain I**

- | | |
|---|----------------|
| • Positive family history | Up to 2.points |
| ➤ Positive history of AS in first-degree family | 2.points |
| ➤ Positive history of AS in second-degree family | 1.point |
| ➤ Positive history of other Axial SpondyloArthritides in first or second- degree family | 1.point |
| • The presence of AS or other Axial SpondyloArthritides in more than one family member | 1.point |
| • HLA-B27 positivity | 1.point |

Domain II

- Age < 40 years old
- Absence of clinical features of AS upon history and physical examination
- Normal pelvic X-Ray for men and normal pelvic MRI for women^b

a. In the presence of at least 2 points out of 4 belonging to domain I along with all criteria of domain II Pre-AS state can be defined. With points equal to 4 from domain I it is better to call Pro-AS patient as same as monozygotic twins.

b. Unnecessary pelvic X-Ray is harmful for young women and the cases of subclinical AS are commonly women and it is rare in men.

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