



## A LITERATURE REVIEW OF: ANKYLOSING SPONDYLITIS

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**ABSTRACT**

It's an Autoimmune disease. It is insidious in onset, progression to radiological sacroiliitis over several years. In this there is mainly a chronic inflammation of vertebrae causing severe pain but in advanced cases there can be seen fusion of spinal vertebrae primarily affects the axial skeleton. The pathogenesis of AS is poorly understood. Immune mediated HLA-B27, cytokines, inflammatory cellular infiltrates and genetic factor plays important role in this disease. AS is characterized by joint involvement, digits and entheses, impaired spinal immobility, peripheral arthritis, and postural abnormality. After most of the research it is shown that this disorder has correlation with the histocompatibility antigen HLA-B27 and the interleukin-23/17 axis. Its pathophysiology remains unknown. The beginning of this is progressive and seen as aseptic aggravation at the sacroiliac joints causes decreased personal satisfaction. The most common finding of ankylosing spondylitis is acute foremost uveitis which is found in 20-25% of patients. AS is discovered worldwide, however, it is increasingly common in Caucasians. Ankylosing spondylitis mainly occurs in 45 years of age and has a higher incidence in males than females. This leads to reduce quality of life if not treated properly. Its treatment mainly includes multidisciplinary approach and NSAIDs and in severe cases surgery can be done. This survey article is about ankylosing spondylitis, its pathogenesis, and conclusion. **Objectives** 1. Identify the etiology of Ankylosing Spondylitis. 2. Review the management options available for Ankylosing Spondylitis.

**KEYWORDS:** Ankylosing spondylitis, autoimmune disease, HLA-B27, NSAID.**INTRODUCTION**

Ankylosing Spondylitis also known as Bechterew's disease. It's a chronic inflammatory rheumatic disease which has a clinical symptoms as pain rigidity, stiffness of the back which is the most common symptom and peripheral joints as well as inflammation of hips shoulder, fingers/toes joints, impaired mobility, peripheral arthritis are all known to be associated features of Ankylosing Spondylitis. 'AS' is an autoimmune disease that mainly involves spine joints, sacroiliac joints and their adjacent soft tissue, such as tendon and ligaments. As the disease progressed resulting in fibrosis and calcification of bone patients have symptoms like loss of flexibility and fusion of spine. There is a name given to this type of symptoms resembling called "Bamboo" i.e. like an immobile person.<sup>[1]</sup> It is also associated with cardiovascular disease due to systemic inflammation, pulmonary complications as the diminished chest wall expansion and decreased spinal mobility predispose patients to a restrictive pulmonary pattern.<sup>[2]</sup>

These patients are also at a risk of Atlantoaxial subluxation, spinal cord injury, and rarely, cauda equine syndrome.<sup>[3]</sup>

Studies have revealed that in HLA-B27 –positive populations, the prevalence rate of AS is 5%-6% its one of the most common rheumatic disease with gender differences. Men are affected approximately 3 times more than woman. The reason of this is that male patients with AS had significantly higher levels of IL-17A and TNF than female patients.

**Epidemiology**

Ankylosing Spondylitis mainly seems to be diagnosed in age group who are younger than 40 years. And it is seen that 80% of the patient in 'AS' have their starting symptoms in their 30 years of age. 'AS' is more common in males than women.<sup>[4]</sup>

### Etiology

'AS' is developed through a complex interactions between genetic background and environmental factors. In some extent etiology is unknown.

Some factors that may be related- genetic inheritance, immunological, microbiological, or endocrinal abnormality.<sup>[5]</sup>

'AS' is a complex interactions.

### Pathophysiology

The pathology of 'AS' mainly affects the enthuses, where ligaments, tendons and capsules are attached to the bone. There are three main processes which involve the pathology process are observed at the enthuses: which are inflammation, bone erosion and erosion and syndesmophyte (spur) formation.

It is seen that tumor necrosis factor is an important mediator of the inflammation but this pro inflammatory cytokine is not closely involved in the erosion of bone and syndesmophyte formation.

The major causative factor for causing 'AS' is genetic, with the gene encoding HLA-B27 being the most important genetic factor. Several other susceptibility genes have also been identified.

As pathogenesis of AS is not verified three hypothesis are considered basing on HLA-B27 biology. The role of environmental factors is also involved in AAS development.

### According to the modified New York criteria

Grade 0	Sacroiliac joints normal
Grade 1	Blurring of joint margins
Grade2	Solitary erosions and juxta-articular sclerosis in small sacral or iliac areas
Grade3	Manifested juxta-articular sclerosis, numerous erosions with widening of joint space, and possible partial ankyloses
Grade 4	Complete ankylosis

In early stages of disease there may be normal imaging.<sup>[9]</sup>

**MRI**-may require for more sensitive in detecting inflammation.

### CT-scans<sup>[10]</sup>

**Types of magnetic resonance imaging lesions in Ankylosing Spondylitis are.**<sup>[11]</sup>

<i>Active inflammatory lesions</i>	<i>Chronic inflammatory lesins</i>
Bone marrow edema	Sclerosis
Capsulitis	Erosions
Synovitis	Fat depositions
Enthesitis	Bony bridges/ankylosis

### Treatment

Its management is very challenging as most of the patients are young and working. It causes considerable socio- economic burden because patients have to take time off work.

### Differential Daignosis

1. Mechanical low back pain
2. Lumbar spinal stenosis

Difference should be ruled out;

Mechanical back pain can be differentiate from 'AS' by onset of symptoms. Pain improve with rest and morning stiffness is mild. And association of peripheral arthritis is absent.

Lumbar spinal stenosis is known to narrowing of spinal canal which put pressure on spinal cord. And it does not show any association of peripheral arthritis or extra skeletal features and shows variable response towards NSAIDs.

Therefore by these specific symptoms of their own disease differential diagnosis made.

### Investigations

**Inflammatory markers**- elevated form the normal value.<sup>[6]</sup>

**HLA-B27**-present in 90% cases

**C-reactive protein**- elevated in 50% of cases (this test differentiate the mechanical cause of back pain)<sup>[7]</sup>

**Renal function test**<sup>[8]</sup>

**Plain radiographs** – of sacroiliac joint (shows features of sacroilitis. Joint margins look blurred with some erosions and loss of joint space. In advance cases joints may completely fused together)

- MRI should be requested in that patient who have inflammatory back pain but radiographs shows normal.
- Bone marrow edema can also be revealed by MRI.

As having this chronic illness most of the patients have depression and anxiety. For which we have to do counseling of the patient and give them some psychological support. Patient education is also very important.

The ASAS-EULAR group has recently give updates in the management of AS. AS be managed in a multidisciplinary setting, with due attention to both pharmacological and non-pharmacological treatments.<sup>[12]</sup>

The main aim of our treatment plan for AS is to improve normal posture, relieve symptoms, alleviate pain, stiffness, prevent axial spine mobility and functional ability, and also prevent spinal complication.

Firstly the non pharmacological treatment includes some advising to the patient on the lifestyle measures as to do regular exercises, postural training, and physical therapy, hydrotherapy for widespread pain and stiffness, stop smoking.<sup>[13]</sup>

Generally the treatment plan involves NSAIDS on daily long-term basis.

If NSAIDs do not provide relief to the patient we can also give them in combination with tumor necrosis factor (TNF)-a inhibitors such as- Adalimumab, etanercept, and we also give some disease modified anti-rheumatic drugs, such as methotrexate, sulfasalazine but not to use routinely.

If needed, local intra-articular steroids injections into the sacroiliac and peripheral joints can offer relief.<sup>[14]</sup>

CT-guide sacroiliac joint injections have been shown to provide effective pain relief for up to 6 months.

Inflammatory markers can be useful to help assess levels of disease activity and act as a useful guide.

Repeat imaging of spine should only be conducted if necessary. ASAS-EULAR group recommends an interval of at least 2 years between radiographs.<sup>[12]</sup>

### Prognosis

The possibility of vertebral fracture should always be considered in patients with ankylosing spondylitis, even after minor trauma. These patients are in more risk of vertebral deformity and spondyloarthritis and therefore are at more risk for any neurological conditions. Some patients with 'AS' are able to remain fully independent or minimally disabled in the long term.

Prevention from this disease can be achieved by doing exercises given by doctor, physical therapy and having pharmacological treatment properly. Doing regimented follow-ups appointment.

### Evidence Based Medicine

Meta-analysis of many disease have revealed that patients who are doing regular base exercise have shown much better outcome than those who only take medicine and lead towards their sedentary lifestyle. At the time of diagnosis these patients usually have low response rates and are often lost to follow-ups. Only way to makes

these patients conditions better is by educating them about the disease and assure them.<sup>[15]</sup>

### CONCLUSION

Ankylosing Spondylitis is an autoimmune disease that causes severe spinal pain which can lead to permanent postural deformity. Associated with stiffness and extra auricular and systemic features. if remain untreated leads to chronic pain, immobility can also reduce quality of life as spine lean forwards causing postural deformity. On investigation we find changes in HLA-B27 and inflammatory markers. MRI is very useful to give the definitive diagnosis. Treatment approach is multidisciplinary and drugs include NSAIDs as first line of treatment further therapeutic approaches and non-Pharmacological approaches help the patient very much.

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