

# Sub Acute Ankylosing Spondylitis – An Evidence Based Study with Physiotherapy

Dr. S. S. Subramanian

M.P.T (Orthopaedics), M.S (Education), M. Phil (Education), Ph.D (Physiotherapy).  
The Principal, Sree Balaji College Of physiotherapy, Chennai – 100.  
Affiliated To (Bharath) University, BIHER, Chennai – 73

**Abstract:** ***Introduction:** Ankylosing spondylitis is a chronic inflammatory disease mainly affecting the spine and proximal peripheral joints. With early on set, disabling course of the disease and diminishing quality of life of the subjects enhanced quality of health care are needed. Aims & Objective of this original study was to evaluate efficacy of Pilates and physiotherapy using BASDAI and BASFI index. **Materials & Methodology:** this research subject after having diagnosed by rheumatologist as ankylosing spondylitis was getting treated with specific Pilates and physiotherapy exercises of twice a week in Chennai from August and September 2017. **Results:** Pre and post BASDAI and BASFI index were statistically analyzed and found to have  $P < .001$  level of significance. **Conclusion:** complete pre physical therapy evaluation and due reference to concerned medical fraternity prevents delay of due treatment and uphold standard of physiotherapy practice.*

**Keywords:** Ankylosing spondylitis, Pilates – BASDAI, BAFI, Rheumatology, Quality of Life

## 1. Introduction

- 1) Ankylosing spondylitis (AS) is a chronic inflammatory disorder mainly involving sacroiliac joints and spine, although peripheral joints may also be involved, with inflammation of ligament or tendon insertion at bone, accompanied by extra skeletal manifestations, such as acute uveitis, aortic incompetence, neurological involvement, fibrosis of the upper lobes of the lungs (Vander Linden et al 2009)
- 2) The Prevalence of ankylosing spondylitis is .15 - .86%. The main biomechanical problems in ankylosing spondylitis include limitations in spinal and peripheral joint mobility, restriction of chest expansion (Moll and Wright 1973). The role of physiotherapy were to maintain and improve mobility of the spine and peripheral joints, strengthening the muscles of the trunk, legs, the back and the abdomen by exercises (Zochling et al 2006). Self management is a prerequisite to success, with the basis lying initially at the physician, convinced of the need of exercising and referring the patient a physiotherapist and second at the physiotherapist who inspires and motivates the patient to follow a time consuming program, which however may eventually lead to a better outcome of their disease (Calin 1994). ASAS / EULAR also suggested that optimal management requires a combination of non pharmacological and pharmacological treatments and exercises was tested in category II a in evidence of efficacy (Zochling et al 2006)

**Aims & Objectives of this original research** was to evaluate impact of combined Pilates and physiotherapy using BASDAI and BASFI index on this subject with Ankylosing spondylitis

## 2. Materials & Methodology

This study subject with positive HLAB27 and on medication was started with weekly twice physiotherapy sessions with weekly twice physiotherapy sessions with mobilization and strengthening using Physioball from August 2017 and September 2017. Each session lasts for 25-30 minutes exercises done includes active exercises in supine, side, prone and sitting posture with Physioball

- 1) Where gravity helps for strengthening of muscles and mobilization of joints
- 2) Physioball supports the parts of the body which were key components of how an air inflated ball be used in subjects with AS

Spirometer was practiced with each session and from 900cc in the beginning presently vital capacity is at 3600cc, also home programme with exercises, hot pack, spirometer were insisted

## 3. Background Information

This 18 year old boy an engineering student gives medical history of his elder sister diagnosed and getting treated for rheumatoid arthritis. Complaints of multiple joint pain of a month duration. NMRI revealed bilateral sacroiliitis HLAB27- he has tested positive with low vitamin D and an elevated CRP and ESR

### On Clinical Evaluation

- 1) Left trapezitis, with painful restricted cervical spine movements
- 2) Left ankle with synovitis
- 3) Tender Lumbosacral region
- 4) Ambulant with attitude and while conversing noted
- 5) Mild level of depression with attitude and while conversing noted
- 6) Other peripheral joints were non symptomatic, except hip joint movements which were painful and restricted

Provisionally diagnosed by rheumatologist and as ankylosing spondylitis is getting treated with 1. Foletrax 10 mg 2. Primed

**Results of AS of pre and post BASDAI and BASFI were recorded and analyzed statistically as below.**

Test	BASDAI	BASFI
Pre	6.5	70
Post	1.3	11
SD	3	34
SE	1.73	19
T	3.01	3.3
p	<.001 X	<.001 X

X- Highly Statistically Significant

BASDAI (Bath AS Disease Activity Index) – 6 questions pertaining to major symptoms of as on a 10 point subjective rating scale

BASFI (Bath AS Functional Index) a subjective rating scale on a 10 point scale of 10 functional activities

#### 4. Discussion

**Hypothetical Research Questions Arises Were:**

1. Can clinical evaluation forms basis for diagnosis of AS?
2. Sub acute phase of AS early physiotherapy?
3. What form of physiotherapy can help the young subject with AS?
4. Nature of care while treating AS with exercises?

- 1) Krag et al 1990 among 53 subjects with ankylosing spondylitis in a 8 month follow up has reduced regular supervised individualized physiotherapy more effective Finger to floor distance, chest expansion and BASFI were primary outcome measures (Heikkilä et al 2000). Reduction of vital capacity (Fransen et al 1986) and deterioration of aerobic capacity (Carter et al 1999)
- 2) 40 week therapy with spa and weekly group therapy (Physiotherapy, sports and hydrotherapy) among ankylosing spondylitis patients showed improvement in functional ability and QOL ( Van Tubergen et al 2001) **similar to this subject has shown with 8 weeks of due medication followed by specific Pilates and physiotherapy has shown on evidenced functional progress with BASFI P<.001**
- 3) Home exercises involving how to move, how to rest, sports and recreational activities which can be done, which can be avoided and set of exercises to be continued unsupervised at home (Pearly et al 1985). RCT where 144 subjects were treated with 6 weeks of supervised individualized therapy (Hidding et al 1993). They were then allotted at random with unsupervised home exercises 76 and weekly group therapy along with unsupervised home exercises n=68 (Hidding et al 1993). After 9 months highly statistical significant changes in global health by 28% function improved by 4% as peer pressure and encouragement of weakly group therapy group were more effective (Hidding et al 1994). **This study subject with BASDAI score of 6.5 prior to medicine and therapy has shown reasonable improvement in the disease activity as recorded in results table with high statistical significance (P<.001)**

- 4) Heikkilä et al 2000 among 44 ankylosing spondylitis patients studied intensive inpatient physiotherapy, outpatient physiotherapy and home exercise alone, in 6 months found no significant difference among groups allotted at random. Uhrin et al 2000 have shown unsupervised recreational exercises improves pain and stiffness

#### 5. Critical Analysis of this Research

- 1) The patient when reported directly to the author for ankle neck and back pain on evaluation was referred to rheumatologist
- 2) Also without medical management of the underlying symptoms physiotherapy should not be started, a practice of referral to specialist, which will uphold independent practice by physiotherapist
- 3) Regular pre physiotherapy evaluation enable for confidence of the subject and quality of therapy practice. Should be adhered as this subject had acute ankle synovitis, trapezitis with restricted cervical spine movements, lowback ache with tender LS region, hip abduction and extension movements highly painful and restricted he was deferred physiotherapy and due reference to rheumatologist was done by the author.

**Limitations of This Research** was for shorter duration of study, being a case study, medication and exercises with ball were only analyzed. Further recommendations with larger sample size with control group, including other variables such as NMRI, aquatic therapy to be included and longer duration of study are highly recommended as continuation.

#### 6. Conclusion

Physical exercises should only be started once the subject's symptoms were analyzed and medically treated. Safe measures like free exercises, frequent stretches and spirometer are to be encouraged. As the Physioball forms a good medium of support of human body gravity helps to improve and facilitate the movements of the spine were key components of this study, which can be extended for other ankylosing spondylitis and spine related disorders in their rehabilitative means.

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