

Psychological Co-Morbidities and Physical Therapy in Patients with Ankylosing Spondylitis

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Abstract

Background: Ankylosing Spondylitis is a chronic inflammatory disease of the axial skeleton with variable involvements of the peripheral joints. Symptoms appear gradually with pain and stiffness especially in the morning. As the disease progresses, loss of spinal mobility and chest expansion with limitation of anterior flexion, lateral flexion, and extension of the lumbar spine, are seen. Pain is often severe at rest, but improves with physical activity. Though physical therapy remedies have been scarcely documented, therapeutic exercises are used to help manage pain and improve functions. **Methodology:** 10 patients (8 males) diagnosed with ankylosing spondylitis with HLA-B27 antigen positive participated in the study. After basic evaluation, the patients were asked to fill the quality of life questionnaire and hospital anxiety depression scale. Physical therapy exercises were introduced for a period of 4 weeks. The outcome measures were re-assessed after this. The data thus obtained, was then statistically analyzed. **Results:** The mean age of patients was 26 years with the mean duration of the disease about 1 year and 2 months. Both the scales showed decreased scores post physiotherapy. **Conclusion:** Physical therapy improved the quality of life in patients with Ankylosing Spondylitis. Patients were seen to be depressed and anxious due to the disease process. Also, financial status gets affected due to expenditure on medicines and surgical interventions further affecting the psychological status.

Keywords: Ankylosing Spondylitis, Physical Therapy, Quality of Life

1. Introduction

A chronic, progressive, rheumatic disease inflammatory in nature is Ankylosing spondylitis (AS). It primarily affects the axial skeleton. This disease manifests as pain and decreased spinal mobility, leading to limitations in physical functioning. Development of AS is usually seen in the early adult age upto the fourth decade of life¹. The primary features include inflammation and ankylosis of the axial skeleton with sacroiliitis being the hallmark finding. The main quantifiable features are inflammatory back pain, joint stiffness and fatigue, resulting in varying degrees of structural and functional impairments leading to reduced general health^{2,3}. About one third of the

patients, complain of peripheral joint involvement. AS also manifests as enthesitis, anterior uveitis, and bowel and heart disease. The disease expresses itself around 20-30 years of age with a prevalence of 0.1% to 1.4% and a male to female ratio of 2:1⁴. Consequently, AS patients have restrictions in their professional and recreational activities at a relatively early age.

AS results in a sizeable affection to the health-related quality of life (HRQoL), decreased work productivity which progresses to a substantial disability^{5,6}. Nonsteroidal anti-inflammatory drugs (NSAIDs) and anti-tumor necrosis factor α (anti-TNF) agents are newer agents developed that are considerably effective in reducing symptoms and improving physical

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tasks^{7,8}. These agents are now a recommendation in the treatment of AS. Apart from pharmacological treatment, physical therapy forms a vital part in the treatment of AS⁹. Patient global assessments, spinal mobility and physical function benefitted considerably due to different exercise programs and physical therapy as revealed by a Cochrane review¹⁰. In a heterogeneous group of patients with spondyloarthritis having AS patients also a part of it, Haglund and colleagues demonstrated lower disease activity, better physical function, and improved health related quality of life when World Health Organization global recommendations of physical activity for health were met¹¹. Hence, this study was conducted to assess the psychological co-morbidities (anxiety and depression) in patients who are admitted for joint replacements following AS. This study was an attempt to define the role of physical therapy management and affection of quality of life in AS.

2. Methods and Materials

An institutional ethics committee (Departmental Review Board, Physical therapy department, SGS medical college and KEM hospital, Mumbai) approval was obtained prior to the commencement of this study. 10 patients (8 males and 2 females) participated in the study. A written informed consent was obtained on the onset of the study. After a thorough basic evaluation, the participants included were based on the following criteria:

- HLA-B27 antigen positive
- Diagnosed with AS
- Aged between 20 to 50 years.

The exclusion criteria were

- Patients in the acute stages
- Sero-negative individuals

The study was conducted over a period of three months from November 2014 to January 2015, in the physiotherapy department of SGS medical college and KEM hospital, Mumbai.

Patients with chronic diseases are more prone to anxiety and depression than normal population. In patients with AS, unrecognised depression and/or anxiety is likely to lead to worse outcomes and suboptimal responses to AS

treatments. Our understanding of the patient's disease status improves when they are screened for anxiety and depression, which will thus help tailor AS treatments and evoke a better response¹². Hence, the patients were then made to complete the following assessment scales-

- Ankylosing Spondylitis Quality of life Questionnaire (ASQoL)¹³: is a valuable tool to assess the response of interventions on the quality of life dimensions of a person with AS. It has 18 items requesting a yes/no response to questions related to the impact of pain on sleep, mood, motivation, ability to cope, activities of daily living, independence, relationships and social life. The score ranges between 0 to 18. Higher the score, worse is the condition.
- Hospital Anxiety Depression Scale (HADS)^{14,15}: measures anxiety and depression in non-psychiatric patients. It has 2 subscales: - anxiety and depression, with 7 items each. The responses of this self reported scale evaluated based on relative frequency of symptoms over the past week is recorded using a 4-point Likert scale ranging from 0 to 3. The score ranges from 0 to 21, higher the scores indicate greater probability of depression or anxiety. Summations of the responses provide separate scores for anxiety and depression symptomatology.
- Physical therapy exercises⁴: Pain relief was achieved by hot water fomentation for 10 minutes. The other exercises included were-
 - Warm up- general free body exercises and stretching for 10 minutes
 - Aerobic training- included exercises to improve cardiovascular fitness, muscular strength, stability and mobility for 30 minutes.
 - Cool down: slow walking, relaxation techniques, posture correction for 15 minutes.

This protocol was followed 3 times a week for 4 weeks along with ergonomic advice. The patient was re-assessed for outcome measures after 4 weeks.

3. Results

The patients were very eager to respond to the study. The compliance with exercise program was good as they were admitted to the wards and hence constantly monitored for any adverse symptoms.

Table 1. ASQoL scores with Physical therapy management

PATIENT NO.	ASQoL	
	PRE	POST
1	11.25	9.9
2	13.2	10.8
3	9	8.4
4	12	10.8
5	9.6	8.4
6	10.8	9
7	10.8	9.6
8	9.6	7.6
9	9.6	8.4
10	13.2	7.2

Inference: The scores showed reduction in value post physiotherapy sessions with the pre mean being 10.90 and the post mean being 9.01

Table 2. HADS scores with physical therapy management

PATIENT NO.	HADS			
	ANXIETY		DEPRESSION	
	PRE	POST	PRE	POST
1	10	8	11	9
2	11	7	18	14
3	17	11	8	6
4	9	5	10	7
5	14	10	7	5
6	14	9	9	5
7	13	9	9	4
8	12	7	8	4
9	14	8	9	7
10	7	5	10	6

Inference: The values of HADS were decreased from pre anxiety mean- 12.1 to post- 7.9 and pre depression mean from- 9.9 to post- 6.7.

4. Discussion

The second most common inflammatory rheumatic disease is AS. Axial skeleton, peripheral joints and entheses, primarily of the spine and SI joints are the most common structures affected¹⁶. Symptoms of AS include back pain, loss of spinal mobility, joint stiffness and fatigue. Significant functional and structural injury (complete fusion of the spine, vertebral fractures etc) and

reductions in health-related quality of life is seen with progressive AS^{17,18}. It is responsible for reduced capacity for work^{19,20} and substantial direct and indirect costs for the patient and the health care system²¹. Earlier research studies done emphasis the constructive effects of exercises on the different parameters of health for AS patients with respect to physical function, disease activity, spinal mobility, chest expansion, global well-being, quality of life and fatigue²²⁻²⁵.

As demonstrated in Tables 1 & 2, both the ASQoL and HADS show improved responses after 4 weeks of physical therapy treatment. Patients were found to be more anxious than depressed about the disease process, which improved drastically post physiotherapy sessions. Current recommendations for the management of AS include appropriate medications and exercises²⁶ which supports our study results. Masiero et al.²⁷ in their study concluded that, long-term outcomes improved with supervised training and home exercises in patients with ankylosing spondylitis. Another study done by Gyurcsik et al.²⁸ suggests that physical therapy may be used as an adjunct while treating patients with AS. The exercise program they used demonstrated great enhancements in mobility as well as functions of patients.

Ozgoçmen et al.²⁹ published strategic recommendations for AS recovery-

- Early intervention
- Initial and follow-up assessments
- Monitoring,
- Contraindications and precautions,
- Physiotherapy methods and exercise.

With regards to this a more systematic and far-reaching approach can be conducted in the treatment of AS. In AS patients, aerobic training enhanced walking distance and aerobic capacity as seen in a study conducted by

Jennings et al.³⁰. Aytakin et al.³¹ emphasized the benefits of use of exercises at home regularly and suggested that they be included as a part of the main treatment in AS patients. They highlighted the need for physicians to advocate the need for patients with AS do exercise with a duration of 30 minutes per session and a frequency of five times in a week.

Jinane et al.³² discovered that, as depression and anxiety are frequent in AS, compromised quality of life and functional disability appear as independent threat for psychological ailments. Therefore, assessment and

management of patients with AS should take into account their psychological disorders and improvement of their functional disability.

5. Conclusion

Physical therapy improved the quality of life in patients with Ankylosing spondylitis. Patients were seen to be depressed and anxious due to the disease process. Also, financial status gets affected due to expenditure on medicines and surgical interventions further affecting the psychological status. Exercise is an important factor in maintaining function for people with AS and is particularly important for those with higher disease activity levels. Thus, we conclude that physical therapy increases both motivation and functional capabilities of an individual with AS.

6. References

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