

Physiotherapy treatment is effective for reducing low back pain in patients with Ankylosing spondylitis

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Abstract

Purpose of the study: The purpose of the study is to see the effectiveness of physiotherapy treatment program in the management of AS. **Objectives:** To evaluate the physiotherapy treatment effectiveness in case of AS, to see the improvement rate of patients and make a specific treatment protocol for this condition. **Methodology:** It was a pre-experimental design of quantitative research. 8 samples with ankylosing spondylitis were selected conveniently as sample group. The samples were the ankylosing spondylitis patients who had pain over low back. **Measurement of outcome:** Visual analogue scale was used to measure pain intensity at present, in sitting, standing, walking and during sleeping. **Result:** This pre experimental study shows that physiotherapy treatment for reducing low back pain in patients with Ankylosing Spondylitis is effective.

Key Words: Low back pain, Ankylosing spondylitis

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Introduction:

Ankylosing Spondylitis is the third most common arthritic disease (after osteoarthritis and rheumatoid arthritis). It runs in families and almost (but not completely) exclusively affects young white males between the ages of 15 and 25 years old (Spine Inc. 2008). It was proposed by Calin (2006) that Ankylosing spondylitis is a worldwide disease affecting approximately 1% of men and 0.49% of women in the Caucasian population. Primarily a spinal disorder, the disease can affect most tissues and there is an intimate relationship with inflammatory bowel (Crohn's disease and ulcerative colitis), skin (psoriasis) and eye (iritis) disease. The disease typically occurs in the late teen years or early twenties with a course that may be mild or very severe. About 3 million people within the European Community are affected with spondylarthropathy. That is more than 350,000 Americans are affected by AS (National Ankylosing spondylitis society 2007). According to Robbins et al. (2008) Ankylosing spondylitis (AS) is a chronic, inflammatory progressive disease. Its prevalence is most commonly reported to be 0.1–0.2%, with a 3:1 to 2:1 male: female ratio. Evidence strongly suggests a familial tendency in ankylosing spondylitis. The presence of human leukocyte antigen (HLA)-B27 (positive in more than 90% of patients with this disease) and circulating immune complexes suggests immunologic activity. One out of 10,000 people has ankylosing spondylitis. It affects more males than females and usually emerges between ages 20 and 40, although it may develop in children younger than age 10. Prevalence Rate for Ankylosing Spondylitis: approx 1 in 775 or 0.13% or 350,879 people in USA. Prevalence of Ankylosing Spondylitis: 129 of every 100,000 people in the US (Country statistics 2006). It was proposed by Maher (2008) that Ankylosing spondylitis (AS) is a chronic rheumatic (type of arthritis) condition that mainly affects the bones of the spine. It occurs most commonly in young men between the ages of 16 to 35, and is more common in Caucasians. It affects about 1 in 250 people.

Fransen (2003) claimed that the main goal of physiotherapy is to reduce pain and restore (or maintain) optimal physical functioning. A wide range of non-pharmacological treatment modalities can be accessed by physiotherapists, including manual therapies, electro physical agents, thermotherapy, hydrotherapy and graded exercise. Physical therapists may suggest alternative methods of pain relief, including muscle relaxation by means of: Massage therapy, Transcutaneous electrical nerve stimulation (TENS), Heat packs for reducing pain and stiffness or cold packs for reducing swelling & Spa therapy which consists of a wide range of therapeutic regimens including: mineral water bathing (balneotherapy), total body immersion in water (hydrotherapy) and relaxation therapies (Medifocus health 2008).

Moist heat supplied by warm towels, hot packs, a bath, or a shower can be used at home for 15 to 20 minutes three times a day to relieve symptoms. A health professional can use short waves, microwaves, and ultrasound to deliver deep heat to non inflamed joint areas. Deep heat is not recommended for patients with acutely inflamed joints. Deep heat is often used around the shoulder to relax tight tendons prior to stretching exercises (Mercy 2009).

Cold supplied by a bag of ice or frozen vegetables wrapped in a towel helps to stop pain and reduce swelling when used for 10 to 15 minutes at a time. It is often used for acutely inflamed joints. People who have Raynaud's phenomenon should not use this method (Mercy 2009).

Hydrotherapy (water therapy) can decrease pain and stiffness. Exercising in a large pool may be easier because water takes some weight off painful joints. Community centers, YMCAs, and YWCAs have water exercise classes developed for people with arthritis. Some patients also find relief from the heat and movement provided by a whirlpool (Mercy 2009).

Mobilization therapies include traction (gentle, steady pulling), massage, and manipulation (using the hands to restore normal movement to stiff joints). When done by a trained professional, these methods can help control pain and increase joint motion and muscle and tendon flexibility (National Institutes of Health 2008).

TENS (Transcutaneous electrical nerve stimulation) and biofeedback are two additional methods that may provide some pain relief, but many patients find that they cost too much money and take too much time. In TENS, an electrical shock is transmitted through electrodes placed on the skin's surface. TENS machines cost between \$80 and \$800. The inexpensive units are fine. Patients can wear them during the day and turn them off and on as needed for pain control (National Institutes of Health 2008).

Relaxation therapy also helps reduce pain. Patients can learn to release the tension in their muscles to relieve pain. Physical therapists may be able to teach relaxation techniques. The Arthritis Foundation has a self-help course that includes relaxation therapy. Health spas and vacation resorts sometimes have special relaxation courses (National Institutes of Health 2008).

Range-of-motion exercises can be done daily and should be done at least every other day. Active ROM, Passive ROM exercise etc. are done to improve muscle power (Ebnezar 2003, p.403). **Strengthening exercises** should be done every other day unless patients have severe pain or swelling in joints (Ebnezar 2003, p.403).

Methodology:

It was a Prospective study. Prospective studies are that which describe phenomena, search for cause-and-effect relationships, or examine change in the present or as the event unfolds over time. (Depoy & Gitlin 1998).

Study Design

It was a pre-experimental design of quantitative research. The researcher studied a single group and provided intervention during the experiment. This design did not have a control group to compare with the experimental Group.

Sampling

8 samples with ankylosing spondylitis were selected conveniently as sample group. The samples were the ankylosing spondylitis patients who had pain over low back and came for treatment at Physiotherapy Department at CRP, Savar and CRP, Mirpur.

Samples were collected by using convenience sampling. In convenience sampling participants were chosen which can be studied more easily, cheaply or quickly (Bailey 1997). The samples had collected on the basis of some inclusion and exclusion criteria.

Method of Data Collection

This research was a quantitative exploration of the effectiveness of Physiotherapy Treatment Program for reducing low back pain in patients with Ankylosing spondylitis. To evaluate the effectiveness of Physiotherapy Treatment Program for reducing low back pain of Ankylosing Spondylitis patients Visual Analogue scale in different functional position was used as measurement tool.

Data Collection Procedure:

The participants of the research are chosen conveniently for the experiment. Then the researcher measured intensity of pain at present, pain during sitting, standing, walking and during sleeping.

The Participants received existing Physiotherapy Treatment from the Department. Each participant received 6 sessions of a Physiotherapy treatment in the physiotherapy department. Before starting the treatment there was done an initial assessment where the researcher assessed intensity of pain at present, pain during sitting, standing, walking and during sleeping. At the end of 6th sessions, the researcher took subjective information including the pain in VAS in different functional positions of each of the participant. But the treatment was applied by the qualified Physiotherapists. During that time, the participants received treatment as regular patients in the physiotherapy department of CRP; they continued their treatment within their scheduled appointment with their therapist. Within 8 weeks the data were collected carefully.

Data analysis

The data was analysed using SPSS version 16 by descriptive statistic- pie chart, bar chart, percentage and related or paired t-test.

Result

Variables in the study at the following level of significance

No	Variables	Observed t value	Observed p value	Significant	Not significant
1	Pain at present	4.03	0.005	Significant	
2	Pain during sitting	4.848	0.005	Significant	
3	Pain during standing	3.37	0.01	Significant	
4	Pain during walking	2.67	0.025	Significant	
5	Pain during sleeping	4.165	0.005	Significant	

Using related t-test, it was found that significant positive changes in most of the variables after getting the physiotherapy treatment. The results were found in reduction of pain in low back at present ($P < 0.005$), reduction of pain intensity in sitting ($P < 0.05$), reduction of pain during standing ($P < 0.01$), reduction of pain during walking ($P < 0.05$) and reduction of pain during sleeping ($P < 0.005$).

Discussion and Recommendation:

The purpose of the study is to find out the effectiveness of physiotherapy treatment program for reducing low back pain in patients with Ankylosing Spondylitis and objectives are to evaluate the Physiotherapy treatment effectiveness for reducing low back pain in different functional position, to make a specific treatment protocol for ankylosing spondylitis. In this Pre experimental study 8 patients with ankylosing spondylitis were conveniently allocated to the treatment group. The group received only Physiotherapy treatment program. Each participant of the group had taken 6 sessions of treatment at Outdoor Physiotherapy Dept of C.R.P. Mirpur and Savar. The outcome was measured by using VAS in different functional positions. The experimental hypothesis was assumed that Physiotherapy Treatment Program is effective for reducing low back pain in patients with Ankylosing Spondylitis. It is a one tailed hypothesis. Hicks (1999) stated that the experimental hypothesis is the starting of any research and predicts relationship between two or more variables. From this hypothesis two variables were found, one was Physiotherapy Treatment Program that was the independent variable and other was outcome of Physiotherapy Treatment Program which was the dependent variable. The dependent variable that means, the outcomes of Physiotherapy treatment were measured by the pain intensity with VAS scale in different functional position. It can be said that experimental hypothesis was realistic and testable.

The main finding of the study was reduction of pain in different functional positions with using physiotherapy treatment provided by qualified physiotherapists. The results are reduction of pain in low back at present ($P < 0.005$), reduction of pain intensity in sitting ($P < 0.05$), reduction of pain during standing ($P < 0.01$), reduction of pain during walking ($P < 0.05$), reduction of pain during sleeping ($P < 0.005$).

Recommendation:

Significant result for reducing low back pain in different functional positions was found by Physiotherapy Treatment for the patients with Ankylosing Spondylitis. In terms of future, a much larger study needs to be undertaken of a longer duration.

It is suggested to include a Physiotherapy Treatment Program in rehabilitation program of Ankylosing Spondylitis patients to provide better service. Because it is a responsibility for all Health professional and it

should be a core component of medical school curriculum.

It is recommended for further study to make a specific treatment protocol for the management of AS.

A much larger subject should be chosen randomly with experimental and control groups, so the results will be generalized among the population.

As a consequence of the research, it is recommended that a larger sample could investigate if these results are attributable to spontaneous mechanism, placebo attention effects or other physiological mechanisms.

As exercise is the most commonly prescribed Physiotherapeutic intervention, so further research is needed to be done in this area. On the basis of the result, in future this research can be implemented on patients. It will be beneficial for the patients with Ankylosing Spondylitis. Finally; it is recommended that, it will be more valuable if the study will be done in other areas of Physiotherapy.

Conclusion:

The aim of the study was to find out the effectiveness of physiotherapy treatment for reducing low back pain in patients with Ankylosing Spondylitis and the objective was to find out the effectiveness for reducing low back pain in different functional positions. Finding suggested that receiving this Physiotherapy Treatment Program for 6 sessions is helpful to reduce low back pain in patients with Ankylosing Spondylitis. But it is important to remember that patients must maintain the exercise level themselves, incorporating it into their lifestyle, otherwise any improvement seen with treatment is not maintained. Because of the above-mentioned limits, this study lacks generalizability. This study should be replicated and expanded to confirm the validity of the findings. The results of this study have identified the effectiveness of Physiotherapy Treatment for reducing lower back pain in AS. With further well-controlled double-blinded study could include in assessing effects and efficacy of this treatment.

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