

Physiotherapy Briefings for Physicians

Issue 2 • 2009

Ankylosing Spondylitis

This issue focuses on research into therapy for ankylosing spondylitis, a chronic, progressive, inflammatory disorder.

Physiotherapist-provided therapy key to management of ankylosing spondylitis

Ankylosing spondylitis (AS) affects the axial skeleton with aseptic inflammation of synovial tissue, spinal ligaments, intervertebral discs and facet joints. It is characterized clinically by pain and stiffness of the back and sacroiliac joints. The etiology of AS is unknown and there is no cure, so treatment focuses on minimizing pain and maintaining mobility and function. [1,2]. Although the development of anti-TNF (tumor necrosis factor) therapy has dramatically improved medical management of AS, physical therapy and exercise are still an important complementary part of AS management [2,4,5].

A 2008 Cochrane review [1] summarizes randomized and quasi-randomized studies on the effectiveness of physiotherapy interventions in the management of AS. Eleven trials (total 763 participants) met the review criteria. Among the findings, which were supported by other recent reviews [3,4,5], were:

- Moderate quality evidence supporting supervised group physiotherapy over home exercise in terms of differences in spinal mobility and patient global assessment;
- Moderate quality evidence supporting combined inpatient spa-exercise therapy followed by group physiotherapy over group physiotherapy alone in terms of pain, physical function and patient global assessment.

One of the studies [6] showed an experimental physical therapy, global posture re-education (GPR), had benefits over conventional physiotherapy exercises. GPR stretches and strengthens four muscle chains (posterior static, anterior diaphragmatic, anterointernal pelvic and scapular girdles). The control group performed 20 exercises for: flexibility of the cervical, thoracic and lumbar spine, stretching of the erector spinae, hamstring and shoulder muscles, chest expansion exercises and abdominal and diaphragm breathing exercises. The GPR group performed eccentric work of the erector spinae muscles, stretching of the posterior muscle chain in the pelvic region, and exercises aimed at stretching the shortened muscle chains. The BASMI, BASFI and BASDAI (see box below)

continued on back page



Therapeutic exercise for AS, prescribed by physiotherapists, maintains and improves spinal mobility and fitness, and reduces pain.

BASMI, BASDAI, BASFI and ASAS 20: Diagnosis and Change Assessment Tools

The Bath indices for assessing changes in AS were developed by researchers at the Royal National Hospital for Rheumatic Diseases in Bath, England.

- BASMI: Bath AS Metrology Index (BASMI), five clinical measurements to assess axial status and clinically significant changes in spinal movement [12].
- BASDAI: Bath AS Disease Activity Index, six questions pertaining to the major symptoms of AS [13].
- BASFI: Bath AS Functional Index (BASFI), 10 questions to determine the functional limitations of people with AS [14].

The ASAS 20: A composite index developed by the Assessment against AS International Working Group (ASAS) and the European League against Rheumatism (EULAR). Patients are assessed in four areas (inflammation, function, patient perception of pain, patient global assessment). Response to treatment must show $\geq 20\%$ relative improvement and ≥ 10 units absolute improvement in three of the four areas with no worsening in the fourth [9].



Physiotherapy
Association of
British Columbia

Inpatient Rehab

A 2007 study [9] assessed inpatient rehabilitation in a group of 52 patients who participated in three weeks of intensive rehabilitation and were then discharged to home exercises (no control). Assessments were done at discharge, and at six and 12 weeks post-discharge. Eighty-nine percent of patients achieved ASAS 20 (see boxed item on front page) at the end of rehabilitation. This decreased to 60% at 6 weeks, and to 33% at 12 weeks. Secondary outcomes of tragus-to-wall distance, chest expansion and modified Schober's test showed improvements, some of which were sustained through the follow-up. Conclusion: intensive inpatient rehabilitation was effective, but the effect decreased over time.

Physiotherapist-provided therapy key to management of ankylosing spondylitis ...continued from front page

indices were used in the study. The GPR group improved significantly ($p < .05$) in all measures except the BASDAI. The control group improved in all measures, but significantly only in the tragus-to-wall distance and the lumbar side flexion measures.

A 2008 trial further investigated the effectiveness of group- and home-based exercise [7]. Group- and home-based patients exercised three times a week for six weeks (total $n = 41$). Both exercise groups showed statistically significant improvement ($p < .05$) on BASDAI and BASMI.

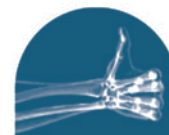
Another 2008 randomized controlled trial [8] examined the effectiveness of Stanger bath therapy (a combination of electrotherapy and hydrotherapy) combined with exercise as opposed to exercise alone. The experimental group ($n = 29$) received 15, 20-minute Stanger bath sessions over a three-week period and were given a home exercise program (range of motion, muscle strengthening, respiration and postural exercises). The control group ($n = 28$) did only the three-week home exercise program. Both groups improved significantly ($p < .05$) in all measures from pre- to post-test except for the control BASMI result. The experimental group had significantly greater gains compared with the control group in all measures.

References

1. Dagfinrud H, Kvien TK, & Hagen KB (2008). Physiotherapy interventions for ankylosing spondylitis. *Cochrane Database of Systematic Reviews (Online)*, (1)(1), CD002822
2. Zochling J, van der Heijde D, Burgos-Vargas R, Collantes E, Davis JC Jr, Dijkmans B, et al (2006). ASAS/EULAR recommendations for the management of ankylosing spondylitis. *Annals of the Rheumatic Diseases*, 65(4), 442-452.
3. Elyan M & Khan MA (2008). Does physical therapy still have a place in the treatment of ankylosing spondylitis? *Current Opinion in Rheumatology*, 20(3), 282-286.
4. Nghiem FT & Donohue JP (2008). Rehabilitation in ankylosing spondylitis. *Current Opinion in Rheumatology*, 20(2), 203-207.
5. Sangala JR, Dakwar E, Uribe J & Vale F (2008). Nonsurgical management of ankylosing spondylitis. *Neurosurgical Focus*, 24(1), E5.
6. Fernandez-de-Las-Penas C, Alonso-Blanco C, Morales-Cabezas M & Miangolarra-Page JC (2005). Two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial. *American Journal of Physical Medicine & Rehabilitation/Association of Academic Physiatrists*, 84(6), 407-419.
7. Karapolat H, Akkoc Y, Sari I, Eyigor S, Akar S, Kirazli Y, Akkoc N (2008). Comparison of group-based exercise versus home-based exercise in patients with ankylosing spondylitis: effects on Bath Ankylosing Spondylitis Indices, quality of life and depression. *Clin Rheumatol*, 27(6):695-700.
8. Gurcay E, Yuzer S, Eksioğlu E, Bal A & Cakci A (2008). Stanger bath therapy for ankylosing spondylitis: illusion or reality? *Clinical Rheumatology*, 27(7), 913-917.
9. Lubrano E, D'Angelo S, Parsons WJ, Corbi G, Ferraresi N, Rengo F, Olivieri I (2007). Effectiveness of rehabilitation in active ankylosing spondylitis assessed by the ASAS response criteria. *Rheumatology (Oxford)* 46(11):1672-5
10. The Arthritis Society website, www.arthritis.ca, viewed 14 March 2009
11. Wellcome Trust Case Control Consortium and the Australo-Anglo-American Spondylitis Consortium (2007) Association scan of 14,500 nonsynonymous SNPs in four diseases identifies autoimmunity variants. *Nature Genetics* 39:1329-1337
12. Jenkinson TR, Mallorie PA, Whitelock HC, Kennedy LG, Garrett SL, Calin A (1994). Defining spinal mobility in ankylosing spondylitis (AS): the Bath AS Metrology Index. *J Rheumatol* 21:1694-8.
13. Garrett S, Jenkinson T, Kennedy LG, Whitelock H, Gaisford P, Calin A (1994) A new approach to defining disease status in ankylosing spondylitis: the Bath Ankylosing Spondylitis Disease Activity Index. *J Rheumatol* 21:2286-91.
14. Calin A, Garrett S, Whitelock H, Kennedy LG, O'Hea J, Mallorie P, et al (1994). A new approach to defining functional ability in ankylosing spondylitis: the development of the Bath Ankylosing Spondylitis Functional Index. *J Rheumatol* 21:2281-5.

Fast Facts

- AS is two to three times more common in men than in women [10].
- AS typically affects people between the ages of 15 and 30. Onset after age 40 is uncommon [9].
- AS is frequently associated with peripheral arthritis, enthesitis and acute anterior uveitis [2].
- The genetic variant HLA-B27 is found in only 6% of the broad population but occurs in approximately 93% of individuals with AS [12].
- In October 2007, researchers identified two genes, ARTS1 and IL23R, as being associated with the occurrence of AS. Individuals having all three genes (ARTS1, IL23R and HLA-B27) have a one in four chance of developing AS [11].
- In 2006, the ASAS working group and EULAR published a set of evidence-based recommendations for the management of AS [2]. The final recommendations included:
 - o Optimal management of AS requires a combination of pharmacological and non-pharmacological treatments.
 - o Non-pharmacological treatments should include regular exercise, with both individual and group physical therapy considered.



Physiotherapists:
The Body Specialists

Find a Physiotherapist in BC!

Check the Physiotherapy Association of BC's directory of physiotherapists (mailed to physicians each spring) or search online at www.bcphysio.org — Find a Physio. There are almost 600 facilities searchable by 30 areas of expertise.

Physiotherapy Briefings for Physicians

Published by:

Physiotherapy Association of British Columbia

Suite 402-1755 West Broadway

Vancouver, BC V6J 4S5

Tel 604.736.5130 Toll free 1.888.330.3999

pabc@bcphysio.org www.bcphysio.org