



Physical interventions in the Biologic Era

Are Physios out of a job?

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Objectives

- Explore the categories of patients who are prescribed biologic therapies and how physical therapies can help them through this process.
- How our approach to decision making has changed over the years
- Discuss the management of those who do not receive this medication
- Answer the question! Are Physios out of a job?

Impact of AS/axial SpA

- AS/axial SpA is responsible for substantial direct and indirect socioeconomic costs, and work disability ^{1,2,3} and has a significant impact on quality of life ^{4,5}
- People with AS are less likely to be married and more likely to be divorced, and women with AS are less likely to have children than their healthy counterparts ⁶

Burden of disease



MediFocus Guidebook, Ankylosing spondylitis, 2008. Available from <u>http://www.medifocushealth.com</u>

ASAS/EULAR recommendations

The primary goal of treating AS is to maximise long-term health-related quality of life (HRQoL) through: ^{1,2}

- Control of symptoms and inflammation
- Prevention of progressive structural damage
- Preservation/normalisation of function and social participation

- 1. NASS Module 2 What is axSpA? Available at http://nass.co.uk/loose-leaf-pages/resources-for-health-professionals-2/?keywords=physio+module.Accessed May 2015
- 2. Braun J et al. Ann Rheum Dis 2011;70:896–904.

ASAS/EULAR Recommendations for the Management of Ankylosing Spondylitis (3/11)

- 3. Non-pharmacological treatment
 - The cornerstone of non-pharmacological treatment of patients with AS is patient education and regular exercise.
 - Home exercises are effective. Physical therapy with supervised exercises, land or water based, individually or in a group, should be preferred as these are more effective than home exercises.
 - Patient associations and self-help groups may be useful.



Assessment

Looking Ahead (NASS, 2010): Recommendation 7

People with AS should be followed up regularly and have ready access to expert reassessment

 Initial assessment – comprehensive clinical assessment including disease activity scores, functional assessments, metrology indices and imaging

 Re-evaluation periodically by health specialist with expertise in AS, under supervision of a consultant rheumatologist and serial measures recorded.

 Periodic assessments of bone health/osteoporosis, co-morbidities, renal function and cardiovascular risk undertaken

Treatment

- Historically Physical Therapy particularly Exercise has been one of the most important interventions in Ankylosing Spondylitis (AS).
- Prevention of functional impairment and relief of symptoms
- Non Steroidal Anti-inflammatory Drugs for inflammatory and pain relief.
- The advent of Biologic DMARD therapy has revolutionised medical management and interest in the disease.

Symptom Control

- The main effect of a biologic drug is immuno-suppression
- They MODIFY the disease process
- Not all patients are prescribed biologics (* NICE guidelines; patient choice; established disease)
- Sometimes biologics do not do what it says on the tin or they fail

AND

ALL patients need education and coaching towards their goals Biologics can't do everything – there is no CURE (as yet!)

The role of the physiotherapist

- Assessment BASMI
- Education condition, lifestyle changes, ergonomics
- Monitoring
- Exercise motivation!!



Regular assessment

'It is important that all patients with AS/axial SpA have regular contact with a rheumatologist to monitor the severity of their condition and ensure they receive appropriate treatment' ^{1,2}

As the course of disease is different for each patient, it is recommended that the frequency of monitoring appointments is decided on an individual basis depending on:¹

- Course of symptoms
- Severity
- Treatment

^{1..} van der Heijde D et al. Ann Rheum Dis. 2011;70:905-8.

^{2.} Braun J et al. Ann Rheum Dis 2011;70:896–904.

 BASMI, BASDAI, BASFI, Total spinal pain, Chest expansion, Weight Height (BMI),
Recent falls/walking aide use/osteoporosis risk factors, Smoking status, Alcohol consumption, Co morbidity, Current medication



Who is responsible for assessment?

Our example at WWL Audit May 2015

- Currently patients seen by medical team (consultant, SpR, SHO), physiotherapists, nurse specialists
- Variable frequency of follow-up
- 1st stage in a more detailed review of the AS/AxSPA service at WWL

Is annual follow-up being met?



Non biologic

Biologic



Exercise and Physiotherapy

ASAS/EULAR recommendations ¹:

'The cornerstone of non-pharmacological treatment of patients with AS/Axial SpA is **patient education** and **regular exercise**'

Because:

Reduces pain ^{2,3}

Improves and/or maintains:

- Posture
- Functional range of movement
- Strength and mobility
- Cardiovascular exercise tolerance

^{1.} Braun J et al. Ann Rheum Dis 2011;70:896-904.

^{2.} NASS. Looking Ahead. Available at: http://www.nass.co.uk/campaigning/looking-ahead/. Accessed May 2015.

^{3.} NASS. Physiotherapy. Available at: http://nass.ichameleon.com/exercise/exercise-for-your-as/physiotherapy/. Accessed May 2015

Exercise -Specific areas to be addressed

- Chest, shoulder and hip stretches
- Neck, trunk, back and hip mobility exercises
- Posture strengthening exercises
- Chest expansion
- Cardiovascular fitness
- Bone health

^{1.} NASS. Looking Ahead. Available at: http://www.nass.co.uk/campaigning/looking-ahead/. Accessed May 2015.

^{2.} NASS. Physiotherapy. Available at: http://nass.ichameleon.com/exercise/exercise-for-your-as/physiotherapy/. Accessed May 2015.

^{3.} NASS. Back to Action. Available at: http://www.nass.co.uk/news/back-to-action/. Accessed May 2015.

Muscle Balance - strengthening and stretching

Different muscles will need to be **strengthened** or **stretched** to help resist or correct potential postural deformities in patients with axial SpA and includes chest expansion



Stretching

- No evidence of harm indicated, although few long term studies.
- Some evidence of benefit.
- No conclusion as to type / duration / frequency / environment
- There is moderate to strong evidence that routine application of static stretching does not reduce overall injury rates
- There is preliminary evidence that static stretching may reduce musculo-tendinous injuries.



Doing this exercise aims to achieve Area being exercised Thoracic Spine 3: Rotation 3 1 2 3 5 8 4 6 7 $\sqrt{}$ $\sqrt{}$ $\sqrt{}$ $\sqrt{}$ $\sqrt{}$ Starting position Kneeling on all fours and tighten your tummy **Movement** Stabilising yourself with one arm, lift your other arm and tuck it under your body to touch the opposite shoulder blade. Then take your arm sideways and upwards reaching towards the ceiling. Try to watch your hand throughout the movement by following with your head. Repeat the movement with the other arm

Doing this exercise aims to achieve Area being exercised Lumbar Spine/shoulder 8: Side flexion 2 1 2 3 4 $\sqrt{}$ $\sqrt{}$ **Starting position** Stand sideways on to a wall making sure that there is a small gap between yourself and the wall. Your feet should be a comfortable distance apart and your arms should be by your side. **Movement** Reach with your outside hand, out to the side and then up and over your head to touch the wall over your head with your fingers. Hold for the count of 5 trying to keep your arm as near to your ear as possible. Return to the starting position and turn around

7

6

8

 $\sqrt{}$

5

and repeat on the opposite side.

Progression

Try to stand further away from the wall in order to increase the distance that you stretch.

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Aquatic physiotherapy

The buoyancy, resistance and support offered by water, combined with the warm temperature, allow patients to exercise with additional benefits:

Improved ease of movement

Increased muscle strength

Balance re-education



Enhanced psychological well-being, due to the social interaction

Although the AS community seem to enjoy this kind of treatment and anecdotally gain benefit, there is no quality evidence to suggest any greater benefit than any other form of exercise

Exercise recommendations

- Take regular and varied general exercise, including walking, swimming and aqua aerobics.^{1,2}
- Low impact exercise such as pilates, Tai Chi and yoga may also be beneficial.
- Patients should be reminded to inform the instructor of their AS/axial SpA before taking any class, and always start with a beginners' class.²
- Patients should be advised that contact sports and high impact exercises may put them at an increased risk of spinal injury.

2. NASS. Back to Action. Available at: http://www.nass.co.uk/news/back-to-action/. Accessed May 2015.

Aerobic Activities

Dynamic Exercise

- No evidence of harm indicated, although few long term studies of those no significant long term benefits.
- Some evidence of benefit in↑ strength, aerobic capacity, general health, and function; a few studies reported ↓ disease activity
- No conclusion as to type / duration / frequency / environment.

Baillet et al 2009/2010 Neuberger et al 2007 Westby 2000/2001 Minor et al 1989

Aerobic Exercise

- Is safe, no disease deterioration
- Outcome measures improvement relating to: Aerobic fitness, Quality of life, Pain, Fatigue, Function, CV systems.
- Better than ROM exercise
- Long term effects

Baillet et al 2009 Cairns AP, McVeigh JG 2009 Eversden L, Maggs F, Nightingale P, Jobanputra P. 2007 Bearne LM, Scott DL, Hurley MV 2002



BACK TO ACTION









- Balance is the ability of the body to remain steady in a chosen position; to move smoothly and safely through small body adjustments.
- Increasing spinal and peripheral joint stiffness can interfere with the normal balance reactions in people with AS therefore increasing the risk of falling.
- The increased propensity to osteoporosis in this patient group will increase the fracture risk.
- General exercise classes like Tai chi, Yoga, Pilates, Body Balance or EXTEND classes can help build on strength, flexibility and confidence. All of which positively influence balance.
- No evidence which suggests any particular form of exercise is more superior in achieving this aim

NOVEL APPROACHES

Effect of Pilates training on people with ankylosing spondylitis

L. Altan et al. Rheumatology International 2011

"We suggest Pilates exercises as an effective and safe method to improve physical capacity in AS patients. Our study is the first clinical study designed to investigate the role of Pilates method in AS treatment. We believe that further research with more participants and longer follow-up periods could help assess the therapeutic value of this popular physical exercise method in AS."



Tai Chi for Disease Activity and Flexibility in Patients with Ankylosing Spondylitis—A Controlled Clinical Trial. *Eun-Nam Lee et al. Evid.*

Based Complement. Alternat. Med. Dec 2008

"Our results suggest that *tai chi* improves flexibility and positively influences levels of disease activity in AS patients. *Tai chi*, which is easily accessible to patients, may also be an effective intervention for AS. Further randomized studies, with more objective measures, larger samples, measurements after multiple sessions and long-term follow-up, are needed to verify *tai chi*'s effects on patients' quality of life, pain, mobility, psychologic variables and physical functional improvement."



Novel Approaches

Nordic Walking

This type of exercise is becoming popular with the general and AS community. It is felt in some quarters that the use of the pole encourages thoracic mobility and aids vital capacity.

BUT - no quality evidence to suggest that Nordic walking is superior to walking or jogging ¹

Kinetic Chain Exercise

Global Posture Re-education method focusing on specific strengthening and flexibility exercises of the shortened muscle chains and offers promising short and long-term results in the management of patients who have ankylosing spondylitis ².

Yoga

Stronger evidence for short-term effectiveness and moderate evidence for long-term effectiveness of yoga for chronic low back pain in the most important patient-centred outcomes. Yoga can be recommended as an additional therapy to chronic low back pain patients ³

BUT There are no specific studies in AS.

- 2. Fernandez de las Periaset al. 2006
- 3. Cramer H et al, 2013

^{1.} Schiffer T et al. 2006

Exercise and Aquatic Physiotherapy

Dagfinrud Cochrane review 2008¹

Results *suggest* that an individual home-based or supervised exercise program is better than no intervention

- Supervised group physiotherapy is better than home exercises
- Combined inpatient spa-exercise therapy followed by group physiotherapy is better than group physiotherapy alone.
- There is "silver" level evidence (www.cochranemsk.org) that exercise programs, home-based or supervised, are better than no exercises and improve movement and physical function.
- Adding a few weeks of exercising at a spa resort to weekly group exercises is better than just weekly group exercises.

^{1.} Dagfinrud H, Hagen KB, Kvien TK. Physiotherapy interventions for ankylosing spondylitis. *Cochrane Database of Systematic Reviews* 2008, Issue 1. Art. No.: CD002822. DOI: 10.1002/14651858.CD002822.pub3.

Education

- By definition patients with 'active disease' fall into the more vulnerable category.
- Guidance in understanding disease and managing symptoms particularly in the early stages is essential
- Can be provided in the individual and or group setting
- Promotes shared decision making
- Promotes self awareness, coping strategies and self management tools

Education/Self Management

Barlow¹ suggested that patient education should be seen as a means of promoting self-efficacy amongst people with AS, thus enhancing psychological well-being and performance of health behaviour (exercise).

Individuals living with long term conditions spend approximately **3** hours every year with healthcare professionals...

for the other 8,757 hours they look after themselves

We need to get this right



Website

NASS Guidebook for Patients

- NASS Guide to Managing Your AS at Work
- Leaflets e.g. fatigue, driving, flares, biologics

Adherence and motivation

- Poor treatment adherence is common
- Individualised self management programmes improve adherence
- The impact of arthritis has a physical and emotional effect on patients and their relatives
- Self Efficacy can be an issue for patients and carers
- Patients with less disability exercised less than their more disabled counterparts. The reasons for this difference, particularly the issue of motivation, deserve more attention.

Locus of control, self-help and treatment adherence in relation to ankylosing spondylitis patient JH Barlow, SJ Macey, GR Struthers - Patient education and counselling, 1993 – Elsevier

Disability motivates patients with ankylosing spondylitis for more frequent physical exercise A Falkenbach - Archives of physical medicine and rehabilitation, 2003 - Elsevier

Psychological interventions

- Growing literature indicating psychological impact associated with AS (anxiety and depression)
- One third of AS patients within a population of 129 men and 48 women had depressive symptoms and that women were more susceptible to depression than men¹
- Associations between anxiety and depression with disease outcomes²

BUT

How are we addressing this clinically?
Paucity of evidence e.g.
CBT/Mindfulness/Counselling

 Need for future research to focus on psychological interventions



Leading a healthy lifestyle

- Maintaining a healthy weight
- A healthy diet and exercise, as patients are at an increased risk of cardiovascular events¹
- A diet rich in calcium and vitamin D, as patients with AS/axSpA are at increased risk of osteoporosis and fractures ^{2,3}
- Smoking cessation, which is strongly advised as smoking has been shown to increase disease activity as well as the risk of lung and cardiovascular diseases ^{4,5}

1.van der Horst-Bruinsma IE et al. Ther Adv Musculoskel Dis. 2012;4:413-22.

2. Donnelly S et al. Ann Rheum Dis. 1994;53(2):117-21.

^{3.} Vosse D et al. Ann Rheum Dis. 2009;68:1839-42.

Pacing

- For many people, especially those with AS/axial SpA, an exercise programme may be overwhelming.
- 'Pacing' is a strategy in which the level of activity is matched to the amount of energy a patient has, or to a level the patient finds tolerable.
- The level of activity can be built up over time as energy increases. It should be stressed to patients that a small amount of exercise is better than no exercise.

Enthesitis

Enthesitis is the key pathological lesion in the spondyloarthritides

There is emerging evidence that mechanical influences on the bone lesions result in the inflammatory process and subsequent bone growth



Implications for physical treatment and Research?

Impact of Anti-TNFα Medication on Exercise Behaviour in Patients with Ankylosing Spondylitis ¹

- Twenty participants (age range 26–74, disease duration 3–36 years) who had been on the medication for over a year described how their exercise behaviour had improved since being on the medication.
- They highlighted their motivation and incentives to continue with an exercise programme.
- The participants had reinstated previous sporting activities, started new ones and regularly undertook physiotherapy exercises.

Biologic response – 2 doses



08/12/201417/02/2015

30/06/2015



From cradle to the grave 30 years of knowing someone

- 64 years old male, currently retired and single, 2 children and a dog
- AS diagnosed aged 31
- First assessed 1983 and continuing to be reviewed
- Engineer who had to take early retirement
- During the break up of his marriage was admitted for intensive physiotherapy
- Co morbidities which have developed:

Prostrate cancer, Hypertension, iritis and depression

30 years of measurements



A Vision for the Future?

A stratified approach for every patient



Screening Tools used in conjunction with a biopsychosocial assessment to identify what is needed and how it should be delivered

Education and Interventions which are evidence based and are reproducible in clinical practice

Personalised interventions to meet the

challenges our patients face throughout

their life course



And so - are Physios out of a job?

Over to you!

Any Questions?

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