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Case Report

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Physiotherapy management of ankylosing spondylitis patient through different clinical reasoning process: a case report

Abstract

Ankylosing spondylitis (AS) is a sickness that affects young people, men are more frequently affected than women. Progression of AS pain, stiffness, postural changes including loss of normal lumbar lordosis, forward positioning of the neck and exaggerated kyphosis. Here researcher described a 40-year woman who had complain of gradually progressive low back pain which awoke her at night, stiffening in the morning and deformity of the spine and hip. From subjective and objective evaluation and investigation the case was diagnosed as ankylosing spondylitis with physical impairment, social disturbance and depression. The multidisciplinary team then referred case to the Department of Physiotherapy at KC Hospital & Diagnostic Center Ltd. In Daskhinkhan, Uttara, Dhaka. The physiotherapist assesses the case through different clinical reasoning process and set a management plan with proper education and advice. Initially the patient was markedly handicap with severe pain and various disability. After the 8th week of intervention, there was an improvement in pain reduction both at rest and during movement, as well as improved range of motion. In addition, disability status also progressed from 60% to 20% and now patients can participate in daily activities. The clinical reasoning process with evidence- based physiotherapy plays a vital role to find out the biopsychosocial factor and the management of Ankylosing Spondylitis.

Keywords: physiotherapy, ankylosing spondylitis, clinical reasoning

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Introduction

In clinical reasoning, the therapist engages with the patient to gather data, generate hypotheses, and arrive at the most appropriate diagnosis and course of therapy.[1] Ankylosing spondylitis (AS) is a disease that primarily affects young people; the average age of onset is 26. The male to female ratio of those affected is around 2:1. Patients often show their initial signs and symptoms before the age of 30, with less than 5% being 45 or older. Loss of normal lumbar lordosis, neck posture that slumps forward, and excessive kyphosis are just some of the postural alterations that can occur as AS worsens.[2] Although the spine is the primary target of AS, other areas such as the hips, knees, ankles, shoulders, and ribs may also experience pain or stiffness due to the disease's systemic and rheumatic nature.[3]

Description of case

Mrs. "X," a 40-year-old woman, resides in the Uttarkhan neighborhood of Dhaka. In July 2020, the patient complained of nighttime low back discomfort that was progressively worsening and was accompanied by morning stiffness, curvature of the spine, and hip pain. She had a history of diabetes and hypertension but no history of falls. For more than a year, the patient has experienced back pain that began in the sacroiliac (SI) joints and gluteal areas and then spread to the entire spine. She woke up in pain and stiffness which get worse with inactivity and get better with movement and regular activities. Then, for her better management, a family member allowed her to enroll in the physical medicine program at Bangabandhu Sheikh Mujib Medical University. She took some NSAIDs to treat her discomfort; after taking the drug, she felt better, but occasionally the agony came back. Pain and stiffness made her situation gradually worse. She then visits a rheumatologist for advice on improved treatment. Then she made the ankylosing spondylitis diagnosis. The Department of Physiotherapy at KC Hospital & Diagnostic Center LTD, Daskhinkhan, Uttara, Dhaka was then recommended to her by a rheumatologist for her own safety.

Case problem according to PICO

(Table 1&2)

Table 1 PICO format of this case hypothetico deductive reasoning

P	Ankylosing Spondylitis
I	Postural education Manual therapy with spinal mobilization, stretching exercise, Strengthening exercise
C	Stabilization and strengthening exercise
O	Pain, Fatigue, disability

Table 2 Hypothetico deductive reasoning (HDR)

Cue acquisition	Hypothesis generation	Cue interpretation
Is the pain constant or intermittent, and is it accompanied by stiffness and sleep disruption?	There may have been an association of pathological causes due to early morning stiffness and fever influencing this hypothesis.	The clinical signs and HLAB27 test is positive. The hypothesis of systemic pathological involvement is confirmed (+1).

Table 2 Continued...

Cue acquisition	Hypothesis generation	Cue interpretation
Is the pain gradual or sudden in onset, referred unilaterally or bilaterally and aggravate or relieve symptom?	Lumbar spondylosis and spondylolisthesis may have a strong relationship.	In X-ray forward/backward translation[5] and degenerative changes of the spine[6] were absent. So this hypothesis rejected(-1).
When the pain is worst, is it worse in the morning and pain relief with activity?	There could be links to ankylosing spondylitis.	High ESR, raised CRP, in MRI SI joint inflammation, morning stiffness, pain relief with activity, and X-rays show Bamboo Spine: so this cues strongly include (+1).
Do you feel fever, pain in coughing, sneezing, or deep breathing and burning, tingling, or dull aching of pain?	There may be an association with degenerative disc disease and lumbar disc prolapse.	MRI shows that signal intensity, disc structure, the distinction between nucleus and annulus, disc height are normal and the dural symptom was negative.[7] So this hypothesis rejected (-1).

Acquiring cues and using hypothetical deductive reasoning both require the ability to spot patterns in data. After acquiring relevant cues, the next step in the problem-solving process was to generate hypotheses.[4]

Hypothesis evaluation

Every other day for eight weeks, the patient received outpatient physiotherapy treatment. Each session lasted for 30 minutes. The first session began with a diagnosis and management assessment by the clinicians. Patient education include correct posture with posture training, household activity modification, ergonomics, weight management, smoking cessation,[8] Spinal mobilization, active and passive spinal column mobility exercises, contract-relax stretching of tight muscles, 8 weeks of manual massage, 30 minutes of freestyle swimming 3 times per week for 6 weeks, and electrotherapy (IRR, IFT, wax bath) are all part of the manual physiotherapy regimen designed to alleviate pain and stiffness post-agent application,[9] 30 minutes of walking three times a week for six weeks.[10] Exercises programs are Flexibility, mobilizing, balance, aerobic, strengthening, or functional training,[11] Designed a home exercise protocol for patient with AS help of patient home condition (Table 3).[12]

Table 3 Evaluation of the clinical reasoning intervention

Hypothetico deductive reasoning	Three-track reasoning	Narrative reasoning
This reasoning were used for possible explanation of the patient's signs, symptoms and choosing the one favored by the evidence. After completion of all ideas, we would like to say that this hypothesis indicate that the condition is ankylosing spondylitis.	This was used for more patient interaction and future planning: **Procedural reasoning:** After full assessment, special tests, pathological and radiological findings indicated that ankylosing spondylitis. After that, short- and long-term goals were set. Interactive reasoning: Therapist motivate the patient to continue the Physiotherapy treatment. **Conditional reasoning:** Here, focused on postural re-education and household modification by ergonomic correction.	Patient have been suffering for a long time, she lost her husband and mother after that her family did not given any support and did not take care for that she were in depression. After that, the patient was referred to a clinical psychologist for mental status improvement.

Outcome measurement

A VAS was used to quantify the level of pain experienced as part of the outcome measuring tool. The reliability of VAS is 0.94. To evaluate disability among patients with back pain, the Oswestry Disability Index (ODI) scale was used.

The BASDAI is a symptom-specific questionnaire that asks the patient to rate their level of discomfort, pain, and exhaustion on a scale from 0 (no problem) to 10 (worst possible problem). Fatigue, The duration and intensity of morning stiffness, the presence or absence of back pain, the presence or absence of joint discomfort or swelling, the presence or absence of enthesitis (localized tenderness where connective tissues intrude into bone), and so on (Table 4).[11]

Table 4 Outcome measurement of patient discussion

Variable	Day -1	4th week	8th week	Measurement tool
Resting pain	8	5	1	VAS
Pain during activities	8	5	1	
Fatigue	8	6	0	BASDAI
Spinal Pain	8	4	1	
Joint Pain	7	5	2	
Morning Stiffness (Duration)	60 mins	40 mins	10 mins	
Morning Stiffness (Severity)	8	5	2	
Disability status	60%	45%	20%	ODI

It was very tough to be strict in a single reasoning process when solving this case. So in this study, the case was solved using different types of clinical reasoning approaches. Due to prior knowledge, the researcher chose the HDR process first. As the patient rapidly switched from one track to another, three-track reasoning followed, which described the patient's active involvement and future imagination. Finally, narrative reasoning followed, as the patient described in detail how her family was not cooperative and supportive. Following these procedures, the patient had a bright smile and a positive attitude at the end of the eight week. She can participate in routines and activities as well as with family members who have become supportive and helpful. She is now continuing treatment as a follow-up patient, which she enjoys. Medication and physical therapy are common approaches to treating AS. Immunosuppressants and anti-inflammatory drugs are frequently prescribed. Exercise and physical therapy have been shown to be beneficial for the problem; one of the primary aims of these treatments is to strengthen the back muscles and encourage the preservation of correct posture. The treatment outcomes of patients with AS were significantly improved by efforts to increase patient knowledge, active involvement, and motivation.[13] Little evidence for lasting effects has been found in studies of balneotherapy (or soaking in mineral springs) and hydrotherapy.[14] In patients with AS, physiotherapy and rehabilitation are still essential components of

disease management.[15] Reducing pain and maintaining spinal mobility with physiotherapy and rehabilitation is crucial,[16] prevent postural deformities, improve muscle strength,[17] and maintain endurance in patients with AS.[12] Exercise in AS has shown effectiveness in terms of functional, mobility, quality of life.[18] This review study helps learn about this type of condition, so we can make accurate decisions quickly this way. On the other hand, it helps professionals learn that if they first use hypothetico-deductive reasoning, they can get a quick result for decision-making.

Conclusion

Pain, dysfunction, decreased activity and quality of life are just some of the negative outcomes of living with AS. The prognosis and pattern of involvement determine whether or not conservative management, the current standard of care, is effective. Physiotherapy is crucial in enhancing quality of life by reducing symptoms, enhancing function, expanding range of motion, strength and avoiding future complications.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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References

1. Higgs J, Jones MA. *Clinical decision making and multiple problem spaces*. 2008.
2. Sieper J, Braun J, Rudwaleit M, et al. Ankylosing spondylitis: an overview. *Ann Rheum Dis*. 2002;61(suppl 3):iii8–18.
3. Vander Cruyssen B, Munoz-Gomariz E, Font P, et al. Hip involvement in ankylosing spondylitis: epidemiology and risk factors associated with hip replacement surgery. *Rheumatology*. 2010;49(1):73–81.
4. Rahman MH, Islam MS, Rahman E, et al. Management of an atypical ankle sprain patient through hypothetico deductive reasoning model of clinical reasoning implemented by international classification of functioning, disability and health: A case study. *Inter J Physio*. 2016;3(3):263–266.
5. Ahn K, Jhun HJ. New physical examination tests for lumbar spondylolisthesis and instability: low midline sill sign and interspinous gap change during lumbar flexion- extension motion. *BMC musculoskeletal disorders*. 2015;16:1–6.
6. Middleton K, Fish DE. Lumbar spondylosis: clinical presentation and treatment approaches. *Curr Rev Musculoskelet Med.* 2009;2(2):94–104.
7. Østergaard M, Lambert RG. Imaging in ankylosing spondylitis. *Therap Adv Musculoskelet Dis*. 2012;4(4):301-311.
8. Bond D. Ankylosing spondylitis: diagnosis and management. *Nurs Stand.* 2013;18:28.
9. Passalent LA. Physiotherapy for ankylosing spondylitis: evidence and application. *Curr Opin Rheumatol*. 2011;23(2):142–147.
10. Jennings F, Oliveira HA, de Souza MC, et al. Effects of aerobic training in patients with ankylosing spondylitis. *J Rheumatol*. 2015;42(12):2347–2353.
11. Regnaux JP, Davergne T, Palazzo C, et al. Exercise programmes for ankylosing spondylitis. *Cochrane Database Syst Rev*. 2019;10(10): CD011321.
12. Akgul O, Kilic E, Kilic G, et al. Physiotherapy and rehabilitation in ankylosing spondylitis: is it still the mainstay of management in the era of biologics? *Inter J Clin Rheumatol*. 2013;8(5):579.
13. Sharan D, S Rajkumar J. Physiotherapy for ankylosing spondylitis: systematic review and a proposed rehabilitation protocol. *Curr Rheumatol Rev.* 2017;13(2):121–125.
14. Dagfinrud H, Hagen KB, Kvien TK. Physiotherapy interventions for ankylosing spondylitis. *Cochrane Database Syst Rev*. 2008;2008(1):CD002822.
15. Dundar U, Solak O, Toktas H, et al. Effect of aquatic exercise on ankylosing spondylitis: a randomized controlled trial. *Rheumatol Int*. 2014;34:1505–1511.
16. O'Dwyer T, O'Shea F, Wilson F. Exercise therapy for spondyloarthritis: a systematic review. *Rheumatol Int.* 2014;34:887–902.
17. Bağlan Yentür S, Saraç DC, Sari F, et al. The effects of Pilates training on respiratory muscle strength in patients with ankylosing spondylitis. *Physiother Theor Pract*. 2022;8:1–11.
18. Giannotti E, Trainito S, Arioli G, Rucco V, Masiero S. Effects of physical therapy for the management of patients with ankylosing spondylitis in the biological era. *Clin Rheumatol*. 2014;33:1217–1230.