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RESEARCH ARTICLE

PILATES AND PHYSIOTHERAPY IN ACUTE LOWBACK ACHE AND SCIATICA – AN EVIDENCE BASED STUDY

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ABSTRACT

Acute low back pain is common among professionals who continues to work in sitting for long hours daily. Along with pain, impaired mobility, medical expenses, loss of productive days and seeking quicker relief where conservative tailor made physiotherapy finds a place to rehabilitate the subject.
Aims & Objective of this original case report was to evaluate the efficacy of combined Pilates and physiotherapy in a subject with sciatica.
Materials & Methodology: subject with acute low back ache with radicular symptoms and difficulty in sitting and ambulation was treated with combined Pilates and physiotherapy using Physioball for weekly thrice, progression and nature of exercises each session were recorded, in five sessions during May 2017. Subjects pain and functional activities were restored as evidenced by P<.05. Conclusion: Clinical evaluation based rehabilitation with evidence and early functional recovery were the key components of this research report.

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INTRODUCTION

- Lowback pain is a very common disorder (Woolf & Plegar 2003) a leading disability contributor (Lim etal 2013) may result in a reduced level of physical capacity (Hodges et al., 2009)
- Sciatica is characterized by radiating pain in an area of the leg typically severed by nerve route in the lumbar or sacral spine
- Lumbar disc herniation is a common condition (Schnoen Feld 2010) that frequently affects the spine in middle aged patients (Anderson et al., 2008)
- Acute episodes of lowback pain have a good prognosis with physical therapy treatment as evidenced by many reviews (Macintyre et al., 2010)
- Lowback pain and radioculopathy have discrete effects on economy, in terms of days last to work and reduced productivity as related to common cause of disability with US health care system spending on lumbar discectomy procedure annually costing to $300 million (Schoen Feld & Weiner 2010)
- Rainville etal 2009 have with evidence reported that conservative management in subjects with radioculopathy aims to improve patients function
- Pilates consists of a physical exercises that uses resources such as gravity and the resistance either to assist or resist movement execution (Gangnon 2005) and unlike traditional resistance exercise in which muscles are exercised separately, Pilates exercises with a holistic approach needs to enable the coordination of several muscle groups at one time (Pilates 2001)

Aims & Objectives of this original research was to evaluate

- Does physiotherapy has a role in acute lowback pain
- How long and how much prognosis to espect with hamstring tightness and sciatic pain
- Functional outcome with specific Pilates and physiotherapy using Physioball exercises
- How for tailor made exercises prescription reliable with evidenced practice in subjects with lowback ache.

MATERIALS AND METHODS

An advocate by profession aged 53 years with longs hours of sitting and sedentary life style, she is unmarried , vegetarian past medical history includes hysterectomy in 2014 non diabetic, non hypertensive presently complaints of acute low back pain and radiating up to back of knee, since 3 days , difficulty in sitting long, and walking. Had taken two days of NASID and reported for physiotherapy to the author in May 2017

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Table 1. Clinical Treatment and Prognosis

Session	Exercises Performed	Sets	Repetition	Duration Minutes	Outcome
I	Isometric abdominal muscle contraction in crook lying, hamstrings stretching in side lying, abductors of hip quadriceps strengthening with Physioball in supine, prone	1 of 7exercises	3	10-15	Reduction in pain from • VAS 8 to 6 • An improved gait
II	Supine: Bridging of pelvis with ball, isometric hamstring, abdominal muscles with ball, below knee Prone: Ball at ankle for quadriceps and at thigh for hamstring strengthening	1 set (7+4)= 11	5	15-20	• Able to sit for 10-15 minutes • Self care activities have improved
III	• Prone with stomach on ball extension of upper spine • Gluteus maximums, hamstring strengthening • Side lying plank with ball	1 set (7+4+4)= 15	5	20-25	• Functional activities such as cooking etc • Confidence level has gone up with sleep duration
IV	Ball support half lying hip flexors and abdominal contractions, Vastus Medialis strengthening	(7+4+3+4)= 18	8	25-30	• Social activities she has started • Floor activities begun for exercises and her prayers
V	Closed kinematic exercises in supine, sitting with ball supine plank, prone plank with lumbar stabilization using the ball prone strengthening of multifidus muscle	(7+4+4+3+5) 23	10	30-35	• Spinal flexion components added • Able to wean of LS belt for daily activities. • She was able to walk freely for 20-25 minutes

Table 2. On Results of Pre and Post Oswestry Lowback Functional Score of the Subject with Exercises Using Paired't' Test

Oswestry Functional Score	Pre	Post	SD	SE	t	p
	38	16	15	8.66	3.00	P<.05

BMI: 26 Kg/m^2

O/b

- Antalgic gait obliterated cervical and exaggerated lumbar lordosis. SLR increases hamstrings pain at 50 in left and at 70 degree on right. Tenderness over Lumbosacral region, sacroiliac and along left hamstring tendon inner hip flexion and forward spine (lumbar) restricted with pain .left hip flexor tightness and negative pelvic compression test hence SI pathology was ruled out clinically. However left hip abductors and extensors, abdominal muscles were around 3/5. Pain was increasing, continuous with sitting more than hour an hour over LS, SI, and hamstrings region. No limb length discrepancy, spinal deformity recorded, nil paresthetic symptoms were recorded knee, ankle reflexes

Clinical Impression: Left hamstring tightness, left sciatica?

Treatment Given to the subjects were mostly in line with clinical evaluation and her complaints to strengthen lumbopelvic, hip and knee joint muscles, hamstrings stretches, closed kinematic chain exercises using Physioball. With weekly frequency of thrice and each session lasting for 25-30 minutes. All the data before and after each session were recorded. She was not treated with no medications and no electrotherapy modalities. Only specific exercises, back core and hot pac applications were used and this study was conducted in May 2017. The subject's subjective rating scale on daily functions from lowback pain before and after 5 sessions of palates and physiotherapy using Physioball were analyzed with statistical means as below:

Home Programme

Lumbar stabilization technique was taught and she was practicing the same few spinal extension exercises, prone plank with stabilization, supine pelvic bridging and isometric side plank with pillows between thighs.

DISCUSSION

- Van Tulder etal 2010 have recorded conservative treatment is first time option in patients with sciatica and patient preference seems to be an important factor in the clinical management but valet etal 2010 have reported low level of evidence on the conservative treatment of sciatica
- Lowback pain have negative psychological effects (Wang etal 2014) and reduction in the quality of life (Gatchel etal 2007)
- Surgical discectomy may be considered for patients with sciatica, who so not respond to initial conservative management, but the role of surgery for chronic lowback ache is under debate (Fritzell etal 2001)
- Sharma etal 2002 have recorded 50% subjects with lowback ache had hamstring tightness, and tight hamstrings subjects develop with maladaptive strategies (Marshall 2009) and probable indirect involvement in the pathogenesis of lowback ache which were of clinical significance with prevention and treatment of lowback ache (Carregaro 2009)
- But koley and Lidhi 2011 among 102 subjects with lowback ache of both sex in India have revealed no correlation between lowback ache and hamstring flexibility

- Rodrigue et al 2010, have recorded with Pilates an improved quality of life among elderly female subjects. In line with above studies and research literature this study subject with acute lowback pain with radicular symptoms (Sciatica) was in 5 taylormade specific exercises with Pilates and physiotherapy was able to functional rehabilitated with reasonable statistical evidence as shown in results Table 2 (P<.05).

Critical appraisal of this Research

An innovative approach with taylor made evidence based exercise prescription and each session evaluation for prognosis was attempted in this study. Critical components were feedback from patient on each session beginning and after for symptom behavior and influence of therapy on their functions. This means of therapeutic application facilitates a patient centric, time conserving and maximize rehabilitation in a shorter duration.

Limitations of this original research were the subject was treated with one form of exercises, pain, ROM and subjective rating scale were only used for evaluating the prognosis. This report is of shorter duration prognostic study, however further treatment with follow up are continued with the subject by the author recommendations of further studies on larger sample size, including other variables of longer duration among subjects with sciatica and hamstring tightness for the larger subject among society.

Conclusion

Physiotherapy with focus on time framed and adapting maximal therapeutic approaches for early recovery and minimize rehabilitation duration remain major outcome of this research. Also subjects when convinced with each sessions clinical prognosis with due explanation and interaction how reduction of symptoms could benefit for their daily activities improve patients self confidence and the standard of physiotherapy. This concept can be extended on every subject's early recovery and enables to uphold physiotherapy practice.

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