



Multiple Lumbar Disc Lesion on a Geriatric Subject with Exercises – An Evidence Based Study

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Abstract

An increase in longevity globally with more elderly population of falls, treating low back pain, exercises for urinary bladder control and obesity.

Aims & Objectives of this original case presentation was to analyze the impact of resisted exercises on obesity and multiple lumbar disc lesion using Oswestry and womac score.

Materials & Methodology: 70 year old moderately obese female with multiple lumbar disc lesion was treated with resisted exercises during the period from September 2017 to November 2017. With weekly twice frequency pre and post WC, Oswestry and womac were recorded and statistically analyzed.

Results: with WC, Oswestry and womac showing $P < .01$

Conclusion: Reduction in obesity along with improved physical functioning with exercises among geriatric subject was the key outcome of this study.

Introduction

Schnoenfeld 2010 lumbar disc herniation is a common condition that frequently affects the spine in young middle and aged patients (Anderson et al 2008). The lumbar intervertebral disc is a complex structure composed of collagen, proteoglycans and sparse fibrochondrocytic cells that serve to dissipate forces exerted on the spine. As part of the normal aging process the disc fibrochondrocytes can undergo senescence, the proteoglycans production diminishes. This leads to a loss of hydration and disc collapse, which increases strain on the fibers of the annulus fibrosus surrounding the disc. Also a large

biomechanical force placed on a healthy, normal disc may lead to extrusion of disc material in the setting of catastrophic failure of the annular fibers. Back pain may occur due to disc protrusions that do not enter the canal or compromise nerve roots (Bono et al 2006). The more treatable condition of lumbar radioculopathy, arises when extended disc material contacts or exerts pressure, on the thecal sacs or lumbar nerve roots. The pain associated with lumbar radioculopathy occurs due to a combination of nerve root ischemia and inflammation resulting from local pressure and neuro chemical inflammatory factors present within the disc material (McCulloch et al 2002)

Lumbar disc herniations to be asymptomatic in 50% in certain population and level IV – V evidence exists, suggesting that 90% of patients with lumbar disc herniations will resolve their symptoms without substantial medical intervention (Carragee 2006)

Disc disorders, back pain and radioculopathy have discrete effect on economy, in terms of days lost to work and reduced productivity as related to common cause of disability with US health care system spending \$ billion annually and lumbar disectomy procedure annual costing to \$ 300 million (Schoenfeld & Weiner 2010)

Materials & Methodology

Mrs. XXX, aged 70 years graduate, mother of two children, with BMI – 27 Kg/m² and waist circumference – 102 cm, normotensive, non diabetic C/O pain in lowback and both knee joints, difficulty in walking and daily activities.

Her physical condition as on 02-09-2017

NMRI dated 15.03.2017 Lumbosacral spine has revealed multiple levels of osteophytes, disc bulging at L2, L3, L4 and S1 level with bilateral grade 2 neural foramen stenosis and compression of corresponding nerve roots

Her X – ray AP and lateral views shown bilateral osteoarthritis with reduced patella femoral and tibio femoral joint spaces.

O/E

Ambulant unaided independent for self care, grade II tenderness of bilateral knee joint line with Vastus Medialis weakness, obliterated lumbar lordosis, weakness of bilateral hip abductors, extensors, abdominal muscles. With end range knee joint painful and restricted

Provisional Diagnosis

Lumbar spine disc bulging and bilateral osteoarthritis knee

Treatment Adopted

She was treated with knee strengthening and resisted exercises using air inflated physio ball of 55 cm with frequency of twice a week during the period from September 2017 to November 2017

Each session was gradually progressed with no exacerbation of her pain and other symptoms. She was regular, highly committed with exercise sessions and in doing home exercises

Results

Pre and post womac and Oswestry scale along with WC were recorded and analyzed using due statistical means

Table of pre and post results on womac Oswestry and WC using student ‘t’ test

Test		Mean Score	SD	SE	t	p
Oswestry	Pre	73	17.32	10	3	<.01 X
	Post	43				
Womac	Pre	68	20.78	12	3	<.01 X
	Post	32				
WC	Pre	102	3.46	2	3	<.01 X
	Post	96				

X – Highly Significant Statistically

Also the subject was taught Kegales exercises and balance exercises as part of bladder control and prevention of fall being a geriatric subject.

Discussion

From inferring table of results the following critical questions were getting analyzed as below:

1. What all the therapeutic options with disc lesions?
 - a) Acute episodes of low back pain have quite a good prognosis with a variety of treatment as evidenced by many reviews (Macintyre et al 2010). 10-30% of acute lowback pain patients evolving in to chronic with frequent relapses and persistence of symptoms of 1 year (Stanton et al 2008). Rainville et al 2009 has with evidence reported that conservative management aims at to improve patients function and surgery focused on the alternation of structures perceived to be the sources of pain
 - b) Differential diagnosis of acute low back pain with compression fracture, spinal stenosis, herniated nucleus pulposus,

lumbar strain, spondylosis, systemic and referred causes (MC Intosh and Hall 2011)

- c) Mckenzie method has been shown to be slightly more effective than other common lowback pain treatments and evidence on this effect on disability is conflicting (Machado et al 2010)
 - d) Valet et al 2010 have low level of evidence on the conservative treatment of sciatica and Van Tulder et al 2010 have recorded conservative treatment is first line option in patients with sciatica and patient preference seems to be an important factor in the clinical management (Van Tulder et al 2010)
 - e) Moderate quality evidence that post treatment exercises programs can prevent recurrence of back pain (Choi et al 2010)
 - f) Surgery for leg pain (Radiculopathy) with herniated lumbar disc is associated with short term benefits compared to non surgical therapy for lowback pain, through the surgical benefits diminish with long term follow up
 - g) Among chronic low back pain patients surgically and non surgically treated between the age group of 18-55 years, had no evidence that surgery was any more beneficial than intense rehabilitation surgery cost more, had potential risks and was not cost effect
2. What is the recovery pattern with low back pain?
13% of persons with low back pain will not recover fully within 6 months (Carey et al 1996). Recurrent back pain occurs in 25-62% of patients with in one to two years, with up to 33% having moderate pain 15% having severe pain (Stanton et al 2008).
 3. How much evidence with various physiotherapeutic means?
 - a) Hidalgo et al 2014 in a systematic review reported that evidence are better for spinal stabilization exercises at short term follow

up, few trails reported adverse events associated with traction. With no evidence to support the efficacy of manipulation compared with other treatments such as traction, electrotherapy modalities, NSAID, magnetic corsets, herbal medication in LDH with radiculopathy.

- b) Spine stabilization exercises have been shown to decrease pain, disability and risk of recurrence after a first episode of back pain (Hides et al 2001)
 - c) NSAID, heat application have low quality evidence in the first 7 to 14 days (French et al 2006)
 - d) Massage, lumbar support, traction have no quality evidence among acute or chronic back pain (Walker et al 2011)
 - e) Also there is no evidence for bed rest, tractions, manipulations, hot packs, muscle relax mate, opioids (Luister Berg et al 2007)
4. Any evidence on quality of life post low back pain?
 - a) Promoting and self management programmes despite weak evidence for chronic back pain represent the best way forward (May et al 2010) and acceptance of pain is significantly associated with quality of life (Manson et al 2008)
 - b) Moderate quality evidence suggests that bed rest is less effective at reducing pain and improving function at 3-12 weeks than a device to stay active (Hagen et al 2004) low back pain is a very common disorder (Woolf & Pleger 2013) a leading disability contributor (Lim et al 2013) may result in a reduced level of physical capacity negative psychological effects (Wang et al 2014) and reduction in the quality of life (Gatchel et al 2007)
 - c) Reduced obesity and oswestry, womac scale leads to an enhanced QOL of this subject as evidenced from table of results were supported by the following reports

Conclusion

An elderly subject striving to have an independent life with dignity with physiotherapy having a major role was emphasized in this presentation. A part from improving joints and physical functions, an enhanced sense of healthy being along with a sense of high self esteem, geriatric care with carved role for physiotherapy to be explained to the subject as with an increased life expectancy. Limitations of this study was being single case studied and only subjective rating scale were analyzed where as long term follow up of similar geriatric subjects with more physiotherapy means to be compared were highly recommended

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