Case Study Report on a Geriatric Female with Bilateral Osteoarthrosis Knee and Obesity.

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Abstract:

Osteoarthrosis of knee joints, lumbar disc lesion with obesity affects physical movements and daily activities. Reduction of obesity, strengthening of due weak muscles with due physiotherapy techniques, yoga, inversion therapy and Physioball are the key outcome of this study. This case study gets more important as all aspects of rehabilitation were taken care and addressed.

Keywords:

1. *Oswestry Lowback disability questionnaire 10 items with lowback pain on various daily functional activities on a 6 point sub rating score.*
2. *WOOMAC: 17 items including pain and various physical functions on a 5 point subject rating score.*
3. *Core Exercise: exercises to strengthen Abdomen, Pelvic, Hip and Muscles.*
4. *Physioball: An inflated ball with air used for rehabilitation.*

Introduction:

Osteoarthritis is a chronic localised joint disease and a leading cause of Musculo skeletal pain and disability (Australia 2007). The osteoarthritis disease process involves the whole joint including cartilage, bone, ligament and muscle with changes such as joint space narrowing, bony osteophyte and sclerosis seen on X-ray. Risk factors are multi factorial and includes age, female gender, obesity, previous joint injury, genetics and muscle weakness pain together with joint stiffness, instability swelling and muscle weakness leads to physical and psychological disability and improved Quality of Life , with coexisting obesity related disorders such as heart disease, Hypertension and Diabetes Mellitus (Reeuwick etal 2010).osteoarthritis varying in severity from mild to serve, exercise therapy is regarded as the corner stone of conservative management of the disease (Farr 2008). Exercises combined with weight loss appear to be more effective than either intervention alone (Messier etal 2004). The main goals of exercise in this patient are to reduce pain, improve physical function and optimize participation in social, domestic occupational and recreational pursuits.

Background Information:

Being obese with chronic back pain the subject of this study was finding difficulty to walk, sit and attend her research activities.

Past Medical History:

No history of fall, No Major surgery/ Illness recorded

Mrs.XXX, Aged 66 Years Female H/O known, HTN on Medication with Tablet. Seloken 25 mg, post-menopausal, Endomorph, Research Scholar on herbal medicine. C/O low back ache, pain in both knees of 5 years duration, difficulty in floor level activities, walking, vertigo, and exertional fatigue.

Body Weight: 74 kg Height: 167 cm BMI: 31 kg/m^2

Waist circumference: 94 cm B.P:150/95mm/ ng Resting Heart rate: 84/mt

Ambulant unaided with mild Antalgic gait

Period: 10-02-215 to 15-02-2016

Frequency of twice a week each session lasting from 25-35 minutes.

As on 02-2015

- O/E- Bilateral Genu and Valgum and Recurvatum
- Bilateral Knee Joints Crepitus increasing an end range movements.
- Exagrated Lumbar Lordosis
- Motor Power of Abdominal Muscles III / IV
- Lumbar Spine extensors – IV / V
- Hip Extensors, Abductors – 3/5
- Knee Extensors -3/5
- Flexors – 3/5
- Cervical Spine Restricted Extension Lateral Flexion to right, Rotation to Left painful and restricted; since last 5 years no floor Level activities by the subject.
- Vertigo

Provisional Diagnosis:

Chronic Lumbar disc Lesion, Bilateral knee osteoarthritis.
Her present condition as on below:

- Able to sit and perform floor Level activities for more than ½ hour daily for her religious activities.
- Ambulant for ½ hour without pain and with ease.
- Frequency of Vertigo has decreased her work for more than 5 hours for research activities.
- Bilateral knee pain and lower back pain has ceased and body weight has decreased from 74 to 69 kg.
- Knee, Hip and Spinal Muscles have improved significantly

Woomac are has decreased from 75% to 20%.
Owestry score has decreased from 77% to 22%.
Her Resting Heart Rate: 84/ mt
Post Exercise Heart Rate: 128/mt
82% of Maximal Heart Rate each session was carried out.

Treatment given:

I. Core strengthening exercises using Physioball.
II. Yoga postures on Physioball, followed by resisted exercises such as Veerasan, Katti Chakrasan, Pawan Muktasan, Vajrasan, Cat and Camel Posture, Matsyasan, Danurasan.
III. Exercises of inversion therapy using Physioball in supine, prone, side lying done.
IV. Core exercises using Physioball and muscle energy Technique to Neck were used.
V. Diet advices
VI. Home programme was taught to her

Results: Table:

Major measurable changes prior and after having undergone rehabilitation:

S.NO		Pre	Post	Reduction by %
1	Oswestry Lowback Disability Questionnaire	77%	22%	55%
2	Woomac	75%	21%	54%
3	Body Weight	74 Kg	69 kg	6.7%
4	Waist circumference	94 Cm	88 cm	9%

Discussion:

Salah etal 2015 Found that musculoskeletal complain of obesity is more in weight bearing joints (osteoarthritis of knee 50%) and lower back region (Lowback pain 35%).

6- 10 Kg weight loss in morbidly obese subjects is associated with a relief from pain in the lower back, knee Ankle, feet. (Mchoyet etal 1990) with a reduction of body weight by 5 Kg this subject of this case study had a relief from lower back region reflects the study.

As Strength training impact to minimize loss of lean muscle mass that would otherwise exacerbate muscle weakness (Toda 2001). This case study benefited with strength training Using Physioball, yoga postures, core exercises this subjects knee, hip and spinal muscles have shown improved with motor power, endurance and hypertrophied.

Weight loss of greater than 5% over a 20 week period can lead to significant improvement in disability (Christensen etal 2007) and reductions in knee load in people with osteoarthritis. 6.7% of weight loss in this subject over 40 week period of therapy in line with the above study has shown improvement in disability.

The benefits of exercise are additive where delivered with other interventions such as weight loss (Messier etal 2004). Along with a reduction in Oswestry lowback score from 77% to 22% and Woomac score from 75% to 20% the subject is able to sit on the floor for religious activities for more than ½ hour are major functional outcome of this case study.

Social and economic impact of low back pain is considerable, with low back pain is among top 10 diseases and injuries that account for the highest number of Dalys Worldwide (Lancet 2012). The subject was able to complete her research successfully. Along with she is able to walk, Travel without pain a major social impact the therapy had also the subject is successfully managed with conservative means of therapy.

March and Boga 2004 have showed BMI of more than 30 increased the risk for knee osteoarthritis approximately by 8 fold. This study subject with a BMI of 31, found to be having chronic lumbar disc lesion and bilateral Osteoarthrosis of knee joints, hence carries a higher risk for Osteoarthrosis. Effect of exercise on structural disease progression in osteoarthritis knee the subject has shown with an improved functional outcome could be due to the following reasons:

Gudber Jensen etal (2012) in a study among 175 subject with BMI of >30kg/m^2 with 10% weight loss have shown significant improvement defined by OMERRACTOARSI responder criterion. Weight loss improves structure modifying benefits: 9% loss can improve cartilage quality (Anando Coomarasamy etal 2012).Forsythe etal (2008) in a Meta analysis with 66 weight loss intervention found decreased inflammatory makers which have been associated with impaired physical function.

Waist circumference was associated with osteoarthritis knee risk in a case study by holiday etal 2011. 9% reduction in waist circumference from 94cm to 88 cm as shown in table is another benefit the subject had along with its impact on osteoarthritis.

Conclusion:

Being obese, a geriatric patient with bilateral knee osteoarthritis and lumbar disc lesion an improved functional outcome as reflected in both lowback score and knee score adds more to the independent with activity by the subject weight loss with a partial relief from structural disease of osteoarthritis, further enhances performance of the physical and social activities of the subject with ease. However the subject should continue home programme, diet advices, regular follow up for physiotherapy, continue all her physical and social activities to sustain the progress recorded.
Further studies involving other gait variables, larger sample size, NMRI to validate structural changes are required.

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