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Pilates and Physiotherapy in post Total Hysterectomy – An Evidence Based Study

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Abstract
Introduction: *An increased prevalence of female undergoing hysterectomy in early ages of 35 were recorded widely. With an increased life expectancy and longevity healthcare related with post hysterectomy such as obesity, MSD, urinary incontinence and diminished quality of life gets significant.*
Amis & Objectives *of this study were to 1. Analyse the combined effects of, Pilates and physiotherapy on obesity 2. To evaluate the reduction in obesity on quality of life and glycemic control of this study subject who has undergone hysterectomy and oophorectomy in Chennai in 2015 December.*
Materials & Methodology: *40 years old aged subject post hysterectomy and bilateral oophorectomy with obesity and MSD was treated with combined Pilates and physiotherapy using Physioball during the period from December 2016 to February 2017 with weekly twice frequency.*
Results *of reduction in obesity P<.05 and an improved quality of life P<.01 among the study subject with statistically and functionally significant.*
Conclusion: *findings of the study could benefit similar subjects who have undergone gynecological surgeries, there by promoting their dignity and enhanced quality of life.*

Introduction

1) A population based survey in India reported 2% of the women in the age group of 15-49 years have under gone hysterectomy (IIPS 2010). Hysterectomy the removal of uterus, is the leading reason for non obstetric surgery among women (Whiteman etal 2008) with medical indications including fibroids, dysfunctional uterine bleeding, chronic pelvic pain and uterine prolapse (Carlson etal 1993)
2) Whereas weight loss has been shown to reduce cardiovascular and other metabolic Pilates risk factors (Lyznicki etal 2001) hence management of obesity is an important health priority. Obesity is a major public health problem that increases the risk for comorbid conditions, particularly diabetes, hyperte-nsion, coronary artery disease and cancer (Zhang & Reision 2000) an increase in BMI is associated with decreased psychological well being, reduced social integration, stigmatization and low self esteem (Lissner 1998)

3) Pilates consists of a physical exercise 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)
4) Physical exercises with resistance training shown to influence weight loss and maintenance (Willis etal 2012) and in specific exercises using Physioball were shown to cause reduction in obesity among female improving glycemic control (Subramanian 2016).

Aims & Objective of this subject having undergone total hysterectomy and bilateral oophorectomy, with weight gain and developed lowback ache and knee pain, was a known diabetic were to 1. Analyze the influence of physical exercises on obesity 2. To evaluate the impact of obesity reduction on quality of life 3. To measure the impact of specific physical exercises on glycemic control

Materials & Methodology

Post hysterectomy and oophorectomy – obesity vegetarian, mother of two children, home maker with moderate level of physical activities in her daily routines had undergone abdominal hysterectomy and oophorectomy in 2015 by a gynecologist in a Chennai based hospital and was discharged with no post operative complications. But in 3 months period she had weight gain, subsequently developed multiple joint pain especially neck, low back and knee joints. Investigations by physician has revealed BMD with osteopenia, a low vitamin D of 12 ng, type II diabetic with HbA_1C at, and a BMI of 29 kg/m^2. She was adviced with reduction of obesity, vitamin D supplement and diabetic drugs. From December 2016 to February 2017 this study subject was getting treated with exercises for obesity by the author.

Anthropometric findings of the subject were

BMI: 29 kg/m^2 WC: 102 cm

O/E

- Cervical spine: obliterated cervical lordo-sis in sitting (Right) trapezitis, end range of movements painful with restriction
- Shoulders: End range restricted, anteverted scapula, Capsulitis (Right)> left
- Elbows, fingers and grip NAD
- Lumbar Spine: Exaggerated lumbar lordosis, spinal flexion restricted with bilateral hamstring tightness. Abdominal muscle grade II / V
- Hip: abductors and extensors bilaterally at 3+/5 while extension was restricted
- Knee: with bilateral Vastus Medialis lag, restricted active ROM of both extreme, has mild early osteoarthritis changes left> right
- Ankle and feet: NAD
- Gait: ambulant unaided, posture: antevert-ed scapulae, mild mobile thoracic kyphosis
- ADL: Independent for all her activities but social activities are decreased with incontinence.

Provisional Diagnosis

This original experimental research was carried in Chennai, during the period from December 2016 to February 2017 where the subject was informed and consent was obtained. The following tools were used to measure the study outcome, Such as body mass index (BMI), waist circumference (WC), Quality of life (QOL)

A set of 15 exercises were used on the subject with assistance and guidance of the author. Repetitions were increased as with ACSM guide-lines. Each session lasted to 20-25 minutes and at an exercise intensity of 50-70% of her MHR

Results

The study subjects pre and post BMI, WC, QOL were evaluated, recorded analyzed and displayed as below in the table:

Table of results of the subject's pre and post BMI, WC, QOL

Test	BMI kg/m^2	WC cm	QOL	HBA_1C %
Pre	29	102	39	8.5
Post	26	90	26	7.9
SD	2.12	6.32	7.48	.34
SE	1.22	3.65	4.32	.20
t	2.46	2.46	3.01	2.42
P	P<.05	P<.05	P<.01	P<.01

Discussion

1) QWL QOL is moderately and positively associated with measures of mental, physical well being, weight related symptom bother and general QOL (Patrick etal 2004). Patients reported outcomes, including symptoms functional status and perceived quality of life are increasingly used alongside clinical measures in intervention studies to evaluate weight loss (Patrick & Chiang 2000) and QWL QOL was brief, valid and reproducible and responsive to weight loss and patients evaluations of their lives (Patrick etal 2004). An improved quality of life with reduction in obesity of this subject as shown in the table of results by statistical means (WC- P<.05) and (BMI – P<.05) indicating the efficacy of combined Pilates and physiotherapy in improving the quality of life with weight loss of this subject.
2) Recent guidelines and position statements targeting body weight reduction and maintenance have suggested that resistance training is effective for reducing fat mass (Donnelly etal 2009) among obese subjects (Segal etal 2004) have shown resisted training to improve glucose tolerance and glycosylated hemoglobin, as well as strength and lean body mass. STR RIDE – AT/RT where relative benefits of aerobic, resisted and combined effects of aerobic, resisted and combined effects were investigated on body composition particularly total body mass and fat mass which revealed resisted and combined aerobic and resisted group had more lean body mass than aerobic subjects (Willis etal 2012). An associated benefit of an improved glycemic control by 7.5% as recorded in the results table with the subject following specific Pilates form and exercises using Physioball was a boon in an improved health of the subject.
3) Pilates exercise program improves physical and psychological factors in women including lowering of depression by 20% in a study conducted among 30 elderly women in a 12 week Pilates training (Mahyar Mokhtari 2012). An increased level of blood serotonin with Pilate's exercises and reduced depression in women in a 12 week study was reported by (Hassan and Amin 2011). It is noteworthy that women undergo depression before and after hysterectomy. Hence this subject who was treated with Pilates exercises have benefited with reduced psychological factors as shown with connection between psychological problems and impaired physical performance (Pennix etal 2000) sekenndz etal 2007 have among 38 women between 30-47 years with (Sedentary adults) an improved abdominal and lower back strength, abdominal muscular endurance and trunk flexibility. Quality of life weight loss as major findings of this study following specific forms of Pilates and Physioball based exercises as inferred in the results table (P<.001) could further be used in improving quality of life of similar subject after gynecological surgeries.

Conclusion

Weight gain following major gynecological surgeries due to restricted physical activities and hormonal imbalances results in lowback ache, knee pain, fatigue leading to increasing level of dependence for daily functioning in a long term

course. Hence apart from post gynecological surgery long term measures with continued physical functioning, independence of the female subject but huge health care cost be saved was the major focus of this study and key outcome to be used for similar patients post gynecological surgeries.

Critical appraisal of this study findings psycho social and sexual aspects of this subject post hysterectomy were not analyzed. Further validity depends on long term sustaining of obesity reduction with due follow up

Also an improved glycemic control of this subject suing this study period the subject may have to do continue similar physical activities and to be evidenced for sustained glycemic control

Limitations of this original research being case study design of shorter duration of few variables were main limitations of this study

Recommendations of this study including subjects following other major gynecological surgeries of larger sample size, longer duration and more variables could be used as evaluation tools. Longer follow up of all the hysterectomy subjects with due registry for recording of oncological, musculoskeletal and systemic illness incidents helps for better strategies in health care.

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