

Correlation of Physical Activity with Fear of Fall in Patients with Total Knee Replacement - A Research Protocol

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Abstract

Background: An elderly patient who has undergone total knee replacement may have fear of fall. Fear of fall after TKR and its impact on physical activity is sparsely researched. This study was aimed to find a correlation of physical activity with fear of fall in patients with Total Knee Replacement. Physical activity is assessed using the Physical activity scale for the elderly (PASE) Scale. The PASE Scale is understandable, reliable, and is a valid tool to assess physical activity in the elderly. Fall efficacy scale (FES) is a valid tool to assess fear of fall. **Objectives:** The objective of the current study is to assess physical activity and fear of fall and to find Correlation of physical activity with fear of fall in patients with TKR. **Methods:** This study will be carried out in Physiotherapy OPD, Ravi Nair Physiotherapy College and AVBRH Hospital Sawangi Meghe, Wardha .100 Patients undergone TKR will be examined. Physical activity and fear of fall will be assessed using the PASE scale and Fall Efficacy Scale respectively. **Results:** Upon completion of the Study result will be estimated by statistical analysis. **Conclusion:** After going through various studies, maximum studies indicated that there is a decrease in physical activity in patients with TKR but very few studies indicated fear of fall in the patients. Therefore, the current study is being carried out which could help to reach the conclusion to find whether there is any correlation between physical activity and fear of fall in patients undergone TKR. Because rehabilitation after TKR is mainly concentrated on improving the physical function however if the patient has fear of fall this may interfere with the patient returning to his or her physical activity.

Keywords: TKR (Total Knee Replacement), Fear of fall, Physical activity, PASE Scale, FES, Elderly population

Introduction

The most common surgical procedure performed in patients with chronic knee arthritis is total knee replacement worldwide ⁽¹⁾. Deficits after Total Knee Replacement is seen for an extended period of 7 years or even more. This significantly affects the functional

independence of the patients in terms of walking speed, postural stability, stair climbing this in turn reduces muscular strength, range of motion, and an altered pattern of motion that is visible postoperatively.

Balance is important to maintain postural stability while conducting functional activities and for avoiding fall. Stability (static and dynamic) is a complex process that involves the integration of sensory information about the body's location and its ability to provide an effective motor response to the movement of the body. ⁽²⁾

Various activities like active living regular exercises, ability to transportation are all included in a broad term as Physical Activity. ^(3,5) These include household activities,

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social participation, and recreational activities.⁽³⁾ After undergoing total knee replacement physical activity of the patient can be severely affected if the patient is not provided with appropriate rehabilitation. Furthermore, this may lead to reduced muscle strength and physical activity which will again affect the strength in the lower extremity. This vicious cycle will go on continuing to make the patient with total knee replacement physically inactive. This may result in loss of balance, reduced confidence, and make them dependent and may increase fear of fall.

Total knee replacement is mostly associated with osteoarthritis and physiological factors like weakness of muscle and impaired postural control may contribute towards fall in the elderly. The above-mentioned factors can further reduce the ability of the patient effectively resulting in low confidence and reduced quality of life.⁽⁴⁾

While performing functional activities balance is important for the maintenance of posture and for the avoidance of fall. Fall is described as an event that inadvertently leads a person to rest on the floor. Fear of falling is more complex, referring to people who trust in their own ability to perform a task safely without losing equilibrium. Some researchers have declared it as a loss of trust in patients' ability to balance, other people have described the fear of falling in different ways to someone who involves avoiding daily activities and to another losing trust in balance and walking which may contribute to delayed recovery after total knee replacement.⁽⁵⁾ Few elderly people develop symptoms or Behaviour in response to a fall without any physical trauma. They can voice an increased or decreased fear of falling that can lead to emotional delivery, changes in psychology, or social changes. Fear of falling when Usually referred to as an adverse outcome of the fall, not much is known about it. It is possible to provide interventions to avoid fear and certain conditions caused due to it, if fear is the only factor that is responsible for physical inactivity.⁽⁶⁾ Counselling that should be provided to the patients after the surgery for total knee replacement by the health care workers in the developing world setting about physical activity is limited due to the insufficient data on the demands for physic activity and various activities that are being pursued, also the inherent socio-cultural differences, in a developing country physical

activities following Total Knee Replacement that varies significantly from those performed by the patients who lives in a developed country. Specific life requirements can require a greater emphasis on daily activities, thus reducing time for discretionary activities. Furthermore, rehabilitation can be affected because of not having enough access to physiotherapy and postoperative treatment until patients return home.⁽⁷⁾

Knee osteoarthritis is an often-chronic condition that can cause joint pain, muscle weakness in lower limbs, and physical dysfunction in elder males and females. Apparently, The most successful operative treatment for chronic knee osteoarthritis is total knee replacement. since it relieves pain and improves mobility in around 80 percent of patients. Since replacement of knee decreases knee pain and enhances physical function patients will be able to increase their degree of physical activity but sometimes due to fear of falling the patient is not able to initiate the activity. Nevertheless, while total knee replacement patients show gains in their Physical activity twelve months after surgery, still they do not meet the required amount of physical activity. High rates of sport and intense work practices, on the other hand, have been identified as significant risk factors for early implant failure. Therefore, Physical activity assessment and fear of fall assessment using the valid , accurate, and reproducible tool are of particular concern for total knee replacement patients.

The Physical Activity Scale for Elderly (PASE) is a test that is created especially for adults aged sixty-five and over. This measures the strength, intensity, and duration of physical activity, which may be performed by self or interviewer. The benefits of the PASE scale is that it requires a limited time to finish, the time period for the retrieval is quick.⁽⁸⁾

Moreover, persons who undergo total knee replacement are at risk for multiple problems, such as inflammation, periprosthetic fracture, symptomatic loss of implants. These complications significantly reduce the benefits of total knee replacement and often require revision surgery.⁽⁹⁾

Total knee replacement(TKR) is intended to enhance function and decrease the pain that occurs because of osteoarthritis and should therefore enable these patients to increase their levels of physical activity after the

operation. But, there were contradictory reports on the rates of physical activity after total knee replacement.

Although some research indicated increased physical activity, others found little to no improvement in the average rate of physical activity after undergoing Total knee replacement but there is less evidence on the correlation of physical activity with fear of fall. Therefore, the current study focuses to correlate fear of fall and physical activity after total knee replacement.⁽¹⁰⁾

Patients with total knee replacement experience postoperative pain regularly. Post-operative exercise strategies are suggested but the effect of various physical activity is uncertain. Nevertheless, postoperative pain after total knee replacement frequently continues for several years. Postoperative pain interferes with healing, leading to delayed or poor recovery. Regulating physical activity is a kind of non-pharmacological treatment strategies for pain. Originally, the standard solution for treating acute skeletal and muscular pain was bed rest, but more recently, exercise was advised to enhance pain and quality of life as much as possible. Exercise did postoperative, which includes moving out of bed and walking as soon as possible after the procedure, is also recommended in the patients who have had surgery of Total knee replacement Improved physical activity postoperatively is critical in functional recovery. Suitable physical activity pacing is then effective in minimizing the intensity of musculoskeletal pain. Physical activity pacing aims to remove the variability of ups and downs in the pattern of exercise, maintaining a consistent pace during the day, and preventing a blind increase in physical exercise. Poor physical activity gives rise to discomfort, psychological symptoms, and physical impairment in patients having a higher amount of pain. However, postoperative patients are also usually recommended only to increase physical activity as often as possible to enhance physical function postoperatively. The effect of variability in day-to-day physical activity has not been studied. Therefore, proper assessment of physical activity is needed.⁽¹¹⁾

Falls impact about one-third of older adults residing in the city per year and have significant safety and social implications. Older people have the impact of Fear of falling (FOF) regardless of any experience of fall they have encountered previously. The health of the person

is affected because of activity limitation which is due to fall and also fear of fall. There are lower rates of self-reported Physical activity likely because of lack of movement after injury or preventing action due to fear of falling. There can be a reduction in balance and strength due to a decrease in an activity which may make them dependent and long-term care. Fear of Fall is linked to increased falls, functional limitations, reduced quality of life and decreased Physical Activity levels Although Fear of fall can result in additional care while performing any activity, likely avoiding accidents, the reduced activity can also contribute to deconditioning and decrease in muscle strength.⁽¹²⁾

Rationale:

Various studies have been carried out to find physical activity in Total Knee Replacement patients. But there is less evidence of fear of fall associated with Total Knee Replacement patients. Therefore, a need was felt to assess fear of fall in Total Knee Replacement patients along with the physical activity and to find out co-relation between physical activity and fear of fall in Total Knee replacement patients.

Objectives:

1. To assess physical activity in patients with Total Knee Replacement.
2. To Assess the fear of fall in patients with Total knee replacement
3. To find Correlation of physical activity with fear of falling in patients with Total knee Replacement.

Methodology

The study will be conducted in the OPD of Community Health Science in Ravi Nair Physiotherapy College, SawangiMeghe, Wardha. The Institutional ethics committee clearance will be obtained before the commencement of the study. Initially, the Patient will be thoroughly evaluated. After satisfying selection criteria the patient will be selected for the study. Informed consent will be obtained in order to participate in the study. The subjects undergone Total knee replacement (Bilateral /Unilateral) in Age group of 50-80 years will be included. Patients with Neurological disorder resulting in impaired balance and Patients with vestibular

disorders will be excluded. PASE Questionnaire will be used to assess physical activity in the elderly and the fall efficacy scale will be used to assess fear of falls in older population. Reading will be spread on a master sheet. Data will be analyzed statistically.

Outcome measures:

1. Fall Efficacy Scale to assess fear of fall.
2. PASE score to assess Physical activity.

METHODS:

Study Design: Observational Study

Study Setting: Physiotherapy OPD, Ravi Nair Physiotherapy College and AVBRH hospital Sawangi Meghe, Wardha

PARTICIPANTS:

Inclusion criteria:

1. Total knee replacement patient Bilateral / Unilateral
2. Age group 50-80 years
3. Both Genders

Exclusion criteria:

1. Patients with Neurological disorders resulting in impaired balance.
2. Patients with vestibular disorders.

VARIABLES:

1. Fear of fall
2. Physical activity

DATA SOURCE\MEASUREMENT:

For fear of fall- Falls efficacy scale score will be measured

For Physical activity- the score on the PASE scale will be measured

Bias:

Subjects not fulfilling the selection criteria will be excluded from the study to prevent bias.

Study Size: 100

Statistical method: Convenient Sampling Technique.

Result: Upon completion of the study results, statistical analysis will be estimated.

Discussion

The current study is carried out to find a correlation of fear of falls with Physical activity in Patient undergone total knee replacement various studies have shown that reduced physical activity and fear of falls is associated with Total Knee Replacement(2,5). Fear of fall may result in reduced physical activity and interchangeably if the physical activity is reduced after undergoing Total Knee Replacement may result in musculoskeletal changes causing decrease muscle strength and Range Of Motion affecting balance and inducing fear of falls Thus, the current study aims to find out whether there is the correlation of fear of falls and physical activity in patients with Total Knee Replacement.

Key Result: Total knee replacement, Fear of fall in elderly, Physical activity in elderly, PASE Scale, Fall Efficacy Scale, FES, Elderly population, falls

Limitation: It might be difficult to convince the patient for being a part of this study.

Generalisability: Study not done yet.

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