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PREVALENCE OF ILIOTIBIAL BAND TIGHTNESS IN PATIENTS WITH OSTEOARTHRITIS OF KNEE AND FLATFOOT

Physiotherapy

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ABSTRACT

Osteoarthritis is characterised by progressive loss of hyaline articular cartilage thus leading to reduction in joint space. Knee osteoarthritis shows changes like medial compartment loss, reduction in joint space and tibial plateau narrowing. Flatfoot is a condition in which the normal arch of the foot collapse and complete or near complete sole of the foot comes in contact with the ground. Iliotibial band tightness may occur as the result of degenerative changes in the knee and flatfoot. **Method:** Both M/F between the age group of 50 to 70 years were included which had flatfoot and osteoarthritis of knee. People having fractures, total knee replacements, open wounds, tumours, any surgical procedure on lower extremity or any neurological disorder at lower extremity were excluded. Result: Total 100 people with osteoarthritis of knee and flatfoot are included in the study. In which 30% prevalence of iliotibial band tightness was found by performing ober's test. Conclusion: There is prevalence of iliotibial band tightness in patients with osteoarthritis of knee and flatfoot.

KEYWORDS

Illiotibial Band, WOMAC scale, Osteoarthritis, Flatfoot

INTRODUCTION:

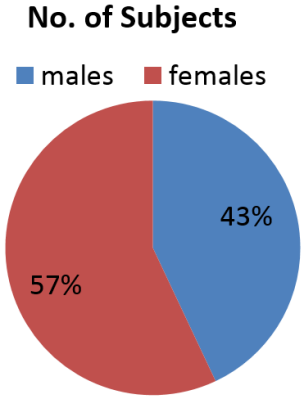
Osteoarthritis is characterised by the progressive loss of hyaline articular cartilage, in which the articular cartilage degenerates with fibrillation, fissure, ulceration & full thickness loss within the joint surface.[1] In India, the prevalence of osteoarthritis is 22% to 39%. It commonly affects the age group of 50 years and above. 9% of men and 18% women over 65 years old show presence of osteoarthritis.[2]Knee osteoarthritis shows degenerative changes like medial compartment loss, joint narrowing and tibial plateau collapse. Clinical manifestations of osteoarthritic knee are joint pain, stiffness, swelling, reduced range of joint movement, weakness and tightness of the muscles attached.[3]Flatfoot also called as pes planus or pronated foot in which the normal medial arch of the foot collapse, with entire sole of the foot coming into complete or near complete contact with the ground. Flatfoot in older adults occurs as a result of pathological changes in the tibiofemoral and patellofemoral joints. Preliminary findings show that cases of older adults with osteoarthritis of medial tibiofemoral joint may get flatfoot in weight bearing activities.[4]Iliotibial band at its proximal end originates from the fascia of gluteus medius at iliac crest and tensor fascia lata at its distal end iliotibial band sends slips to the patella which merge with the lateral retinaculum at the knee.[4]Iliotibial band tightness has been identified as the mechanism that contributes to abnormal patellar alignment and tracking. As the tightness of iliotibial band will encourage lateral patellar deviation and tibial external rotation which will lead to knee pain and eventually in the long term will lead to osteoarthritis of knee joint.[4]Excessive pronation of the foot elicits the lateral gliding of the patella through the internal rotation of the tibia. As a result, compensation by the lateral structures develops, contributing tightness of iliotibial band and lateral retinaculum.[5]

MATERIALS& METHODOLOGY:

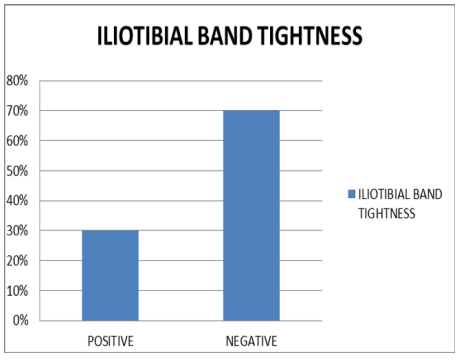
This crosssectional study was conducted in the department of physiotherapy during the period September 2019 and March 2020. After taking the permission from the Principal and Guide the project was started. People with fracture, tumours, open wounds, total knee replacement,other musculoskeletal conditions involving the knee joint, any surgical procedure on lower extremity within past 6 months and history of neurological disorder that affect lower extremity function were excluded.[5]By taking the consent from the samples and explaining the procedure further procedure was continued. The procedure was started by WOMAC scale to find out osteoarthritis of knee then navicular drop test was performed with the patient in standing position so there is full weight bearing through lower extremity and ensure foot is in the subtalar joint neutral position. Mark the location of navicular tuberosity and measure its distance from supporting surface ask the patient to relax and then measure the amount of sagittal plane excursion of the navicular with ruler. More than 10 mm difference is considered as excessive foot pronation.[9] At last to find out if there is presence of iliotibial band tightness in patient's both with osteoarthritis of knee and flatfoot ober's test was performed with patient is in sidelying position with lower leg flexed at hip and knee for stability. The examiner then passively abducts and extends the hip with knee straight or flexed 90 degrees. The examiner slowly lowers the upper leg . if a contracure is present the leg remains abducted and does not fall to the table.[8]

RESULT:

A total of 100 people were included into the study. Patients between age group of 50 to 70 years were included. There were 57 females and 43 males. (GRAPH.1) Among them 30% of iliotibial band tightness prevalence was found by ober's test.(GRAPH.2).



Graph 1: Gender demographics of Subjects



Graph 2: Prevalence of Illiotibial Band Tightness

DISCUSSION:

The main aim of this study was to find out the prevalence of iliotibial band tightness in patients with osteoarthritis of knee and flatfoot. In this study 100 subjects within the age group of 50 to 70 years of age were included.

In this study WOMAC scale was used to find out osteoarthritis of knee in subjects. Then to find out flatfoot in them navicular drop test was used. After finding out osteoarthritis of knee and flatfoot in same subject obers test was used to find out iliotibial band tightness.

Pie diagram shows the demographic data about the gender distribution in the study. It shows that there were 57 females and 43 males included into this study which had both osteoarthritis and flatfoot in them.Graph shows the positive and the negative results for the presence and absence of iliotibial band tightness in patients with osteoarthritis of knee and flatfoot respectively.

Osteoarthritis of knee is a degenerative condition of synovial joint it usually affects weight bearing joints like knee, hip and ankle joint commonly. It occurs due to wearing and tearing forces on articular surfaces of the joint it affects activities of daily living.Considering the degenerative changes occurring in osteoarthritis like medial compartment cartilage loss, joint narrowing and tibial plateau collapse which further lead to increase adduction movement and varus deformity. These changes alter the normal mobility pattern at iliotibial band in relation to lateral condyle of femur. This may result in increased friction at knee joint leading to inflammation of distal part of iliotibial band. Further results in reduced mobility of connective tissue which demonstrates loss of ground substance, water and micro adhesions are formed which form trigger points and then forms muscle tightness. This is supported by a study done by Sayali Eknath Chavan and Dr. Sandeep Shinde.[1]

Excessive pronation of the foot elicits the lateral gliding of the patella through the internal rotation of the tibia. The pronation and supination which occur at the subtalar joint have concomitant tibial rotation associated with them. As a result, compensation by the lateral structures develops, contributing tightness of iliotibial band and lateral retinaculum.[5]

CLINICAL IMPLICATION:

This study will help to find out iliotibial band tightness and can be used while giving treatment to a osteoarthritic knee pain patient.

Iliotibial band stretching can be given to help reduce the pain and delay further degeneration.

CONCLUSION:

According to this study there is prevalence of iliotibial band tightness in patients with osteoarthritis of knee and flatfoot.

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