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Effect of Iliotibial Band Stretching with Conventional Therapy in Patellofemoral Syndrome.

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Abstract

Background: Patellofemoral pain syndrome is one of the most common musculoskeletal conditions in adolescents and young adults. The symptoms are retro patellar and peripatellar and anterior knee pain which provoked by stair climbing, squatting and sitting. It is multifactorial in origin which includes malalignment of patella, excessive foot pronation, muscle imbalance, overtraining of tight lateral structures and ignorance of condition.

Objective: The objective of study to find out the effectiveness of iliotibial band stretching in patellofemoral pain syndrome.

Methods: The study design-was experimental study design.20 patients with patellofemoral pain syndrome were taken, with the age group of 18-40 years.20 patients undergone pre- and post-test measurement of hip adduction range of motion with goniometer and were given interferential therapy and iliotibial band stretching exercise for 1week duration. Outcome measure were goniometer and visual analogue scale.

Results: Statistical analysis was done using paired t-test which showed a significant improvement in VAS score and hip adduction range of motion.

Conclusion: This study concluded that 1 week of stretching of iliotibial band were effective in reducing pain and increasing hip adduction range of motion in patellofemoral pain syndrome.

Keywords: Iliotibial band, Interferential therapy, Stretching, Goniometry.

1. Introduction

Patellofemoral pain syndrome is one of the most common musculoskeletal conditions in adolescents and young adults. The symptoms are retro patellar and peripatellar and anterior knee pain which provoked by stair climbing, squatting and sitting. It is multifactorial in origin which includes malalignment of patella, excessive foot pronation, muscle imbalance, overtraining of tight lateral structures and ignorance of condition. The patella articulates with the patellofemoral groove in the femur. So, several forces are acting on patella to provide stability and keep tracking properly. The major contributing factors of patellofemoral pain syndrome are malalignment of patella and muscular imbalance and overactivity.

The iliotibial band is a lateral thickening of the fascia lata that is fused with gluteus maximus and tensor fascia lata and overlies and blend with lateral retinaculum and inserts on patella. Several authors suggested that tightness in the iliotibial band may contribute to patellofemoral syndrome and knee pain by pulling patella laterally causing abnormal tracking of patella in trochlear groove.

Interferential therapy is a pain-relieving modality in which two medium frequency currents are used to produce a low-frequency currents. The principle of ift is production of interference and works on pain gate theory and blocks pain at different levels. Stretching is a general term used to describe any therapeutic maneuver designed to increase the mobility of soft tissues and subsequently improve the range of motion by elongating short structures.

As vastus medialis muscle weakness becoming more common these days which lead to tightening of lateral structures. As tight iliotibial band and tight lateral structures may cause maltracking of patella rt lateral tracking of patella which leads to patellofemoral pain syndrome in young adults, hence the purpose of this study to find whether the stretching of iliotibial band effective or not, in treating patellofemoral pain syndrome.

2. Need of Study

The patients with patellofemoral syndrome have weakness of medial structure like vastus medialis muscle which results in lateral tracking of patella due to tight lateral structure which includes iliotibial band. so, the purpose of study is to prove find out the effect of iliotibial band stretching in patellofemoral syndrome.

3. Aim

To find out effectiveness of iliotibial band stretching exercises in patellofemoral pain syndrome.

4. Objective

To find out the effect of iliotibial band stretching in patellofemoral pain syndrome.

5. Hypothesis

5.1 Null Hypothesis

There will be no effect of iliotibial band stretching in patellofemoral pain syndrome.

5.2 Alternative Hypothesis

There will be significant effect of iliotibial band stretching in patellofemoral pain syndrome.

6. Social relevance

The prevalence of patellofemoral pain syndrome is more common in young adults those involved in athletics sport and it is also common in woman than men it occur due to malalignment of patella, muscle imbalance, quadriceps insufficiency, excessive exercise and overtraining of lateral structure.

7. Methodology

7.1 Study design:

- Study Type -experimental study
- Sample technique-convenient sampling
- Sample size-40
- Study setting-opd
- Study place-college opd

8. Criteria of Study

Inclusion criteria:

- Age group 18-40
- Mild to moderate severity on pefs severity scale
- Pain range between 3-7 0n VAS
- Patients diagnosed with patellofemoral pain syndrome with clarke's sign

9. Methodology And Material Used

- Interferential unit, Plinth, Pillows, Goniometer, Pen and Paper.

10. Procedure:

All are recruited in a study once they meet inclusion and exclusion criteria and after obtaining a written informed consent from them. Ethical committee approval was obtained before starting the study. Each patient was given 1 week intervention of interferential therapy and iliotibial band stretching exercises. Clarke's sign performed to confirm patellofemoral pain syndrome.in this examiner applies pressure over base of patella with web space of hand down as pushing down the patella and ask patient to contract quadriceps while the examiner pushes down. If the causes retro patellar pain and unable to contract muscle, then it considered to be positive test. Ober's test was conducted on both legs of each patient is in side lying. position of therapist behind the [patient.in side lying lower leg was flexed to maintain lumbar lordosis, pelvis was stabilized with hand upper leg was flexed to 90 and leg was passively brought into abduction and extension. And goniometer is placed on lateral femoral condyle and measure the abduction of the hip.

IFT TREATMENT:

Position of the patient was supine lying and four electrodes were placed around knee joint for 10 minutes and intensity is according to patient tolerance. ift was given to the patient one time a day for 1 week duration.

ILLIOTIBIAL BAND ACTIVE STRETCHING EXERCISE:

In the stretching patient should stand near wall and affected leg crossed behind normal leg and patient lean over normal side for 30secs, five repetition were performed in one set and 3 sets performed at three different times a day for 1week duration.

FIGURE-1

In another type stretching, patient is asked to cross the painful leg behind normal leg, painful leg side arm above ahead, and lean toward normal side. Stretch should be held for 30 sensitive repetitions were performed in one set.

11. Outcome Measure

Visual analogue pain rating scale , Range of motion (Adduction)

12. Statistical Test:

Unpaired t-test

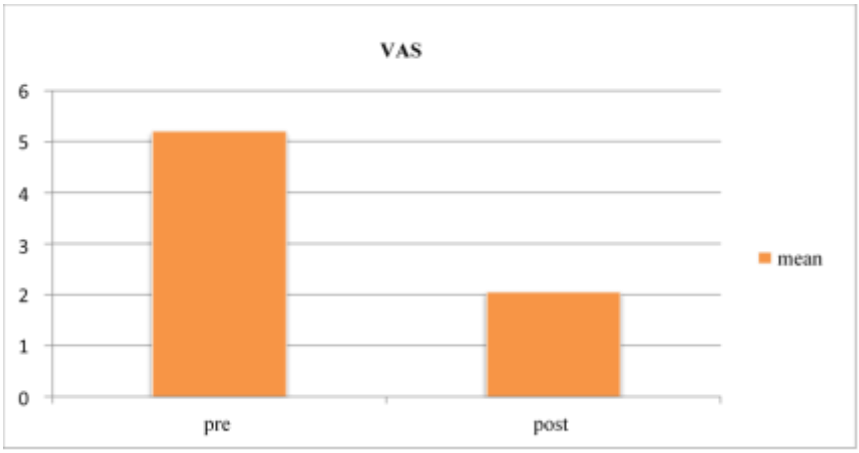
13. Result

To find out the effectiveness of iliotibial band stretching exercises in patellofemoral pain syndrome, unpaired t- test was used to assess change in VAS score and range of hip adduction from pre-test to post-test. Since the p value is 0. 001.There was statistically significant difference between pre and post VAS scores among patients with patellofemoral pain syndrome. Since the p value is 0. 001.There was significant difference between pre and post hip adduction range of motion among patients with patellofemoral pain syndrome

Table -1 Comparison of Pre and Post Vas Scale

	Pre	Post
Mean ±SD	5.2 ±1.2497619	2.05 ±1.0990425
P value	0.001	

Graph- 1



The p value of 0.001 indicates that severity of pain in post treatment patient is more than pre- treatment patient.

Table-2 Comparison of Pre and Post Hip Adduction Rom

	PRE	**POST**
Mean ± SD	41.05±3.0560486	30 ±4.2426405
P value	0.001	

The p value of 0.001 denotes the hip adduction in post treatment participants is more than pretreatment participants.

14. Discussion

The purpose of the study to find out effect of its band stretching in patellofemoral syndrome and the result shows that it band stretching were statistically significant in treating patients with patellofemoral syndrome. A patella moves in up and downward direction, and it also tilts and rotates so there are various point of contact with femur due to repetitive contact results in maltracking of patella and causes patellofemoral pain syndrome. once the patellofemoral pain syndrome develops, even prolonged sitting increases pain. statistical study shows that pain was reduced after stretching of iliotibial band with ift which applied for 1week.hip adduction also increased according to statistical study

The iliotibial band has a both dynamic and passive role patellofemoral joint. proximally, the iliotibial band attaches to the tensor fascia lata and distally to the vastus lateralis. iliotibial band attaches to the lateral retinaculum, so it provides indirectly lateral stabilization. A tight iliotibial band causes lateral patellar tracking, lateral patellar tilt, lateral patellar compression. using goniometer to measure hip adduction using the Ober's test is a reliable method for measurement of band flexibility.

The study shows that there was s statistically significant difference in pre-test and post-test VAS score and in pre-test and pro-test adduction range after 1 week of intervention of ift treatment and iliotibial band stretching exercises. thus, stretching of iliotibial band was effective in treating in patellofemoral pain syndrome.

15. Conclusion

Iliotibial band stretching with conventional treatment is proved to be effective in patellofemoral pain syndrome.

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