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COMPARISION OF ISOMETRIC QUADRICEPS EXERCISES AND HAMSTRING STRETCHING EXERCISES ON PAIN IN CHONDROMALACIA PATELLA .

Physiotherapy

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ABSTRACT

Introduction: Chondromalacia patellae means "softening of the articular cartilage of the knee cap". when the articular cartilage response to excessive and uneven pressure on the cartilage due to structural changes that leads to abnormal patella or runners patella.Mainly elderly and teenage group of people affected due to continuous erosion of cartilage covering patella. As a result pain and limitation in movement appears which ultimately Increases the risk of weakness in major muscles of thigh compartment.

Aim: The study was aimed to find out the effectiveness of quadriceps isometric exercises in comparative to hamstring stretching exercises in condromalacia patella patients.

Material and Methodology: The study was experimental in nature.Subjects were selected on a random basis from patients visiting the OPD having diagnosed with chondromalacia patella.. Total numbers of patients were selected divided into two groups and treatment were given one month .

Results:- The result on the VAS scale were obtained before and after treatment between the isometric quadriceps exercises and hamstring stretching exercises showed a significant result.

KEYWORDS

chondromalacia patella,pain,quadriceps isometrics,hamstring stretching

INTRODUCTION

Chondromalacia literally means "softening of the cartilage", and patellae means "the knee cap". So Chondromalacia patellae means "softening of the articular cartilage of the knee cap". The articular cartilage is the cartilage lining under the knee-cap that articulates with the knee joint. Under normal circumstances, it is smooth and shiny, so that it glides smoothly along the articular groove of the femur as the knee bends. Chondromalacia patellae occurs in two distinct age groups: It can happen in the older age-group due to wear and tear process and can occurs frequently in teenagers[1,3], when the articular cartilage response to excessive and uneven pressure on the cartilage due to structural changes This ultimately leads to muscle imbalance around the knee. Moreover in chronic cases it leads to quadriceps muscle [2]mass loss and weakness. Majority of patients complaints the pain [4]comes and goes during sports and actively in quadriceps isometric contraction. Due to pain and limited motion the activities of daily living affected.Various conservative methods are available to reduce the risk and further prevention of this condition.Regardless of the above, the best way to minimize the chances of developing chondromalacia patellae is to warm-up and stretch out before sports, especially your quadriceps and hamstrings.

NEED OF THE STUDY

The study was aimed to find out the effectiveness of quadriceps isometric exercises in comparative to hamstring stretching exercises in condromalacia patella patients.

MATERIAL AND METHOD

Research Design:-

The study was experimental in nature.

Subjects were selected on a random basis from patients visiting the OPD. Total numbers of patients selected on random basis are 20.

Research Setting:-

The research was done at outpatient Department of College of Physiotherapy at Adesh Hospital of Medical Sciences,Muktsar and at Guru Gobind Singh Medical College,Faridkot.

Inclusion Criteria:-

- Patients who have radiologically confirmed chondromalacia patellae.
- Patients who have any limitations of joint ROM and pain.
- Patients suffering from chondromalacia patellae with weakness of quadriceps muscle.

Exclusion Criteria:-

- Patients with any congenital lower limb deformity.
- Patients with spinal or lower limb surgery.
- If patients had any recent fractures in lower limb.

Assessment Procedure:-

Assessment was made by using visual analogue scale (VAS SCALE) for pain.

Methodology :

Patients were divided into two groups. Group A and Group B comprises equal no of patients (10 each) .The study took one month for completion, pre and post readings of VAS is noted during each session in both groups.

To Group 'A' – Isometric quadriceps exercises were given two sets (10 repetetions each)

To Group 'B' – Patients hamstring stretching exercises were performed two sets.(10 repetetions each).

Pain rating is done according to visual analogue scale on 20 patients.

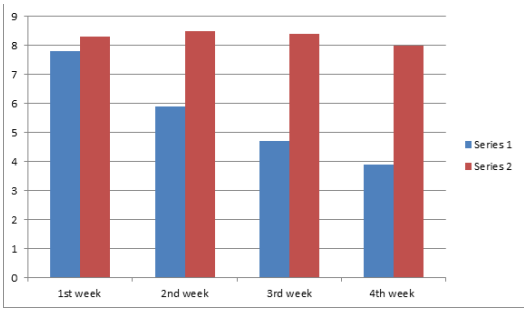
DATA ANALYSIS

Table 1.1:Group A – In this group, 10 patients were given isometric quadriceps exercises.Mean average was calculated .

No.of Patients	1st week	2nd week	3rd week	4th week
1	10	9	7	5
2	10	5	4	1
3	7	5	4	4
4	8	6.5	5	5
5	10	9	9	8
6	8	5	4.5	3
7	7	6	5	4
8	6	5	3	2.5
9	5	3.5	3	2
10	7	5	2	5
MEAN	7.8	5.9	4.7	3.9

Table 1.2:Group B – In this Group, 10 patients were given hamstrings stretching exercises.Mean average was calculated.

No.of Patients	1st week	2nd week	3rd week	4th week
1	10	9.5	9	8
2	6	8	8	7
3	8	7	9.5	9
4	9	9	8	7
5	7	10	7	9
6	8	8.5	8.5	8
7	9	9	9	9
8	7.5	8	8	8
9	9	7	8	7
10	9.5	9	9	8
MEAN	8.3	8.5	8.4	8



Graph 1.3:Comparision of quadriceps isometric and hamstring stretching exercises in condromalacia patella every week

RESULTS:-

The physical characteristics of the subjects in each group are presented in the table. The result on the VAS scale were obtained before and after treatment between the isometric quadriceps exercises and hamstring stretching exercises showed a significant result.

Isometric quadriceps exercises – It shows decrease in the pain rating on the VAS scale after 4 weeks treatment.

Hamstring stretching exercises – It shows decrease in the pain rating but not as much as Isometric quadriceps exercises, the values of pain rating on the VAS scale are higher than Isometric quadriceps exercises.

DISCUSSION

The objectives of this study are to determine effectiveness of isometric quadriceps exercises in the management of pain resulting from chondromalacia patellae. The findings revealed that isometric quadriceps exercises provided significantly greater pain relief than hamstring stretching in the management of chondromalacia patellae.The results of our study showed an overall improvement in the pain rating over the four weeks treatments, regardless of the nature of the intervention..

The mean value of isometric quadriceps exercises over the four weeks treatment showed a graph where the mean value on the first day was 7.8, according to VAS scale which reduced upto 3.9 on the fourth week. The mean value of the hamstring stretching over the four weeks treatment period did not show too much effect. Graph for this group shows the mean value on the first week is 8.3 and after four weeks treatment period it is 8.0.

Therefore this study revealed that isometric quadriceps exercises are more beneficial in comparison to hamstring stretching exercises which was also proved by Lam, PriscilliaL.MSC;Ng,GabrielY.F.PhD in his American journal of physoical medicine and rehabilitation. 80(11) 804 – 808,November 2001.

LIMITATION OF THE STUDY

- The study was limiting to only one month duration.
- Treatment comprised only one kind of exercise.

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