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Effectiveness of Spinal Stabilisation Exercises and Interferential Therapy for Sacroiliac Joint Pain

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Abstract: ***Background and purpose: The purpose of this case report is to describe the effectiveness of spinal stabilisation exercises and Interferential therapy of a patient with sacroiliac joint pain. Spinal stabilisation exercises are effective in reducing pain and improve Activities of daily living of a patient with sacroiliac joint pain. There is a paucity of recent literature regarding this exercise. Aim: The aim is to review recent experience of this exercises and Interferential therapy along with stretching of sacroiliac joint muscles. Case Description: This is a case of 60-year-old male with low back pain at sacroiliac joint pain from 8 weeks. Intervention: Physiotherapist instructed the patient, how to perform spinal stabilisation exercises along with stretching and also self-mobilisation exercises and also advised precautions. Outcomes: The patient attended 3 weeks' physiotherapy sessions. His Visual Analog Scale (VAS) score before treatment is 7/10 and score after treatment is 3/10. And he got 16 out of 24 before treatment on Ronald Morris Disability (RMD) Questionnaire. After treatment he got 7 out of 24 on this questionnaire. Discussion: People with low back pain is most common. Hence, the criteria for diagnosis must focus on evaluating Sacroiliac joint pain in which patient had symptoms. Goal of physiotherapy for sacroiliac joint is to reduce pain, improve activities of daily living and also strengthening muscles. Intervention for sacroiliac joint includes hot pack, Interferential therapy, stretching, stabilisation exercises, home exercises and precautionary advices.***

Keywords: Sacroiliac joint pain, Interferential therapy (IFT), Stretching, Stabilisation exercises

1. Introduction

Low back pain is the most common problem that leads the patient difficulty in standing for prolonged period, carrying and lifting heavy objects from the floor which results in limitation of participation.

Sacroiliac joint is a C shaped diarthrodial synovial joint and it is present bilaterally. It is surrounded by a fibrous capsule and affixes the sacrum to ilia. There are many sacral ligaments and pelvic muscles support Sacroiliac joint. Innervation for Sacroiliac joint by the dorsal rami of L4-S3 nerve roots, transmitting nociception and temperature. Mechanism of injury to the sacroiliac joint could arise from extra articular and intra articular etiologies, that also includes disruption of capsule, tension in ligaments, inflammation of muscles, shearing forces, arthritis, fracture and infection. Patients could develop sacroiliac joint pain after a traumatic event or spontaneously or repetitive shear forces. There are some risk factors for the development of sacroiliac joint pain includes a scoliosis, leg length discrepancies, lumbar fusion, abnormality in gait. Sacroiliac joint inflammation and structures surrounding the joint is a common etiology.

Sacroiliac joint pain is localized to an area of approximately 3cm *10cm i. e., inferior to the ipsilateral posterior superior iliac spine. Radiating pain from Sacroiliac joint pain extend in the L5-S1 nerve distributions, most commonly seen in the posterior aspect of thigh, lower leg with radicular symptoms, groin pain and buttocks. However, the distribution of pain demonstrates extensive variability among patients and there is a strong similarity to facet joint or disco genic joint sources of low back pain. If there has been direct communication between the sacroiliac joint and adjacent neural structures i.e., the sacral foramina, L5 nerve, and lumbosacral plexus. This is a direct explanation an inflammatory mechanism for lower extremity symptoms seen in sacroiliac joint.

The prevalence of sacroiliac joint with low back pain among patients estimated to be 15 to 30 percent. Because of unknown etiology, it is harder to rule out the etiology of this condition.

2. Physiotherapy

Spinal stabilization exercises, stretching and Interferential therapy plays important role in treating sacroiliac joint pain.

Spinal stabilization Exercises: Aim is to reeducate the missing component in normal function and reduce activity of superficial muscles followed by reeducation of normal integration of activity of all trunk muscles into function.

This exercise should perform in four Rehabilitation phases:

Phase 1: Procedure to recruit transverse abdominis, multifidus

- Supine abdominal draw-in
- Abdominal draw-in with one knee drawn to the chest

Phase 2: Light dynamic tasks.

- Prone bridging on elbows with single leg hip extension
- Quadruped opposite arm-leg lifts, with cuff or dumbbell weights

Phase 3: weight bearing holding postures.

- Prone bridging, with the feet on the ball
- Side bridging with single leg hip abduction

Phase 4: Patient trained in specific functions.

Dosage: With a hold of 10 seconds these exercises were given for 5-10 isometric contractions.

Interferential therapy proven to be a safe and efficient treatment option for sacroiliac joint pain.

Procedure for IFT: (Duration: 30minutes)

- Testing, machine calibration and patient position along with electrodes placement.
- IFT was given at following parameters:
  a) Carrier frequency: 4 KHZ.
  b) Burst frequency: 1 to 10 hertz.
  c) Vector Sweep: 900V.
  d) Electrode arrangement: Quadripolar.
  e) Electrode placement: Place around the area of pain in the back.

Self-mobilization exercises: Exercises were done in supine position. The patient grasped behind the flexed and gently moved it toward trunk. This exercise is to rock the innominate in a posterior direction.

Sacro Iliac Joint Stretches: These are the exercises performed in both the side lying positions, with the hip flexed 70 to 80 degrees and the flexed knee about 90 degrees. Patient's trunk was then rotated toward the upwards as far as to the comfortable limit. Patient instructed to lift the top leg into hip abduction and internal rotation and resist the trainer force for 5 seconds. Patient instructed to breath in and out as the trainer gently over-pressured the trunk rotation. Patient then instructed to relax the hip and leg and allow the leg to drop toward the floor. As the patient relaxed, a gentle overpressure was applied to the foot as the patient was allowing the hip and leg to drop further to the floor. This exercise was done five sessions a day with two minutes of rest between sequences.

3. Case History

A clinical case of 60 years aged old male patient with low back pain of sacroiliac joint pain from 8 weeks. So that he came to physio department. Patient had a gradually increasing pain over right sacroiliac joint and radiating to posterior aspect of right thigh. Pain is aggravating when he was standing from sitting position and prolonged standing. Patient is working as a carpenter for 6 to 7 hours per day and avoiding lifting heavy objects due to pain. So that he came to physiotherapy department.

Examination and Evaluation:

On palpation, there was tenderness present over right sacroiliac joint. Range of motion is decreased due to pain at lumbar lateral bending (right), extension and flexion.

Special tests:

a) Gaenslen test
Procedure: The examiner pushes the non-tested side leg towards the patient chest. While the tested leg which is allowed to fall over the side of the examination table is pushed towards the floor.

b) Faber test

Procedure: Patient lies supine. Passively flex, abduct and externally rotate hip test leg. So that, the foot of the test leg is on top of the knee of the opposite leg. Slowly lowers the knee of the test leg towards the examining table.

And other tests are sacroiliac stress test, straight leg raise and drop test are all indicated for sacroiliac joint pathology.

Pre-management score: 7 out of 10 on VAS and 16 out of 24 on RMD Questionnaire

Intervention

- Hot packs, before starting treatment.
- Interferential therapy for 30 minutes.

Stretching exercises include:

- Single Knee to Chest: Lie on your back on table or mat, draw one knee to the chest while maintaining the abdominal draw in, don't grab the knee with your hand.


Knee to Chest

- Double Knee to Chest: Lie on your back on table or mat, bring both the knees to your chest at the same time. Maintain the abdominal draw in throughout the entire exercise.
- Knee rotation to both sides
- Child's pose

Dosage: All the stretching exercise are performed: 3 sets/10 sec hold/5 repetitions

Stabilization exercises include:

- Bird Dog pose
- Superman's: Lie on your stomach on table or mat with arms and legs extended, retract shoulder blades down and in towards the midline of your spine and draw in abdominal muscles and maintaining this position, lift opposite arm and opposite leg ensuring that your hips stay in contact with the floor.

Superman

- Bridge
- Ball squeeze

Dosage: All the stabilization exercises are performed: 3 sets/10 sec hold/ 5 repetitions.

Post management score: 3 out of 10 on VAS and 7 out of 24 on RMD Questionnaire

Follow up:
Follow up performed after 3 weeks of treatment.

4. Discussion and Conclusion

Sacroiliac joint pain is difficult to distinguish from other similar presenting conditions. But, with a detailed history and a proper examination and evaluation can get an accurate diagnosis that will lead to subsequent treatment. If there is a failure of non-surgical treatment, then go for minimally invasive fusion techniques, which is safe and proven effective treatment option. Evidence on physiotherapy treatment of patients with sacroiliac joint pain appears under reported. If patients came up with low back pain, then we should properly screen for sacroiliac joint component. Hence, physiotherapist should report findings so that there will be an evidence available for sacroiliac joint pain.

Conflicts of Interests: None

References

[1] Al-Khayer, A. and Grevitt, M. P. The sacroiliac joint: an underestimated cause for low back pain. Jour-nal of Back and Musculoskeletal Rehabilitation, 2007; 20 (4): 135-141.
[2] Buijs E, Visser L, Groen G (2007) Sciatica and the sacroiliac joint: a forgotten concept. Br J Anaesth 99: 713–716.
[3] Cohen SP (2005) Sacroiliac joint pain: a comprehensive review of anatomy, diagnosis, and treatment. Anesth Analg 101: 1440–1453.
[4] Dvorak J, Dvorak V, Gilliar W, Schneider W, Spring H, Tritschler T. Structural and functional diagnosis and treatment of the spine, ribs, pelvis, and sacroiliac joint. A musculoskeletal manuel medicine, diagnosis and treatment. Stuttgart, Germany: Georg Thieme Verlag 2008; pp.331-479.
[5] Forst, S. L., Wheeler, M. T., Fortin, J. D. and Vilensky, J. A.,. The sacroiliac joint: anatomy, physiology and clinical significance. Pain physician.2006; 9 (1): 61-67.
[6] Hansen, H. C. and Helm, S. Sacroiliac joint pain and dysfunction. Pain Physician.2003; 6 (2): 179-190.
[7] Kamali F, Zamanlou M, Ghanbari A, Alipour A, Bervis S. Comparison of manipulation and stabilization exercises in patients with sacroiliac joint dysfunction patients: A randomized clinical trial. J Bodyw Mov Ther 2019; 23: 177-182.
[8] Kato S, Demura S, Matsubara H et al (2019) Utility of bone SPECT/CT to identify the primary cause of pain in elderly patients with degenerative lumbar spine disease. J Orthop Surg Res 14 (1): 185.
[9] Nejati P, Safarcherati A, Karimi F. Effectiveness of exercise therapy and manipulation on sacroiliac joint dysfunction: A randomized controlled trial. Pain Physician 2019; 22: 53-61.
[10] Szadek KM, van der Wurff P, vanTulder MW, Zuurmond WW, Perez RS. Diagnostic validity of criteria for sacroiliac joint pain: A systematic review. The Journal of Pain 2009; 4: 354-368.
[11] Sarkari M, Goyal M, Samuel AJ. Comparing the effectiveness of the muscle energy technique and kinesiotaping in mechanical sacroiliac joint dysfunction: A non-blinded, two-Group, pretest-posttest randomized clinical trial protocol. Asian Spine J 2020; 15: 54-63.
[12] Schwarzer AC, Aprill CN, Bogduk N (1995) The sacroiliac joint in chronic low back pain. Spine (Phila Pa 1976) 20: 31–37.
[13] Szadek KM, van der Wurff WP, van Tulder MW, Zuurmond WW, Perez RS (2009) Diagnostic validity of criteria for sacroiliac joint pain: a systematic review. J Pain 10: 354–368.
[14] Van Tulder MW, Koes BW, Bouter LM. Conservative treatment of acute and chronic nonspecific low back pain. A systematic review of randomized controlled trials of the most common interventions. Spine.1997; 22: 2128-56.
[15] Zelle BA, Gruen GS, Brown S, George S. Sacroiliac joint dysfunction: Evaluation and management. Clin J Pain 2005; 21: 446-55.