

“TO DETERMINE THE EFFICACY OF MULLIGAN MOBILISATION AND MUSCLE ENERGY TECHNIQUE IN SACROILIAC JOINT DYSFUNCTION”: A SINGLE BLINDED, RANDOMIZED CLINICAL TRIAL

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ABSTRACT: The sacroiliac joint dysfunction may lead to hypermobility or hypomobility at the joint, resulting in pain and irritation. In mechanical sacroiliac joint dysfunction patient complains of dull aching pain on the affected side. The nature of pain gets worsen with increase in pain intensity during the activities while turning, sitting, bending or acquired standing position.

The pain gets referred to either groin, buttock or the back of the thigh but rarely goes below the knee. With or without associated numbness, in groin region. Unilateral pain is more common than bilateral. This Sacroiliac joint dysfunction can be managed conservatively using physical agent modalities such as electrotherapy, laser therapy, ultrasound, longwave, rest, exercises, or using manual mobilisation.

Purpose Of the Study: To determine the efficacy of mulligan and muscle energy technique in sacroiliac joint Dysfunction.

Material And Method Used: 700 number of subjects were screened to include 72 subjects with a clinical diagnosis of sacroiliac joint dysfunction. They were randomly allocated to two study groups viz. muscle energy technique therapy group and Mobilisation group via block randomization depending on severity of pain (mild, moderate, severe) using lottery method.

Results: Paired t test was used to analyse the values of Visual Analogue Scale, Modified Oswestry Disability

Questionnaire and Pain pressure threshold within the group. Independent t test was used for between the analyses of Visual Analogue Scale, Modified Oswestry Disability Questionnaire and Pain pressure threshold for both the groups.

Conclusion: MET and mobilisation are both effective in treating sacroiliac joint dysfunction.

Keywords: MET (Muscle Energy Technique); VAS (Visual Analogue Scale); MODI (Modified Oswestry Disability Questionnaire); SIJ (Sacroiliac joint dysfunction).

Introduction

The pelvis consists of the sacrum, coccyx, and the two innominate bones, which are formed by a fusion of the ilium, ischium, and pubis. The pelvic girdle provides support and protection to the abdominal organs and transmits force from the head, arms, and trunk to the lower extremities. Seven joints are formed by the pelvic bones: lumbosacral, sacroiliac, sacrococcygeal, symphysis pubis, and the hip. (29)

The ability to have movement at these joints is very important. Transmitting large forces between the trunk and the ground, the hip region is a major component of the locomotor system. (29) It participates in elevating and lowering the body, as in climbing or rising from a chair, and it is important in bringing the foot toward the body or hands, as in putting on a shoe. (29) The hip joint serves as the fulcrum in this system and therefore sustains more than twice the body weight with each step. The sacrum is a complex bone formed by the parts of the sacral vertebrae: body, vertebral arches, and costal elements called ala. The sacrum has six articulating surfaces: superiorly with the body and the two

articular processes of the fifth lumbar vertebra to form the lumbosacral junction, bilaterally with the two ilia at the sacroiliac joints, and inferiorly with the coccyx. The sacroiliac joint dysfunction indicates a pain in the sacroiliac joint that is usually caused by either too much movement (hypermobility) or too little movement (hypomobility) at the joint resulting in an irritation of the joint. (1) The mechanical sacroiliac joint dysfunction causes a dull ache at the base of the spine on the affected side. The nature of pain can worsen and sharpen during the activities such as sitting, bending, standing up from a seated position, turning in bed.

Sometimes the pain can be referred to the groin, buttock or the back of the thigh but rarely goes below the knee. (1) The sacroiliac joints are two joints within the pelvic girdle; they provide stable support to the upper body and allow for a transfer of forces from the lower extremities during gait. (2) This combination of synovial and syndesmotic joints is composed of the articulating surfaces of S1, S2 and S3 segments and the ilium, whose surfaces are covered in fibrocartilage and hyaline cartilage. (2) The manipulation technique, or thrust, consists of a high-speed movement aimed at correcting the dysfunction in the direction of correction, which leads to both, joint improvement and periarticular muscle inhibition. The manipulation technique is the most efficient in the treatment of sacroiliac joint dysfunction. (3) In sacroiliac joint dysfunction, numbness, groin pain can occur. Unilateral pain is more common than bilateral. (4) Sacroiliac joint pain is more common in pregnant women (possibly as a result of the release of the hormone relaxin, which allows pelvic expansion and increased motion). (4) Sacroiliac joint dysfunction is treated conservatively (electrotherapy, laser therapy, ultrasound, longwave, rest, exercises, and manual mobilisation) (6)

Muscle energy technique application-The METCp group will undergo the MET together with conventional treatment. MET will be applied for anterior and posterior innominate rotation around the pelvis and for weakened muscles.

Mobilisation Application-The MTCp group will receive MT together with conventional physiotherapy.

Objective

1. To determine the efficacy of mulligan mobilization in sacroiliac joint dysfunction.
2. To determine the efficacy of muscle energy technique in sacroiliac joint dysfunction.

Methodology

Sample size - 72 subjects having clinical diagnosis of sacroiliac joint dysfunction were randomly allocated to two study groups.

Study Design

Quasi experimental control design

Inclusion Criteria

- participants with clinical diagnosis sacroiliac joint dysfunction (posterior innominate and anterior innominate)
- pain and tenderness at PSIS, Sacral Sulcus, Iliac
- pain in the lower back, gluteal and groin area, and lower extremity
- age between 30-50 years
- both male and female
- pain lasting for less than 1 year
- positive clinical test for sacroiliac joint dysfunction
- those willing to participate in the study

Exclusion Criteria

- subjects with clinical disorder where therapeutic ultrasound is contraindicated
- subjects with clinical disorder where therapeutic longwave diathermy is contraindicated

- dermatitis
- neoplasm
- pregnancy
- acute tuberculosis
- patients with any medical conditions that would make exercise difficult, such as pelvic bone fractures, pelvic metallic implants (endoprostheses), pelvic inflammatory diseases, somatoform disorders, pregnancy, inflammatory bowel disease, and malignancy

Materials and Methods

Research Design and Ethics - this is a parallel design, single blinded, two-group; pretest– posttest randomized clinical trial involving patients with SIJD. Randomization, allocation, and blinding - a total of 72 eligible participants will be randomized to controlled group-the MET and conventional physiotherapy group (METCp group) and experimental group-Mobilisation and conventional physiotherapy group (MTCp group) via block randomization depending on severity of pain (mild, moderate, severe). Blocks will have odd numbers with a 3×12 (72) matrix, suggesting a total of three blocks with 12 rows each. Subjects will then be allocated into each block using a computerized sequential randomization. Thereafter, subjects will be allocated to controlled group (METCp) and experimental group (MTCp) using opaque sealed envelope.

No blinding was done in this study given that all procedures and outcome measures will be conducted and assessed by therapist herself.

Outcome Measures

1. Visual analog scale
2. Modified Oswestry Disability Index
3. Calibrated pain pressure algometer

Statistical Analysis

Statistics was performed using the software SPSS version 29.0.0.0(241)

Result

Paired t test was used to analyse the values of Visual Analogue Scale, Modified Oswestry Disability

Questionnaire and Pain pressure threshold within the group. Independent t test was used for between the analyses of Visual Analogue Scale, Modified Oswestry Disability Questionnaire and Pain pressure threshold for both the groups

Discussion

In the study we investigated the effect of MET and MT on pain and disability in subjects with

SIJ dysfunction. The subjects were assessed twice, pre intervention and post intervention through visual analogue scale, Modified Oswestry Disability Questionnaire and Pain pressure threshold.

The changes observed in this study are noteworthy, within group comparison showed

significant changes in the improvement of pain and disability in both Group A and Group B but

found no statistically significant difference when compared the readings of VAS and MODI between group A (MET) and group B(MT) from 0 day to 10th day of intervention.

Conclusion

From the present study it can be concluded that MET and mobilisation are both effective in treating chronic low back pain due to sacroiliac joint dysfunction.

Conflict of Interest/ Source of Funding – Nil Source of Funding – Self Ethical Clearance: We certify that this study involving human subjects is in accordance with the regulations stated by ethical committee.

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