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Research Article

PREVALENCEOF SACROILIAC JOINT DYSFUNCTION IN PATIENTS WITH LUMBAR DISC HERNIATION

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Abstract

Background and Introduction: Low back pain approximately affects 80% of the population. It is extremely common and thus continues to affect millions of people every year. It is a difficult condition to treat effectively and so it causes a huge financial burden on the patients as well as the hospitals. For the accurate diagnosis of low back pain, a good patient history, physical exam and diagnostic imaging are important.

Objective: The objective is to find the prevalence of sacroiliac joint dysfunction in patients with lumbar disc herniation

Methodology: A cross-sectional study was conducted on 175 among lumber disc herniation patients. The data was collected from Pakistan Society for the Rehabilitation of the Disabled, GURKI Trust Teaching Hospital and Mayo hospital Lahore participants in Lahore, Pakistan. Questionnaire consists of demographic data (age, gender, weight, height, BMI) for the collection of the data, a Visual Analog Scale as well as the LEEDS scale was used to collect data. The questionnaire was filled at the spot.

Results: In the study 175 patients with lumber disc herniation have participated with mean age of 38.565±8.3242 years. The minimum age was 22 years and the maximum age was 57 years. Out of 175, 88 (50.3%) females and 87 (49.7%) males. In this study the result shows that 64 (36.6%) had mild pain as they score 1-2, 46 (26.3%) had moderate pain as they score 3-5, 46 (26.3%) had severe pain as the score 6-8 and 19 (10.9%) had worst pain as the score 9-10 on visual analogue scale. The result shows that prevalence of SIJ dysfunction in patient with lumber disc herniation 62.9%.

Conclusion: There is a 62.9% prevalence of sacroiliac joint dysfunction in patients with lumber disc herniation. As the pain increases the sacroiliac joint dysfunction also increases.

Keywords: Sacroiliac joint dysfunction, lumber disc herniation, LANS scale.

INTRODUCTION

In individuals with low back pain, sacroiliac joint (SIJ) is the most common pain causing joint (1). SIJ is developed by the junction between iliac bone and sacral bone. Association between two bones, muscles and ligaments provide the stability to the joint. This joint is the largest joint of body with a diameter of 17.5 cm2 (2). Low back pain approximately affects 80% of the population. It is extremely common and thus continues to affect millions of people every year. It is a difficult condition to treat effectively and so it causes a huge financial burden on the patients as well as the hospitals. For the accurate diagnosis of low back pain, a good patient history, physical exam and diagnostic imaging are important. Causes of low back pain may range from spinal stenosis, sacroiliac joint pain, facet joint pain, myofascial joint pain etc.(2, 3). One of the most common causes where sacroiliac joint pain is overlooked is in low back pain. It is common to relate neurological signs to protruding disc and it is also common to confuse it with discogenic pain or radicular low back pain.(4)

Sacroiliac joints (SIJs) are responsible for 13% to 42% of low back pains. (3) It is often overlooked because of its complex nature. (5)It is the cause of pain in 10% to 25% of patients with mechanical low back pain with or without leg symptoms according to Thawrani et al. (6) According to Raj MA et al, up to 25% of low back pain can arise from the sacroiliac joint. (7)

In 1905, Goldthwaite described SI joint pain as the mixed source of lumbar pain. This interest in sacroiliac joint as one of the sources of lumbar pain decreased when Mixter and Barr reported that the intervertebral disc could be a leading cause of lumbar pain. (8) Although sacroiliac joint pain is very common and often encountered, physicians have difficulty diagnosing the dysfunction due to less progress in the area of diagnosing, differential diagnosis and the lack of a gold standard test for the dysfunction. The diagnostic criteria was set by Merskey and Bogduk describing the pain originating from SIJ and radiating to hip or the legs, pain in SIJ with provocation tests was also a diagnostic criteria, and pain resolving with blocks or local anesthetic was the last criteria for diagnosis of SIJ pain. (8)

Sacroiliac joint is the joint between the sacrum and ilium bones of pelvis which are connected by strong ligaments. he joints is strong;

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it transfers the weight from lower limb to spine with irregular elevation and depression that produces interlocking of two bones. It is hypomobile in nature and stabilized European guidelines are published and denied sacroiliac joint dysfunction as a pain experienced between posterior iliac crest and gluteal fold particularly in vicinity of sacroiliac joint. The pain may radiate to posterior thigh. The endurance capacity for standing, walking and sitting is diminished. (9)

The SIJ is the largest axial joint of the body; it is a di-arthrodial joint with unique anatomic and physiologic characteristics. These unique characteristics are often the reason of it going undiagnosed. It connects the spine to the pelvis and thus leads to load transfer between the upper body and the lower limbs. It lies between the ilium bones and the sacrum. Its motion is limited to 2 to 4 mm in each direction. It is a very stable joint due to the tight bands of ligaments and pelvic floor muscles surrounding it as well as its irregular and rough surface. These reasons make it extremely stable. (7, 10) SIJ pain has many causes; traumatic or atraumatic, that range from hypo-mobility, hyper-mobility, capsular tension, ligamentous tension, compression or shear forces etc. Other reasons include pregnancy, repetitive stresses, spine fusion surgery, and high impact activities such as road traffic accidents and something as simple as jogging or soft tissue injury from a fall to the buttocks, or sudden or repeated lifting of heavy weights. Pelvic ring fractures are also a leading cause. (6, 7).

When it comes to sacroiliac joint dysfunction (SIJD), the etiology has not been properly identified yet. Some of the factors supposedly held responsible are trauma, joint laxity, and degenerative joint disease (degenerative changes resulting in SIJ dysfunction are common in aging). Joint laxity is highly observed in females with a raised incidence rate in pregnancy. It was reported by Bernard and Cassidy that 58% of the cases of sacroiliac joint dysfunction are due to minor trauma such as a fall to the buttocks. (11, 12)

In a study conducted by MD Zhixiang et al, it was found that the patients with lumbar disc herniation had worse sacroiliac joint degeneration. In patients who had lumbar disc herniation with more pathological alterations, symptoms etc. had a significantly more amount of SIJ degeneration.(3)

Practitioners diagnose low back pain with the help of a CT scan and it is usually effective but the diagnostic value of CT imaging in SIJD is poor. Thus, practitioners diagnose SIJD using a combination of low back pain with changes such as osteophyte formation, reduced joint space and subchondral sclerosis. These are naturally occurring in the older population and those with a high BMI. (3)This is also difficulty because the pain mimics other causes of low back pain. (13)For an accurate diagnosis. Clinical imaging along with provocation tests are helpful for the accurate diagnosis of sacroiliac joint dysfunction. (6, 14)

The SIJ is part of kinetic chain that connects the spinal column and lower extremities. Depending on clinical setting, it may be a direct or indirect pain generator and should be evaluated frequently in the assessment of back or leg problems. The SIJ is especially perplexing in that it may resemble lumber and hip spine diseases as well as emerge from surgical therapy of spine and hip problems. Yoshihara claimed that, some patients may have worth less lumber fusion due to frequently misdiagnosed sacroiliac syndrome.(15) Joint dislocation after trauma or during pregnancy, arthritis/sacroiliitis, and degenerative changes all can cause symptoms. .According to Ha et al.,(16) 75 percent of patients showed degenerative SIJ abnormalities visible on radiographic imaging after 5 year of lumber posterior fusion.

Many tests exist that check the sacroiliac joint dysfunction but there is no one specific and sensitive test that exists for diagnosis. However, there are certain tests that are still carried out to rule out in differential diagnosis. These tests are the FABER test which stands for (flexion, abduction, and external rotation test) the distraction test, the lateral compression test, sacral thrust test and thigh thrust test. FABER, compression and thigh thrust are found to be more valid for the diagnosis. Furthermore, a positive for 3 or more tests is a definitive diagnosis (5) Particularly, manipulation, exercise and kinesio-taping are proven helpful as a treatment. (17)This study aims to find the prevalence of sacroiliac joint pain in patients with lumbar disc herniation. Less literature in the past exists that looks at the prevalence of SIJD in this scenario.

METHODOLOGY

This cross sectional study was conducted on 175 participants. Questionnare consist of demograpic data (age, gender, weight, height, BMI) For the collection of the data, a Visual Analog Scale as well as the LEEDS scalewill be used.To determine Lumbar Disc Herniation two tests was used; Lasegue test and the femoral nerve stretch test. To diagnose the SIJD, six provocationn tests was used; distraction, compression, Gaenslen test. FABER test, thigh thrust and sacral thrust test. A positive of three of these tests were indicate a presence of SIJD as per literature. The sample size was calculated using non-probibility convenient sampling technique. Written consent was taken from the participants and the significance of the study was explained before filling the questionnaires.

RESULTS

According to the study findings, the mean age of participants was 38.565±8.3242 years. The minimum age was 22 years and the maximum age was 57 years. Out of 175, 88 (50.3%) females and 87 (49.7%) males' sacroiliac joint pain and dysfunctions were participated in the study. The mean height of participants with SI joint dysfunction was 5.81±.374 ft. The minimum height of participants was 5ft and the maximum height was 6.4 ft. The mean weight of participants with SI joint dysfunction was 69.79±5.819 kg. The minimum weight of participants was 61kg and the maximum height was 81 kg.

Out of 175 participants, 123 (70.3%) were normal BMI, 40(22.9%) were overweight and 12 (6.9%) were obese.

Out of 175 participants, 85 (48.6%) were don't get these sensations and 90 (51.4%) were get these sensations. On asking about the painful area change color when the pain is particularly bad, 90 (51.4%) does not affect the color of skin and 85 (48.6%) noticed that the pain does make my skin look different from normal. Out of 175 participants, 89 (50.9%) pain does not make their skin abnormally sensitive to touch and 86 (49.1%) had skin in that area is particularly sensitive to touch. On asking about the pain come on suddenly and in bursts for no apparent reason when you are completely still feeling like electric shock, 72 (41.1%) participants don't really feel like this and 103 (58.9%) par-

TABLE 1: *DESCRIPTIVE STATISTICS OF BMI*

	Frequency	Percent
Normal	123	70.3
Over weight	40	22.9
Obese	12	6.9
Total	175	100.0

ticipants get these sensations often.

Out of 175 participants, 89 (50.9%) doesn't gets burning sensation at all while 86 (49.1%) participants gets this sensation often. On asking about the gently rub the painful area with your index finger and then rub a non-painful area rubbing feel in the painful area, 83 (47.4%) participants feel no different from the non-painful area while 92(52.6%) feel discomfort, like pins and needles in the painful area that is different from the non-painful area. On asking about the gently press the painful area with your index finger and then rub a non-painful area pressing feel in the painful area, 105 (60.0%) participants feel no different from the non-painful area while 70(40.0%) feel numb and tender in the painful area that is different from the non-painful area. Out of 175 participants, 65 (37.1%) had no neuropathic symptoms as they score less than 12 and 110 (2.9%) had neuropathic symptoms as they score >12.

TABLE 2: *DESCRIPTIVE STATISTICS OF RATE OF PAIN*

	Frequency	Percent
Mild pain	64	36.6
Moderate pain	46	26.3
Severe pain	46	26.3
Worst pain	19	10.9
Total	175	100.0

TABLE 3: *DESCRIPTIVE STATISTICS OF PREVALENCE OF SACROILIAC JOINT DYSFUNCTION*

	Frequency	Percent
NO	65	37.1
YES	110	62.9
Total	175	100.0

On asking about the rate the pain on VAS, 64 (36.6%) had mild pain as they score 1-2, 46 (26.3%) had moderate pain as they score 3-5, 46 (26.3%) had severe pain as the score 6-8 and 19 (10.9%) had worst pain as the score 9-10 on visual analogue scale.

Out of 175 participants 101 (62.9%) had SI joint dysfunction with spinal herniating and only 65(37.1 %) had no SI joint dysfunction.

DISCUSSION

Low back pain approximately affects 80% of the population. It is extremely common and thus continues to affect millions of people every year. It is a difficult condition to treat effectively and so it causes a huge financial burden on the patients as well as the hospitals. For the accurate diagnosis of low back pain, a good patient history, physical exam and diagnostic imaging are important. SIJD, the etiology has not been properly identified yet. Some of the factors supposedly held responsible are trauma, joint laxity, and degenerative joint disease (degenerative changes resulting in SIJ dysfunction are common in aging). Joint laxity is highly observed in females with a raised incidence rate in pregnancy.

In the study 175 patients with lumber disc herniation have participated with mean age of 38.565±8.3242 years. The minimum age was 22 years and the maximum age was 57 years. In this research the prevalance of sacroillic joint dysfunction in patients with lumber disc herniation is assess. Height, weight and BMI was measured. The leeds assesment of neurpathic symptoms and sign questionare was used.

The results shows that out of 175, 88 (50.3%) females and 87 (49.7%) males' sacroiliac joint pain and dysfunctions were participated in the study. The mean height of participants with SI joint dysfunction was 5.81±.374 ft. The minimum height of participants was 5ft and the maximum height was 6.4 ft. The minimum weight of participants was 61kg and the maximum height was 81 kg. 123 (70.3%) were normal BMI, 40(22.9%) were over weight and 12 (6.9%) were obese.

In this study the result shows that 64 (36.6%) had mild pain as they score 1-2, 46 (26.3%) had moderate pain as they score 3-5, 46 (26.3%) had severe pain as the score 6-8 and 19 (10.9%) had worst pain as the score 9-10 on visual analogue scale. The result shows that prevalance of SIJ dysfunction in patient with lumber disc herniation 101 (62.9%). Previous studies have found a prevalence of SJD ranging from 24 to 72.3 percent.(5) In compareable study the author Madani et al stated that studied 202 patients aged 19 to 70 with LDH identified by imaging and physical signs of lumbosacral root irritation and found SJD in 146 (72.3 percent) of them. (18)

Another authors noted that the estimated prevalence of SJD was much greater (72.3 percent) than in previous studies16–19, which might be explained by the impact of nonjoint variables that cannot be recognised with SJD blocks.(5) Another compare able study the author Hilal Telli, MD sated that the prevalence of SJD in this research was 33.3 percent. SJD was seen on the right side of 52.6 percent of patients and on the left side of 47.4% of patients.(19)

The author Madani et al9 found involvement on the left in 95.2% of SJD patients, on both the right and left in 2.1 percent, and on the right in 2.7 percent.(18) Another compare able study stated that Slipman et al20 found SJD on the right in 45% of patients, the left in 35%, and bilateral in 20% of cases.(20)

CONCLUSION:

There is a 62.9% prevalence of sacroiliac joint dysfunction in patients with lumber disc herniation. As the pain increases the sacroiliac joint dysfunction also increases.

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