

Prevalence of Sacroiliac Joint Dysfunction in Postpartum Women-A Cross Sectional Study

Paneri Sandeep Ghodke*, Dhiraj Shete and Deepak Anap

Department of Physiotherapy, DVVPF's College of Physiotherapy, Ahmednagar, India

*Corresponding author: Ghodke PS, Department of Physiotherapy, DVVPF's College of Physiotherapy, Ahmednagar, India, Tel: 7066827729; E-mail: panerighodke247@gmail.com

Received date: September 04, 2017; Accepted date: September 19, 2017; Published date: September 26, 2017

Copyright: © 2017 Ghodke PS, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Background: Since past 100 years SI joint has been a topic of interest in medicine. Hippocrates was one who described pelvic separation during labor. He said it remained so even after birth. Well-known spine specialists reported that SI joint dysfunction can be the main source of SI joint and low back pain. The purpose of study was to find out the age wise prevalence of sacroiliac joint dysfunction in females and to find the severity of sacroiliac joint dysfunction in primipara and multipara subjects.

Method: Approval of Institutional ethical committee was obtained. Written informed consent in their own language was obtained from all the subjects. Subjects were briefed about the procedure and purpose of the study. The tests like posterior pain provocation test and March test was conducted.

Conclusion: We found that 26% of postpartum women suffered with SIJ dysfunction which was unreported. Prevalence of SI joint dysfunction was highest in Full Term Normal Delivery (FTND) than lower segment Caesarian section (LSCS).

Keywords: Primipara; Multipara; Postpartum; Musculoskeletal disorders; Sacroiliac joint

Introduction

Background

Pregnancy is the most important event in every woman's life. The feeling of carrying a little soul within her for 9 months is a period of joy, where there is a transition of a woman to mother. Lot of physiological changes takes place during pregnancy, in a woman's body to bear the baby in the womb. Risk of low back pain increases among people with sedentary lifestyle.

Weight gained during pregnancy is 20-40 pounds that clearly shifts the body center of gravity anteriorly. Neuromechanical adaptations to pregnancy refer to change in gait, postural parameters. Musculoskeletal disorders include low back pain, cramps, and hip pain. It causes increased lordosis further stressing lower back [1]. Laxity of muscle causes intervertebral disc instability, disc bulge and overall compression of lower spine [2].

There occurs stretching of the abdominal muscle so as to accommodate the expanding uterus. As they stretch they lose their ability to perform the function of maintaining body posture. This leads to increased stress on the torso so as to support the low back region [3]. In most of the cases it starts from first trimester and it disappears after 6 months of delivery. Postpartum is a period that begins immediately after birth of child extending about 6 weeks. In some of the cases, the change doesn't resolve it persist, acquiring a chronic character.

Sacroiliac joint is the joint between the sacrum and ilium bones of pelvis which are connected by strong ligaments. The joint is strong; it transfers the weight from lower limb to spine with irregular elevation and depression that produces interlocking of two bones [4]. It is hypomobile in nature and stabilized European guidelines are published and defined 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 [5].

The possible effects of pregnancy on sacroiliac joint are several. The ligaments that stabilizes the joint stretches to allow for delivery of baby and they return to normal after birth, if they remain loose, the joint laxity may allow enough repetitive new movement at joint to cause pain.

Alternatively, the new permitted movement could result in producing a locked rather than a moving joint. It has been suggested that hormone relaxin increases 10 fold in concentration during pregnancy. As the structure of pelvis and lower spine soften, discomfort may result particularly in sacroiliac joint. Though it is a normal process, it can put abnormal wear and excessive stress on sacroiliac joint [6,7].

Sacroiliac joint dysfunction is commonest cause of low back pain in any adult age group. Though the predisposing factors for same are different and vary from males to females. As the sacroiliac joint is one of the strained joint in the body which causes many discomforts and disabilities to the sufferer.

The pregnancy is series of changes in female body which causes extra stress on both sacroiliac joint contributed by increased size of abdomen and loosening of supporting structures of sacroiliac joint due

to relaxin [8]. The postpartum period is the period of baby care where mother tends to ignore her problems which contribute to prolong and repeated suffering. The studies done on prevalence on sacroiliac joint dysfunction in postpartum female is less and severity of problem is more, my study focuses on the same topic [9]. Hence the purpose of study was to find out the age wise prevalence of sacroiliac joint dysfunction in females and to find the severity of sacroiliac joint dysfunction in primipara and multipara subjects.

Methodology

This was an observational study which was conducted at D.V.V.P.F'S Vikhe Patil Memorial hospital for a period of one year. Approval of Institutional ethical committee was obtained. 50 subjects were selected for this study by means of simple random sampling. Written informed consent in their own language was obtained from all the subjects. Subjects were informed about the procedure and purpose of the study. The age group selected for this study was 18 to 35 years. Participants included were of postpartum day 4 of to 7, with history of low back pain and complaining of pelvic girdle pain.

Participants excluded were with a recent history/signs or symptoms indicative of serious cause of pain that may be inflammatory, infective, traumatic, neoplastic, degenerative and metabolic and history of chronic low back pain that requires surgery. Posterior pain provocation test and March test was performed on each participant for diagnosis of SI dysfunction. While testing for posterior pain provocation test the patient was in supine lying position. While testing one hip was flexed to 90 degree. Using one hand to palpate the sacroiliac joint, examiner thrusts down through the hip and knee on text side. Pain in the sacroiliac joint on thrusting was considered as a positive test. While testing for March test the patient was in standing and examiner palpates PSIS. The patient was then asked to stand on one leg while pulling the opposite knee toward the chest. If the sacroiliac joint on the side on which knee is flexed (ipsilateral side) moves minimally or up indicates the test positive.

Result

The demographic data was collected and prevalence was obtained shown in Tables 1 and 2 and Figures 1-3.

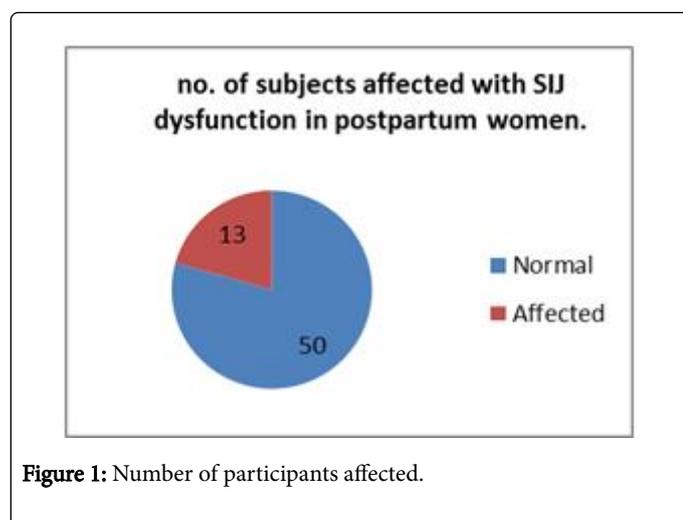


Figure 1: Number of participants affected.

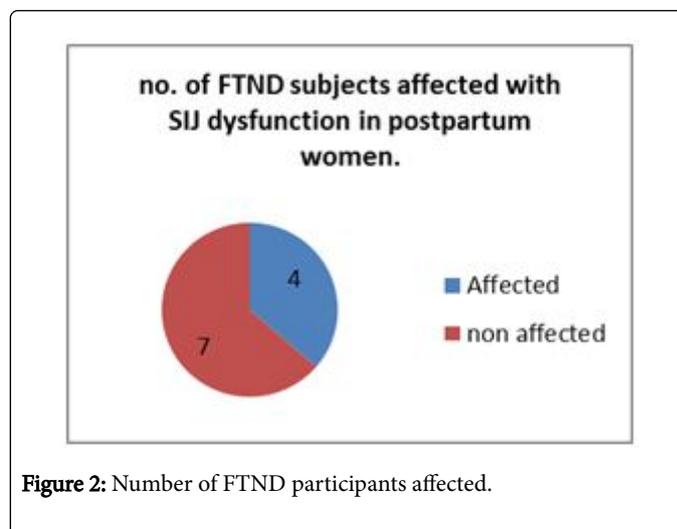


Figure 2: Number of FTND participants affected.

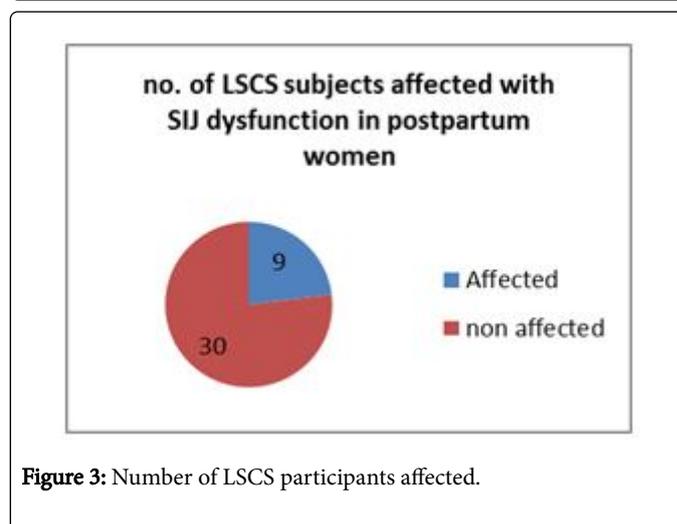


Figure 3: Number of LSCS participants affected.

No of subjects: 50	Prevalence: 26%
Mean of age: 23.96	Mean of BMI: 221.78

Table 1: Prevalence of SI joint dysfunction.

No of subjects (FTND): 11	Prevalence: 36.36%
No of subjects (LSCS): 39	Prevalence: 23.07%

Table 2: Prevalence of SI joint dysfunction in full term normal delivery (FTND) and lower segment Cesarean section (LSCS).

Discussion

Series of physiological changes occurs in woman's body during pregnancy which includes-weight gain, changes in posture, and ligament and joint laxity along with changes in the strength of muscle tendons [10]. Low back pain in pregnancy is generally due to changes in body mechanics that occur during the carrying of a child. During pregnancy, a woman generally gains weight to about 20 and 40 pounds. This shifts the body's centre of gravity anteriorly and increases the moment arm of forces applied to the lumbar spine. In a study by

Stapleton et al. 61.8% of women reported low back pain during pregnancy, claimed that pain was at least moderately severe, 9% claimed they were completely disabled by pain.

Sacroiliac joint is the joint between the sacrum and ilium bones of pelvis which are connected by strong ligaments. It is hypomobile in nature and stabilized by spinal muscles and anterior abdominal muscles. The SIJ ROM is small-less than 4° of rotation and upto 1.6 mm of translation [11,12]. Sacroiliac joint dysfunction is defined as a pain experienced between posterior iliac crest and gluteal fold particularly in vicinity of sacroiliac joint. The pain may radiate to posterior thigh. In pregnant populations with back pain, SIJ pain probability is found nearly to be 89% [5].

Factors contributing to this symptom include-pelvic changes as well as alterations to loading. This is due to combination of-mechanical, hormonal, circulatory, and psychosocial factors. It has been suggested that hormone relaxin increases 10 fold in concentration during pregnancy. As the structure of pelvis and lower spine soften, discomfort may result particularly in sacroiliac joint. Though it is a normal process, it can put abnormal wear and excessive stress on sacroiliac joint. Discomfort will contribute to changes in the posterior pelvic region, particularly the sacroiliac joints. According to a study, conducted by Jennifer and her colleagues on 'Pregnancy and low back pain', concluded that women with previous lumbar problems or chronic back pain conditions are at high risk of back pain during pregnancy, with pain occurring twice as often as in those with no prior complaints. The study also concludes that women, who experience back pain during one pregnancy, have an 85% chance of experiencing back pain during a subsequent pregnancy.

The major biomechanical factor associated with this is increased abdominal load, decrease pelvic stability, laxity of sacroiliac joint [13]. Though studies have shown increased body mass index (BMI) to may be a risk factor but there are studies with conflicting results. Orvieto et al. found that BMI was significantly higher in those who experience pain compared to those who not [14]. Younger age, multiple parity and sedentary lifestyle increases the risk of low back pain as compared to patients who engage in a more active lifestyle [15,16].

Our study concluded that out of 50 subjects, the prevalence of sacroiliac joint dysfunction amongst post-partum women is 26%. Our results are similar to study done by Ramachandra et al. who proved that the prevalence of pelvic girdle pain (PGP) when compared between second and third trimester, reported to be less in the third trimester. Approximately 10% of women claim that it hindered them from working and more than 80% reported that it hampered their daily routine including housework, childrearing, and job performance [17].

Nore'n et al. report back pain as the leading cause of sick leave during pregnancy in Scandinavian countries, with an estimated cost of \$2.5 billion in 1990 [18,19]. My study is the first of its kind showing the statistics of women affected by SIJ dysfunction during postpartum in Maharashtra, India. No further studies have been conducted about the economy or productivity being affected due to SIJ dysfunction in postpartum period which makes this study even more necessary and important.

Conclusion

We found that 26% of postpartum women suffered with SIJ dysfunction which was unreported. Prevalence of SI joint dysfunction

was highest in Full Term Normal Delivery (FTND) than Lower segment Cesarean section (LSCS). But they neglected such discomforts until it affected their daily routine. Hence, it is important to understand the discomforts that commonly are prevalent even after pregnancy, which will help health professionals to form a structured intervention as a part of prevention, and will in turn help the women to take care of their health after pregnancy.

Acknowledgement

I am thankful to Late Dr. Dhiraj Shete, who left us alone in the midway, for his guidance and enthusiastic support along with mentorship as a Research Guide and Supervisor in my professional and personal upliftment. I owe my research to him.

References

1. Sandler SE (1996) The management of low back pain in pregnancy. *Man Ther* 1: 178-185.
2. Botsford DJ, Esses SI (1994) In vivo indurnal variation in intervertebral volume and morphology. *Spine* 19: 935-940.
3. Dumas GA, Reid JG (1995) Posture and back pain during pregnancy, MJ Exercise, Part-1 exercise and back pain. *Clin biomech* 10: 104-109.
4. Solonen KA (1997) The sacroiliac joint in the light of anatomical, roentgenological and clinical studies. *Acta Orthop Scand* 27: 1-127.
5. Vleeming A, Albert HB, Östgaard HC (2008) European guidelines for the diagnosis and treatment of pelvic girdle pain. *Eur Spine J* 17: 794-819.
6. MacLennan AH, Nicolson R (1986) Serum relaxin and pelvic pain in relaxin. *Lancet* 10: 234-235.
7. Magee DJ (2013) Orthopedic physical assessment. (6th edn), Saunders Elsevier, USA p: 664-672.
8. Pierce H, Homer CSE, Dahlen HG, King J (2012) Pregnancy-related lumbopelvic pain: Listening to australian women. *Nurs Res Pract* 15: 205-215.
9. Polden M, Mantle J (1990) Physiotherapy in obstetrics and Gynaecology. 1st edn, Chap 7: 229-234.
10. Foti T, Davids JR, Bagley A (2002) A biomechanical analysis of gait during pregnancy. *J Bone Joint Surg* 82: 625-630.
11. Stuessen B, Selvik G, Uden A (1989) Movements of the sacroiliac joints: A roentgenstereo photogrammetric analysis. *Spine* 14: 162-165.
12. Stuessen B, Uden A, Vleeming A (2000) A radiostereometric analysis of the movements of the sacroiliac joints in the reciprocal straddle position. *Spine* 25: 214-217.
13. Kanakaris NK, Roberts CS, Giannoudis PV (2011) Pregnancy related pelvic girdle pain: An update. *BMC Medicine* 9: 15.
14. Orvieto R, Achiron A, Ben-Rafael Z, Gelernter I, Achiron R (1994) Low back pain of pregnancy. *73*: 209-214.
15. Mogren IM, Pohjanen AI (2005) Low back pain and pelvic pain during pregnancy: Prevalence and risk factors. *Spine* 30: 983-991.
16. Dumas GA, Reid JG, Wolfe LA, Griffin MP, McGrath MJ (1995) Exercise, posture, and back pain during pregnancy, part 1: Exercise and back pain. *Clin Biomech* 10: 104-109.
17. Berg G, Hammar M, Moller-Neilsen J, Linden U, Thorblad J (1988) Low back pain during pregnancy. *Obstet Gynecol* 71: 71-75.
18. Mens JMA, Vleeming A, Stoelckart R, Stam HJ, Snijders CJ (1996) Understanding peripartum pelvic pain: Implications of a patient survey. *Spine* 21: 1363-1370.
19. Nore'n L, Stgaard S, Neilsen T, Stgaard HC (1997) Reduction of sick leave for lumbar back and posterior pelvic pain in pregnancy. *Spine* 22: 2157-2160.