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Incidence Of Pelvic Girdle Pain in Postpartum Women Undergoing Full Term Normal Vaginal Delivery and Lower Segment Caesarean Section

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ABSTRACT

Background: Pelvic girdle pain is defined as the pain which is felt around the pelvic joints, lower back hips and thighs. Pelvic girdle pain can also occur in conjunction with or exclusively in the symphysis this pain is often associated with decrease in activities such as standing, walking and sitting. The incidence of pelvic girdle pain after delivery is due to the factors like hormonal changes altered biomechanics, and increased joint laxity.

procedure: This study was conducted after Ethical Clearance was obtained from Institution ethical committee. According to inclusive criteria total 90 participants were included in this study. Participants were included according to Convenience Sampling method; each participant was assessed by using Posterior Pelvic Pain Provocation Test (P4 Test).

result: Two Groups were included, first is postpartum women undergoing full term normal vaginal delivery(FTVD) with 66.67% participants positive for P4 Test and second is postpartum women undergoing lower segment caesarean section(LSCS) with 62.22% participants positive for P4 Test.

C**onclusion:** This study concludes that Full Term Normal Vaginal Delivery (FTVD) Group has more incidence rate of Pelvic Girdle Pain than Lower Segment Caesarean Section (LSCS) Group

Keywords: *Pelvic Girdle Pain, Posterior Pelvic Pain Provocation Test, NPRS, FTVD, LSCS*. .

1. INTRODUCTION

Pelvic girdle pain is defined as the pain which is felt around the pelvic joints, lower back hips and thighs. [(2)] Pelvic girdle pain can also occur in conjunction with or exclusively in the Pubic symphysis. The prevalence rate of pelvic girdle pain after delivery is around 7-25% as per the studies due to the factors like hormonal changes altered biomechanics, and increased joint laxity [(1)] Previous trauma to the pelvis, multiparty and heavy workloads. In few studies continuous breast feeding and prolonged sitting in breast feeding postures associated with lumbopelvic pain. [(2)] Pelvis is formed by articulation of two hip bones with the sacrum behind and with each other in front. The anterior part of the pelvic girdle is mainly composed of the pubis the ischium and the ilium.

A common and frequently incapacitating ailment that affects people, especially women during pregnancy and the postpartum phase, is pelvic girdle pain (PGP). PGP includes a range of pelvic- regional discomfort that can significantly limit one's mobility, ability to function, and general quality of life. To effectively care for patients, healthcare providers must have a thorough understanding of the causes, symptoms, and treatment of PGP. The high incidence of PGP in expectant mothers, a comprehensive approach to addressing this condition is needed. In addition to having an impact on physical health, the illness may cause social isolation and psychological suffering. As a result, treating PGP holistically is crucial to enhancing the wellbeing of those who are impacted. There are various risk factors present that causes Pelvic Girdle Pain:

Previous history of pelvic pain, Increased Body Mass Index(BMI), Manual labor or physically demanding jobs, Psychological factors such as anxiety and depression [3,4] Understanding these risk factors can help in early identification and management of Pelvic Girdle Pain in at risk populations.

The etiology of Pelvic Girdle Pain is multifaceted, involving of hormonal, biomechanical, and psychological factors

PATHOPHYSIOLOGY: Understanding the pathophysiology of Pelvic Girdle Pain involves exploring various factors interact to produce pain.

JOINT DYSFUNCTION: Joint dysfuction is another important reason that causes Pelvic Girdle Pain. Dysfunction in the sacroiliac joints is a hallmark of PGP. These joints are crucial for load transfer between the upper body and lower extremities. When these joints become dysfunctional, pain can manifest as a result of abnormal movement patterns and altered biomechanics [5].

LIGAMENTOUS LAXITY: The increase in ligamentous laxity due to hormonal changes can lead to instability in the pelvic region. This instability may result in compensatory movement patterns, further perpetuating [6]

MANAGEMENT STRATEGIES: Effective management of PGP requires a multidisciplinary approach, focusing on physical therapy, pain management, education and psychological support.

PHYSICAL THERAPY: Physical therapy is a primary intervention for managing PGP. Evidence suggests that targeted exercises can improve pelvic stability and reduce pain. A study by Mørkved et al. demonstrated that pelvic floor and core muscle strengthening significantly alleviated symptoms in pregnant women. [7] Techniques such as manual therapy, stabilization exercises, and postural education can also be beneficial. [8]

EXERCISE INTERVENTIONS: Specific exercise programs, including strengthening, stretching, and aerobic exercises, can enhance pelvic stability and reduce pain [9] The European Guidelines for PGP management recommend individualized exercise plans tailored to each patient's needs. [10]

PAIN MANAGEMENT: Pharmacological interventions, including non-steroidal anti- inflammatory drugs (NSAIDs) and analgesics, may help manage pain. However, the use of medication during pregnancy must be approached with caution due to potential risks [11]. Alternative therapies, such as acupuncture and chiropractic care, have also shown promise in providing relief for some patients. [12]

EDUCATION AND SUPPORT: Patient education is a critical component of PGP management. Providing information about the condition, activity modifications, and self-management strategies empowers patients to take an active role in their recovery [13]. Support groups and counselling can also help address the psychological aspects of living with chronic pain.

MULTIDISCIPLINARY APPROACHES:

Collaboration among healthcare professionals, including physiotherapists, obstetricians, and psychologists, is essential for comprehensive care. This multidisciplinary approach ensures that all aspects of the patient's well-being are addressed [14]

SPECIFIC TREATMENT TECHNIQUES:

Manual Therapy: Techniques such as joint mobilization and soft tissue manipulation can help alleviate pain and improve function [15].

Taping Techniques: The use of elastic therapeutic tape may provide support and pain relief in individuals with PGP [16].

Pelvic Bracing: Supportive devices or belts may be recommended to stabilize the pelvic girdle[17]

PROGNOSIS: The prognosis for PGP varies among individuals. Many women experience symptom resolution after childbirth; however, some may continue to experience pain postpartum

Factors influencing prognosis include the severity of pain, previous history of musculoskeletal issues, and psychosocial factors. [18]

LONG TERM OUTCOMES: Research indicates that approximately 20-30% of women may experience persistent pelvic pain after childbirth [19]. Factors such as early intervention, effective management strategies, and addressing psychosocial issues can improve long-term outcomes [20]

RECURRENCE RATES: Studies have shown that women with a history of PGP are at a higher risk.

2. METHODODLOGY

Comparative study done on Females using Convenient sampling method with age group between 18-30 at D.Y. Patil Hospital Kolhapur for a duration of 1 year with a sample size of 89. Subjects were selected who were fulfilling both inclusion and exclusion criteria.

Inclusion criteria: Females with age Group of 18-30, Females with both full term normal vaginal delivery and lower segment caesarean section, Positive Posterior Pelvic Pain Provocation Test exclusion criteria: Spinal deformities, Past history of spine surgery, Stillbirth.

MATERIALS: Consent Form, Data collection sheet, Numerical pain rating scale, Pelvic girdle pain questionnaire.

POSTERIOR PELVIC PAIN PROVOCATION TEST (P4 TEST):

The posterior pelvic pain provocation test is a pain provocation test used to determine the presence of sacroiliac dysfunction often used in the female to distinguish between the pelvic girdle pain and low back pain.

The posterior structures are stretched by bending the knee and flexing the hip to 90 degrees while the patient is in a supine position. The femur acts as a lever to drive the ilium posteriorly by exerting axial pressure throughout its length. While applying a downward push on the femur with the other hand, one hand is positioned behind the sacrum to secure its position.

If the axial pressure causes discomfort over the patient's familiar sacroiliac joint, the test is positive for pelvic girdle pain.

PROCEDURE

The study protocol was presented for approval in front of the institutional ethical committee and protocol committee of D. Y. Patil Education Society, Kolhapur. After the approval from committee field work was started. Study of Incidence of pelvic girdle pain in postpartum women undergoing full term normal vaginal delivery (FTVD) and lower segment caesarean section (LSCS) is an observational study which was performed accordingly. A brief knowledge about the whole research was given to the postpartum females. Participants for study were selected based on the inclusion criteria and exclusion criteria. Participants were first provided with the data collection sheet including their personal details and study related questions. A total of 89 females were included in two groups of FTVD and LSCS, according to inclusive and exclusive criteria. Participants with positive Posterior pelvic pain provocation test (P4 Test) were given the Numerical Pain Rating Scale (NPRS) to analyse the degree of pain.

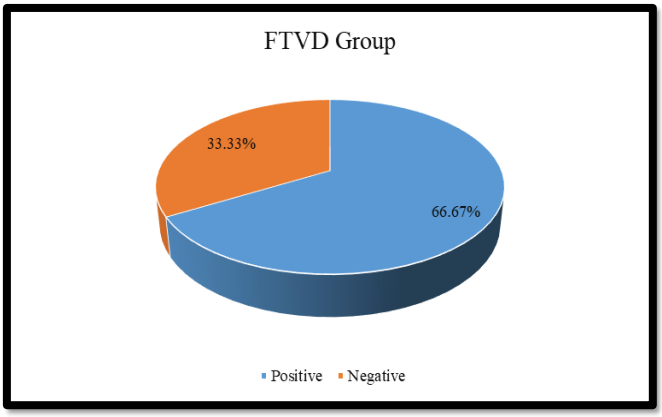
Statistical analysis was done and results were obtaine.

3. RESULTS

A total 90 participants, 45 females with full term normal vaginal delivery (FTVD) and 45 females with lower segment caesarean section (LSCS) were selected for the study from Kolhapur city.

Age of participants was between 18 to 30 years. Participants with history of any pre-existing spinal deformities and past

history of spine surgery and stillbirth delivery were excluded. Females with age group between 18 to 30 and positive for posterior pelvic pain provocation test were included. From the obtained result in first group with full term normal vaginal delivery (FTVD) out of 45female's 30 females have positive result for the posterior pelvic pain provocation test and 15 females have negative result for the same test.



Graph No 1: Positive and negative result of Posterior pelvic pain provocation test in FTVD GROUP

FTVD GROUP		
RESULT	**FRQUENCY(n)**	**PERCENTAGE (%)**

Positive	30	66.67%
Negative	**15**	**33.33%**
Total	45	100.00%

Table No 1: No of positive and negative females in FTVD

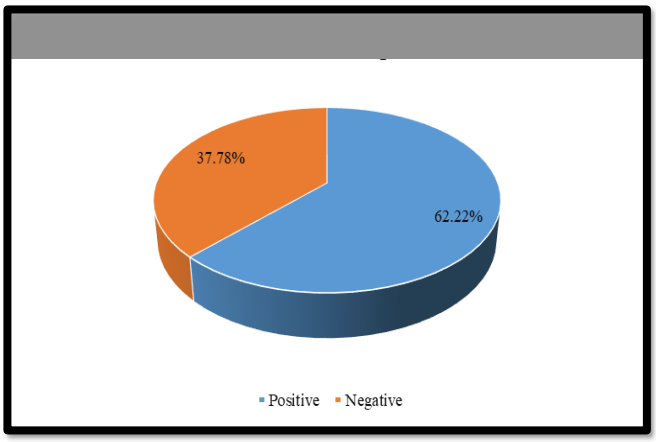
After performing the test, participants provided pelvic girdle pain questionnaire to assess the severity of pelvic girdle pain and according to that the total score was calculated in percentage format with 66.67% females have pelvic girdle pain to a great extent and 33.33% females have pelvic girdle pain to a little extent.

FTVD GROUP		
VARIABLE	**MEAN**	**S.D.**
Age	24.93	2.35
NPRS (At Rest)	3.16	1.95
NPRS (On Movement	5.04	1.59
Score	79.33	7.59

Table No 2: Mean and standard deviation of outcome measure NPRS scale in FTVD GROUP

To analyse degree of pain NPRS scale was used in both groups for (P4Test) in FTVD group positive participants on an average NPRS an rest was 3.16 ± (1.95) and NPRS on movement was 5.04(±1.59).

LSCS



Graph No 2: Positive and negative result of Posterior pelvic pain provocation test in LSCS GROUP

LSCS GROUP		
RESULT	**FREQUENCY(n)**	**PERCENTAGE (%)**
Positive	28	62.22%
Negative	17	37.78%

Total	45	100.00%

Table No 3: No of positive and negative females in LSCS

same procedure was applied for the second group of females with lower segment caesarean section (LSCS) out of 45 females 28 females are positive for the (P4 TEST) and 17 females are negative again the same questionnaire were provided to calculate the severity of pelvic girdle pain in (LSCS) group according to that 62.22% females have the pelvic girdle pain to a great extent and 37.78% females have the pelvic girdle pain to a little extent.

LSCS Group		
VARIABLE	**MEAN**	**S.D.**
Age	24.51	2.07
NPRS (At Rest)	3.20	1.25
NPRS (On Movement)	4.80	1.01
Score	78.12	8.58

Table No 4: Mean and standard deviation of outcome measure NPRS scale in LSCS GROUP

In LSCS group positive participants on an average NPRS at rest was 3.20 ± (1.25) and NPRS on movement was 4.80± (1.01).

4. DISCUSSION

The present study aims to estimate the Incidence of pelvic girdle pain in postpartum women undergoing full term normal vaginal delivery and lower segment caesarean section.

A total 90 females were screened with 45 females underwent full term normal vaginal delivery and 45female who underwent through lower segment caesarean section to estimate the incidence of pelvic girdle pain in both groups.

As a assessment tool Posterior pelvic pain provocation test (P4 Test) is used to assess the pelvic girdle pain. To check the intensity of the pain pelvic girdle pain questionnaire is used and the score is given.

To check the severity of pain NPRS scale is used which is a standard method to check the severity of pain. According to one literature during postpartum period many women will experience some degree of pelvic girdle pain. In India there is no as such information about the pelvic girdle pain incidence and its associated factors evaluated during postpartum period hence to reveal the incidence of pelvic girdle pain in Indian women and to identify the associated factors with incidence of pelvic girdle pain a cross sectional study is done in which 284 postpartum women completed a questionnaire and underwent clinical examinations including pain provocation tests for pelvis (P4Test).

Previously a cohort study was done by Geerte Van De Pol,H.Jorien Van Brummen, Hein W. Bruinse, A.Peter M.Heintz and C. Huub Van Der Vaart. In which they assessed the prevalence associated delivery related and psychological factors and consequences of self reported pelvic girdle pain during and after pregnancy in Netherlands. The prevalence of selfreported pelvic girdle pain was at its peak in late pregnancy about 7.3%. One out of 7 women suffering from pelvic girdle pain at 36weeks gestation, and almost half of the women suffering from pelvic girdle pain after 3 months after delivery continued to report symptoms 1 year after delivery.

(Vleeming et al., 2008) According to this study a musculoskeletal disorder known as pelvic girdle pain (PGP) is typified by pain in the pelvic joints and surrounding tissues. Although it usually happens during pregnancy, trauma, biomechanical dysfunction, or other underlying reasons can also affect people who are not pregnant usually found in the vicinity of the sacroiliac joints and the symphysis pubis, the discomfort can occasionally spread to the thighs and lower back (Stuge et al., 2004).

Mobility, everyday activities, and general quality of life are all impacted by PGP, which has serious physical, psychological, and social repercussions (Gutke et al., 2011).

According to Stuge et al. (2004), pelvic instability and discomfort are caused by weaker and less activated deep core muscles,

such as the transversus abdominis and pelvic floor. According to Hungerford et al. (2003), women with PGP have increased pressure on their sacroiliac joints as a result of delayed recruitment of the gluteus maximus and transversus abdominis during load-bearing duties. According to Vleeming et al. (2008), poor lumbar and pelvic muscle coordination raises the likelihood of chronic PGP by causing inadequate load transfer and compensatory movement patterns.

The Posterior Pelvic Pain Provocation Test (P4) and the Active Straight Leg Raise Test (ASLR) are the most reliable diagnostic tools for PGP, according to Laslett (2008). Albert et al. (2001) stressed the significance of differentiating PGP from lumbar pain and hip dysfunction through clinical examination and patient history. Östgaard et al. (1994) described pain localized to the posterior pelvis, pubic symphysis, and sacroiliac joints, which is frequently made worse by walking, climbing stairs, and turning in bed.

More high-quality randomized controlled trials are required to assess the effectiveness of innovative therapies, such motor control exercises and neuromuscular retraining, in controlling PGP, according to Sakamoto and Gamada (2019). According to Arab et al. (2021), there are better results in terms of pain alleviation and functional enhancement when motor control exercises are combined with other musculoskeletal treatments. Standardized diagnostic criteria and outcome measurements should be developed, according to Kanakaris et al. (2011), in order to enhance clinical decision-making and research consistency.

According to Kristiansson et al. (1996), elevated levels of progesterone and relaxin during pregnancy soften the pelvic ligaments, decreasing the stability of the pelvic joint.

According to Bjorklund and Bergstrom (2000), relaxin's effects peak in the second trimester, which increases PGP symptoms and causes joint instability. In previous studies the same test protocol was used to assess the pelvic girdle pain as a standard method but the previous studies are either done in the full term normal vaginal delivery or in the lower segment caesarean section but the comparative studies are unavailable.

FTVD is generally preferred for healthy pregnancies due to its lower risks and faster recovery whereas the lower segment caesarean section is necessary in cases where vaginal delivery risks to the mother or baby. There are main infant outcomes in FTVD over LSCS are lower risk of respiratory. distress in newborns and there is higher lilelihood of transient tachypnea and delayed breastfeeding initiation. In LSCS there are risks of surgical complications, anesthesia reacted issues, and adhesions in future pregnancies. In this comparative study both the groups of FTVD and LSCS are assessed and observed carefully to check which group have the more severity and intensity of pelvic girdle pain.

5. CONCLUSION

The goal of our study was to investigate the incidence rate of pelvic girdle pain in postpartum women undergoing full term normal vaginal delivery and lower segment caesarean section.

The result highlights a significant occurrence of the condition, with a incidence rate of pelvic girdle pain more in the group of postpartum women undergoing full term normal vaginal delivery (FTVD) with maximum severity of pain on NPRS scale and maximum intensity of pain in the pelvic girdle pain questionnaire. This study also gives brief knowledge about the pelvic girdle pain and its relation with postpartum period due to various factors such as hormonal factors, postural changes, psychological factors and lastly the pathophysiology of pelvic girdle pain which has a great impact on quality of life. Early awareness about the pelvic girdle pain and with proper physiotherapeutic interventions such as exercises, strength training and stretching the incidence rate of pelvic girdle pain can be avoided.

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