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Research Communication

PREVALENCE OF PREGNANCY RELATED PELVIC GIRDLE PAIN IN INDIAN PRIMIGRAVIDA: A TERTIARY CARE HOSPITAL BASED STUDY

***Gupta Monika[1], Srivastava Shilpi[2]. Khan Sohrab A[3]**

[1]MD, DNB, Assistant Professor, Department of Obstetrics & Gynaecology, Hamdard Institute of Medical sciences and Research (HIMSR), Jamia Hamdard, New Delhi, India.
E-mail: drmonikagupta@hotmail.com
[2]MPT, Department of Rehabilitation Sciences, Hamdard Institute of Medical sciences and Research (HIMSR), Jamia Hamdard, New Delhi, India
E-mail: shilpisria1@gmail.com
[3]MPT, Assistant Professor, Department of Rehabilitation Sciences, Hamdard Institute of Medical sciences and Research (HIMSR), Jamia Hamdard, New Delhi, India
E-mail: khansohrabahmad@yahoo.co.in

***Corresponding Author:**
E-mail: drmonikagupta@hotmail.com

Abstract:
Introduction: *There is very little information about the pregnancy related lumbo-pelvic pain and pregnancy related pelvic girdle pain (PPGP) in Asian countries, particularly in India. Most of the information about these pains has been obtained European countries.*
Objective: *To find out the prevalence of lumbopelvic pain and pregnancy related pelvic girdle pain (PPGP) in Indian primigravida.*
Methods: *A hospital based observational cross-section study including 227 primigravida who were interviewed for demographic data. Those who complained of lumbopelvic pain were assessed for the diagnostic criteria for PPGP.*
Results *A total of 137 primigravida (60.3%) reported lumbopelvic pain. Based on the diagnostic criteria, 68 women (29.9%) had PPGP and 69 had combined pain (PPGP + PLBP and PLBP). The mean intensity of pain in women with lumbopelvic pain using the visual analogue scale was 5.2 ±1.0 and PPGP was 5.5± 0.7.*
Conclusions: *More than half of the pregnant women studied experienced lumbopelvic pain at the time of examination which shows that about 1 in every 2 primigravida had lumbopelvic pain. PPGP and combined pain (PPGP+PLBP) both are almost equally prevalent and need clinical attention.*

Keywords: *pregnancy, primigravida, pregnancy related pelvic girdle pain, pregnancy related low back pain, prevalence.*

Introduction

Pregnancy is associated with many physiological and biomechanical changes. These changes lead to various types of musculoskeletal problems. Out of these the vastly studied is the pregnancy related pelvic girdle pain. Pregnancy related pelvic girdle pain (PPGP) along with low back pain are very common and this severe problem compromises normal everyday life in about one third of pregnant women.[1]

Pregnancy related back pain encompasses low back pain (PLBP) and pelvic girdle pain (PPGP); as well combination of two. PLBP originates in the lumbar spine region, pelvic pain originates in the pelvic region predominantly near the sacroiliac joints [2,3] and when no distinction can be made between PLBP and PPGP it is called as lumbopelvic pain. [4]

There is no standard classification available for PLBP and PPGP. A large number of terms have been used to indicate pelvic girdle pain during pregnancy. They include pelvic pain, pelvic girdle relaxation, pregnancy related pelvic girdle pain, and posterior pelvic pain during pregnancy. However in 2005, the term pregnancy-related pelvic girdle pain (PPGP), was

introduced which appears to be the most accurate compared with previous definitions. European guidelines on diagnosis and treatment of pelvic girdle pain have defined PPGP as pain which is often experienced between the posterior iliac crest and gluteal fold, predominantly near the sacroiliac joints. The pain may radiate in the posterior thigh and can also occur in conjunction with/or separately in the symphysis.[5]

Studies have revealed that PPGP is a common symptom among pregnant women in European population and the average reported prevalence of pregnancy related low back pain and pelvic girdle pain is 45.3% (range 3.9-89.9%) in 28 studies.[4] In the previous studies the prevalence rate varied widely because of lack of standard classification of low back pain and pelvic girdle pain.

There are very few studies investigating the prevalence of PPGP in Asian countries.[6] An explanation for the lack of studies in Asian countries is that pregnancy-related pelvic girdle pain is probably not recognized as a syndrome but as a normal side effect of pregnancy.
In India, there is little information about the prevalence, incidence, etiology and prognosis of PPGP. The purpose of this study is to find the prevalence of PPGP in India primigravida. Hence women with previously poorly understood PPGP can recognize their condition and seek help if the symptoms occur and/or persist.

Materials and Methods

It was a non-experimental observational cross-section study design. All primigravida aged between 20-35 years and gestation between 12 and 36 weeks attending Obstetrics outpatient department at a tertiary care hospital in New Delhi, India over a period of two months were included in this study. After obtaining informed consent, the women were interviewed using questionnaire to collect data on demographic characteristics (age, height, pre-pregnancy weight, current weight, pregnancy week at examination).

Women answering “yes” to the question “Do you have lumbopelvic pain at present?” were asked additional questions concerning history and current status of their lumbopelvic pain, intensity, location, and quality of pain. Patients with history of spine fracture or surgery, abdominal or pelvic surgery and presence of low back pain atleast 3 months prior to pregnancy were excluded.

A visual analog scale (VAS) was used to determine pain intensity.[7] A VAS measure of pain is a horizontal line, 10 cm in length, anchored by work descriptors at each end (no pain and pain as bad as it could be). The patient selects a point on the line that best represents her perception of pain level. A pain drawing was used to determine the location of pain.[7] In pain drawing, patient was provided with an outline of human figure and asked to mark the areas of pain. Through assessment was done for lumbar spine and hip joint.

Posterior pelvic pain provocation (P4) test was performed on all women with complaint of lumbopelvic pain (Figure 1). The P4 test is useful in distinguishing between pelvic girdle pain and low back pain in pregnant women having high sensitivity, specificity and reliability.[8]

Figure 1: Posterior pelvic pain provocation test (P_4 Test)

While performing the test, the patient is supine, the hip is flexed to 90^0, and the knee is bent. The examiner applies posterior shearing force to the sacroiliac joint through the femur. The test is said to be positive when the women feels a pain that she recognizes in her buttocks distal and lateral to the L5-S1 area near the sacroiliac joints.

Diagnosis of PPGP was based on the five criteria as described in study by Ostgaard et al, who introduced the syndrome "posterior pelvic pain" and used these criteria to rule out this syndrome in the women complaining lumbopelvic pain.[9] All the following criteria had to be fulfilled for considering the presence of PPGP:

1. A history of time and weight-bearing-related pain in the posterior pelvis deep in the gluteal area.
2. A pain drawing with well –defined markings of stabbing in the buttocks distal and lateral to the L5-S1 areas, with or without radiation to the posterior thigh or knee, but not into the foot.
3. A positive "posterior pelvic pain provocation test."
4. Pain when turning in bed.
5. Free movements in the hips and spine and no nerve root syndrome.

The pregnant women with lumbopelvic pain were divided into 2 pain types: (1) "PPGP", when all the five criteria were met and (2) "combined pain" if any one of the criteria was not fulfilled. The prevalence of PPGP was determined.
The data was analyzed using SPSS 14, Illinois Inc., Chicago, USA software.

Results

Out of 250 primigravida fulfilling the inclusion criteria 227 primigravida participated in the present study. Twenty three subjects denied participating in the study as they did not sign their informed consent. The mean age was 23.8 years (SD 3.2), ranging from 20 to 34 years. Demographic and clinical characteristics are presented in Table 1.

Table 1:
Demographic characteristic of subjects.

Variables	Minimum	Maximum	Mean ± SD
Age	20	34	23.83 ± 3.22
Height(m)	1.21	1.73	1.5406 ± 0.094
Pre pregnancy Weight (kg)	35	75	49.84 ± 7.72
Current weight (kg)	37	83	55.07 ± 7.93
Period of gestation (Week)	12	36	24.19 ± 8.18

Out of 227 primigravidas, 137 women (60.3%) reported lumbopelvic pain at the time of the examination. Based on the criteria used to diagnose PPGP, a total of 68 women (29.9%) had PPGP and 69 (30.3%) had combined pain (PLBP+PPGP and PLBP). Considering women with lumbopelvic pain, 49.6% had PPGP and 50.3% had combined pain.

The quality of pain perceived by women with lumbopelvic pain was dull ache (45%), stabbing pain (30%), sharp pain (15%), radicular pain (5%), and burning pain (5%).

On analyzing demographic characteristics of three sub groups : PPGP, combined and no pain groups, their age, current weight, BMI (pre-pregnancy), BMI (current), period of gestation did not show any significant difference (Table 2).But, there is significant difference in height and pre-pregnancy weight with p value 0.017 and 0.020 respectively.

Table 2:
Demographic characteristics of subjects in three sub groups

Variables	PPGP (mean±SD) (n=68)	Combined pain (mean±SD) (n=69)	No pain (mean±SD) (n-90)	P- value*
Age (years)	23.44±2.4	23.81±3.2	24.14±3.6	0.399
Height(m)	1.53±0.08	1.52±0.09	1.56±0.09	0.017
Weight (kg)				
Pre-pregnancy	48.77±7.97	48.57±7.08	51.60±7.74	0.020
Current	54.39±8.17	53.79±7.40	56.55±7.98	0.066
Body mass index				
Pre-pregnancy	20.79±3.24	21.09±3.08	21.26±3.37	0.668
Current	23.20±3.45	23.37±3.36	23.32±3.67	0.962
Pregnancy week	25.47±7.9	24.46±8.25	23.01±8.25	0.165

*p- value was calculated with one way analysis of variance (ANOVA)
Significant P<0.05

Pain intensity when measured by VAS showed a mean 5.2 (SD 1.09) in women with lumbopelvic pain (PPGP+combined pain). In detail, the mean (SD) pain intensity in PPGP and combined pain groups was 5.5 (0.78) and 4.9 (1.26) respectively (Figure 2). Based on analysis of variance, there were statistically significant difference between mean pain levels in PPGP and combined group (p=0.001) (Table 3)

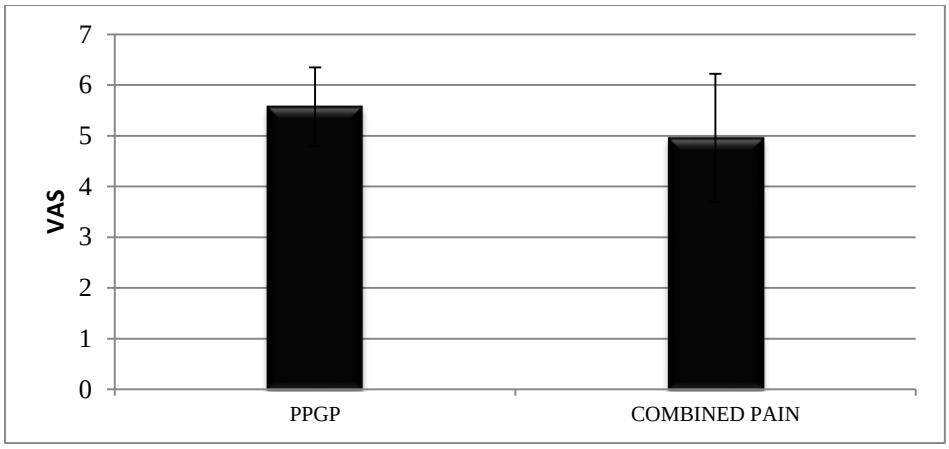

Figure 2: Comparison of VAS scores in PGPP and Combined Pain groups

Table 3:
Mean (SD) of pain intensity (VAS) in the PPGP and combined pain group.

Groups	PPGP	Combined Pain	p-value
Mean (SD)	5.5 (0.78)	4.9 (1.26)	0.001

The presentation of PPGP in relation with period of gestation at the time of examination was also analyzed and it was observed that there was high frequency of PPGP at the 16 and 36 week of pregnancy (Figure 3).

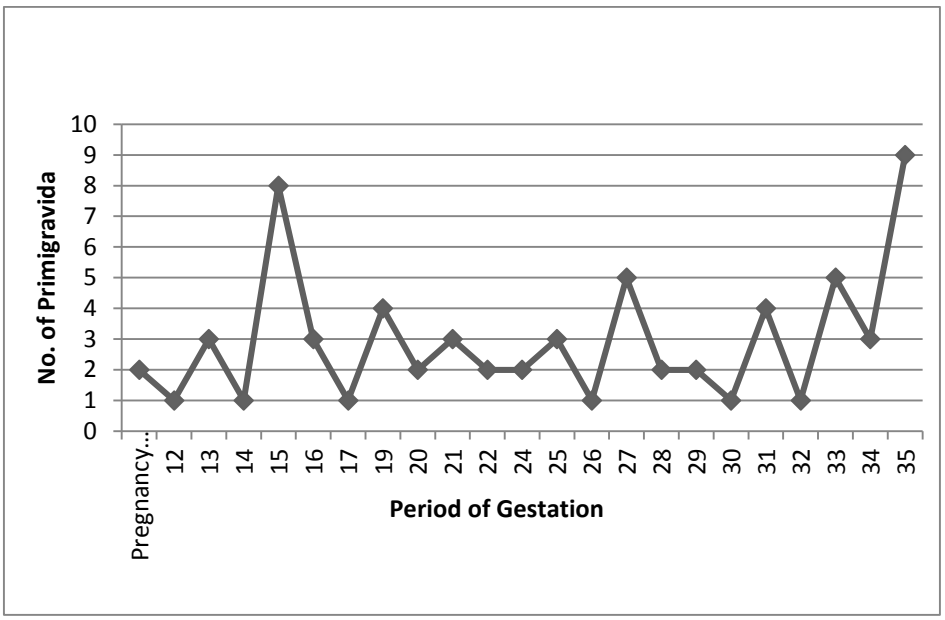

Figure 3: Presentation of PPGP with relation to period of gestation

Discussion

This study was a maiden attempt to determine the prevalence of PPGP in the Indian primigravida. In the present study, a total of 60.3% women suffered from lumbopelvic pain at the time of the examination indicating a relatively high-point prevalence of pregnancy related lumbopelvic pain in Indian primigravida. The point prevalence of lumbopelvic pain during pregnancy has been reported as 58.5% in United States and 51% in Sweden.[10],[11] The period

prevalence of lumbopelvic pain in Western studies has been reported as 28.9 to 72%in prospective studies, [1],[12],[13],[14] and 24 to 58%in retrospective studies. [15],[16],[17],[18] It seems that on average; almost half of the women in the aforementioned studies experienced some degree of lumbopelvic pain at some time during pregnancy which is similar to the prevalence of lumbopelvic pain in present study.

In our study, five criteria were used to diagnose PPGP cases in women complaining of lumbopelvic pain. These five criteria help in confirming the diagnosis as no single gold standard is given to diagnose PPGP. While using a single criteria i.e only P_4 test, the reported prevalence of PPGP in some prospective studies ranged between 22.6 to 36.2% [8],[11],[19]

According to a study by Bjorklund and Bergstrom, it seems that there are no geopraphical differences in lumbopelvic pain among pregnant women around the world.[13] Possible explanations for the large variation in the prevalence of PPGP and/or PLBP reported in various studies could be a lack of definition, variation in study designs and terminologies, and differences in classification and diagnostics procedures.[4]

There is little information about PPGP during pregnancy in Asian countries. To the author's knowledge, there are only 6 studies about the prevalence of lumbopelvic pain in Africa and Asia. The reported prevalence of lumbopelvic pain in these studies ranged from 38 to 89.9% [13],[20],[21],[22],[23] Because of large variation in the study designs and terminology, a true comparison between our results and these studies is not possible.

A study by Albert et al revealed that majority (62.5%) of women having pelvic pain get relieved within 1 month after delivery but 8.6% continued to experience pelvic girdle pain 2 years after delivery.[19] In a prospective study by Larsen et al, the prevalence of PGP at 2,6, and 12 months after pregnancy was 5%, 4% and 2%, respectively.[8] These finding reflects that PPGP carries a risk of becoming chronic pain that impairs the activities of daily life if not treated at right time. Lumbopelvic pain during and after delivery may lead to serious problems for the individual, her family and society by causing inability to perform daily activities or to earn a living and by a reduced health related quality of life.

It is also suggested that PPGP and PLBP in pregnant women should be treated in different ways, and inappropriate treatment may aggravate the condition. Until now, 3 randomized controlled trials focused specifically on PPGP during and after pregnancy, and more randomized controlled trials need to be performed to validate a treatment classification system for women with PPGP during and after pregnancy.[24],[25],[26],[27]

We recruited only primigravida in present study because previous studies have shown that previous PPGP and/or PLBP and a history of lumbopelvic pain a year before pregnancy are important risk factors in developing PPGP and/or PLPB in subsequent pregnancies.[4],[14],[28]

This could be the reason for the quite large number of women (90) with no pain in present study as there was no carryover of the previous pain in our patients.

However a significant difference in the height and pre-pregnancy weight was found in the means of combined pain and no pain groups. As the activity level was not considered in the study and the anthropometric analysis was not done, the reason for increased pre-pregnancy weight of women in no pain group could be because of increased muscular mass. More researches are required to determine the effect of increase in weight.

On comparing the pain intensity of women in PPGP and combines pain group analysis of variance showed a statistically significant difference between the mean VAS scores. A higher VAS score for women complaining PPGP showed that presentation of this pain was quite serious. Others studies have indicated that women with combined pain (PPGP+PLBP) are more severely disabled than either of two.[29],[30] Reason for the high intensity of PPGP group in

present study could be because of the fact that combined group included women complaining combined pain (PPGP+PLPB) and PLBP, as we did not differentiate PLBP. The percentage of women with PLBP only could be large in combined group resulting in lower mean of pain intensity in combined group.

The high prevalence of lumbopelvic pain and PPGP in our study suggests that this symptom is a major health problem in Indian primigravida and needs more attention by the health professionals and researchers. Further studies need to be performed to determine the prevalence of PLBP, incidence, prognosis, risk factors, and clinical presentation of PPGP. A study with large sample size, multiple clinical tests, self-reported functional status measures need to be done for addressing these issues.

Conclusions

More than half of the pregnant women studied experienced lumbopelvic pain at the time of examination. This infers that about 1 in every 2 primigravida studied experienced lumbopelvic pain. PPGP and combined pain (PPGP+PLBP) both are almost equally prevalent and need clinical attention. Determining prevalence helps the clinicians to realize the extent of the PPGP for the prevention of the long-term complications, reduction of pain and disability.

Conflict of Interests

The authors declare that they have no competing interests.

Author's Contribution

Each of the author has participated sufficiently in the work to take public responsibility for appropriate portions of the content. There has been no acquisition of funding for collection of data or analysis of this research. MG had been involved in drafting the manuscript and revising it critically for important intellectual content. SS participated in the design of the study, or acquisition of data and statistical analysis. SAK conceived of the study, and participated in its design and coordination. All authors read and approved the final manuscript.

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