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ORIGINAL ARTICLE

Association of Low Back Pain and Pregnancy During COVID-19 Pandemic

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Abstract

Introduction: The most common musculoskeletal problems associated with pregnancy are low back pain (LBP) and pelvic girdle pain. The belief that LBP is a problem that occurs during the normal course of pregnancy and it will go away after delivery impairs women's quality of life. In this study, we aimed to determine the prevalence of LBP and the factors associated with LBP in pregnant women in Türkiye. It also aims to increase health-care professionals' awareness of this situation.

Methods: This cross-sectional study involved 147 pregnant women who applied to the obstetric clinic of Haydarpasa Numune Training and Research Hospital between September 2020 and December 2020 during the COVID-19 pandemic. All questionnaires were filled in by a single midwife during face-to-face interviews. Functional disability was measured by the Turkish version of the Oswestry Disability Index.

Results: The prevalence of pregnancy-related low back pain (PRLBP) was 86%. The prevalence of a history of LBP is 44%. Pregnant with a history of LBP had higher PRLBP during pregnancy (94.2%, $p<0.001$). Age, gestational week, and weight gain during pregnancy were the risk factors related to PRLBP ($p<0.05$). Women with PRLBP had significantly increased Oswestry score, maternal age, gestational age, and weight gain compared to pregnant without LBP ($p<0.05$).

Discussion and Conclusion: A significant increase in the prevalence of PRLBP was observed in pregnant women during the COVID-19 pandemic period. Especially, young pregnant with excess weight gain during pregnancy and LBP history are candidates for PRLBP.

Keywords: COVID-19; disability; low back pain; oswestry; pregnancy.

Physiological and anatomical changes during pregnancy affect the musculoskeletal system. The most common musculoskeletal problems associated with pregnancy are low back pain (LBP) and pelvic girdle pain[1]. The prevalence is unknown clearly due to the complaints' uncertainty and the inconsistency of the diagnostic criteria. According to a few retrospective studies, the prevalence is between 47% and 56%[2-4].

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The belief that LBP is a problem that occurs during the normal course of pregnancy and that it resolves after delivery delays women's applications to health services because of this complaint. Although LBP starts as early as the 12th week of pregnancy, it is usually seen in the third trimester of pregnancy. It is an important health-care problem due to its negative impact on quality of life and increasing health costs[5].

History of LBP, multiparity, older age, and pain history in a previous pregnancy are the known risk factors[6]. Pregnancy-related low back pain (PRLBP) is a common disorder that significantly affects the quality of life of pregnancies. The pain status of the patients is evaluated according to the Oswestry Scale, which is used to measure the effect of LBP on daily activities. Studies showed that 10–43% of women continue to have LBP for 6 months postpartum[4,7,8]. Although the treatment is easy to access and practical, most patients do not admit to treatment because they think that it is a common condition of pregnancy[5,6].

During COVID-19 pandemic, because of psychological variables (anxiety, depression, and social isolation) and immobility, PRLBP may exacerbate.

In the present study, we aimed to identify the prevalence of PRLBP and the factors associated with PRLBP in women during COVID-19 pandemic in Türkiye. Furthermore, we aimed to increase the awareness of PRLBP among pregnant women and health-care providers.

Materials and Methods

This cross-sectional study was conducted with 147 pregnant women who applied to the obstetric clinic of Haydarpasa Numune Training and research hospital between September 2020 and December 2020 during the COVID-19 pandemic. In a day, approximately 20 pregnant women apply to the clinic. All participant's native languages are Turkish and are literate. All questionnaires were filled in by a single midwife during face-to-face interviews. Sociodemographic characteristics of women were recorded. The height and weight of the participants and the amount of weight gained during pregnancy were recorded. Gestational age was based on the last menstrual period confirmed or by first trimester ultrasonographic evaluation. Functional disability was measured by the Turkish version of the Oswestry Disability Index (ODI)[9].

Exclusion criteria were not willing to be enrolled, history of spinal and rheumatologic disorders, history of vertebral spine fracture or surgery, previous significant lumbar MRI findings, and chronic pain syndromes. We also excluded women with a history of abdominal and/or pelvic surgery.

The study was approved by the Local Ethics and Clinical Investigation Committee (Approval number: HNEAH-KAEK 2020/KK/85). Informed consent was taken from all patients and the study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS v21, Chicago, IL, USA) was used for statistical analyses. Descriptive statistics are presented as mean±standard deviation for normally distributed data. The relationship between the categorical variables was examined using the Chi-square and Fisher exact test. Shapiro–Wilk test was used for the assessment of the normality of data. The Mann–Whitney U-test was used for data that were not normally distributed. Normally distributed parameters were compared among the two groups using the student test. The associations between the normally distributed data were tested with Pearson correlation analysis. The results were evaluated with a confidence interval of 95%, and a $p<0.05$ was considered statistically significant.

Results

A total of 147 pregnant women were included in this study. The mean age of participants was 28 (SD±5) years, with a mean of 24 (SD±8) gestation weeks. More than half of the women had secondary education, but only 23% had a regular job. The prevalence of PRLBP was 86%. The prevalence of a history of LBP is 44%. The mean Oswestry score was 21 (Table 1).

Demographic characteristics of the two compared groups (pregnant women with or without LBP) were listed in Table 2. The mean age of those with PRLBP was significantly lower than without the LBP group (p=0.024). Height, weight gained, and mean of the gestational week in those

Table 1. Characteristics of patients

	Mean
Age	28.66
Height	161.78
Weight	72.12
BMI	27.51
Pregnancy week	24.23
Weight gain	7.22
Oswestry Score	21.78

BMI: Body Mass Index.

Table 2. Comparison of the characteristics of groups with and without low back pain during pregnancy

	Low back pain	Mean	SD	p
Age	Yes	28.28	5.17	0.024
	No	31.32	5.44	
Height	Yes	162.13	5.94	0.016
	No	159.55	6.20	
Weight	Yes	72.98	11.17	0.065
	No	66.60	13.87	
BMI	Yes	27.72	3.94	0.217
	No	26.17	4.59	
Pregnancy week	Yes	25.66	9.01	<0.001
	No	14.80	8.54	
Weight intake	Yes	7.60	4.93	0.001
	No	3.00	5.41	

BMI: Body Mass Index; SD: Standard Deviation.

Table 3. Comparison of the characteristics of the groups whose pain increased, decreased, and had no change

	Pain Condition	Mean	SD	p
Age	No Change	29.84	5.25	0.016
	Increased	27.33	5.17	
	Decreased	27.50	4.43	
Height	No Change	161.29	5.86	0.180
	Increased	162.52	5.66	
	Decreased	160.00	14.14	
Weight	No Change	71.19	11.10	0.753
	Increased	73.55	14.36	
	Decreased	67.50	13.32	
BMI	No Change	27.37	4.01	0.731
	Increased	27.77	4.71	
	Decreased	26.23	2.84	
Pregancy Week	No Change	22.10	8.89	<0.001
	Increased	27.44	7.39	
	Decreased	14.25	8.18	
Weight intake	No Change	5.94	4.85	0.002
	Increased	8.70	5.32	
	Decreased	4.00	4.24	
Oswestry Score	No Change	20.43	17.12	0.041
	Increased	24.32	16.67	
	Decreased	7.00	4.16	

BMI: Body mass index; SD: Standard deviation.

with PRLBP were statistically significantly higher than in those without the LBP group (p=0.016, p<0.001, p=0.001). The univariate analyses between those having a history of LBP and without a history of LBP showed that in the two groups, age, length, weight, and BMI are similar (p>0.05). However; the rate of treatment for those with a history of the LBP group was statistically significantly higher than the group without a history of LBP (p<0.001). While 80.5% of those without a history of LBP had pain after pregnancy, the rate of those with a history of LBP had pain after pregnancy was 94.2% (n=65) (p<0.001).

A statistically significant difference was observed between pain conditions due to in terms of age, gestational week, weight gained, and Oswestry mean (p=0.016, p<0.001, p=0.002, p=0.041) (Table 3). When the differences were examined in detail, the mean age of those with reduced pain was found to be significantly higher than those with increased pain (p=0.030), while the mean height of those with increased pain was found to be significantly higher than those whose pain did not change (p=0.004).

Discussion

Most women complained about LBP during pregnancy. According to the literature, the prevalence is approximately 50%[3,10]. Because of its high prevalence; LBP is a problem that occurs during the normal course of pregnancy and it resolves after delivery delays women's applications to health services because of this complaint. It is an important health-care problem due to its negative impact on quality of life and increasing health costs[5]. The relationship between PRLB and the chronological age of the pregnant is controversial. Kokanalı et al.[11] and Bryndal et al.[12] reported no association of age with LBP. Whereas, Ostgaard et al.[4] found that the younger patient had a greater risk of back pain. Similarly, in our study, the mean age of patients with LBP during pregnancy was significantly lower than those without LBP during pregnancy (p=0.024).

As Gutke et al.[13] showed that in 189 subjects with pregnancy-related LBP (PRLBP), 29% had clinically important Oswestry or VAS scores, whereas 56% had clinically important Oswestry and VAS scores. Sihvonen et al.[14] compared VAS and Oswestry scores between pregnant women having previous LBP and those with no history. They reported that the Oswestry scores increased from 5.14 to 7.79 among women with history and from 0 to 5.67 in the control group field. In our study, 80.5% of those without a history of LBP had pain after pregnancy, while the rate of those with a history of LBP had pain after pregnancy was 94.2% (n=65) (p<0.001). This high rate may have been caused by the decrease in movement during the lockdown period due to the pandemic. In our study, the mean gestation week of those whose pain increased during pregnancy was found to be statistically significantly higher than those whose pain did not change or decrease (p=0.005; p=0.001).

BMI indicates that they may influence lumbar pain in pregnant women. In a study, the average BMI in women reporting pre-gestational LBP was 22.72, which increased to 27.8 during pregnancy[12]. A similar correlation was reported by Mogren and Pohjanen in their study[15]. However, Wang et al.[16] and Mohseni-Bandpei et al.[17] do not find any correspondence between the pregnant woman's body weight and back pain.

As weight gain increases, mobility decreases as well, which can explain the relationship between lack of exercise and increased weight in spinas and increased pain. The recommended weight gain during pregnancy is 11–16 kg, of which about half is gained in the abdomen. This causes postural changes and musculoskeletal complaints during pregnancy[18].

In our study, height, gestational week, and average weight gain in those with LBP during pregnancy were statistically significantly higher than in those without LBP during pregnancy (p=0.016, p<0.001, p=0.001).

Most women who have suffered from LBP during pregnancy, and some of the women who applied to a doctor need some painkiller therapy while they are relaxing with physiotherapy and exercise. In a study performed by Skaggs et al.,[19] 15% of pregnant with LBP needed health-care provision, but only 10% of them were satisfied with the results. According to Sencan et al.,[5] only 4.2% of women with PRLB received pain treatment. A study by Diakow et al.[20] found that 25% of pregnant women needed chiropractic during pregnancy. This highlights the importance of finding efficacious treatments for PRLBP and reminds the importance of increasing awareness and finding effective treatments for LBP.

In the literature, a strong correlation was observed between the ODI scores and pain intensity, which is evaluated by the VAS[12]. On the strength of that, we only use ODI scores. A statistically significant difference was observed between pain conditions due to in terms of age, gestational week, weight gain, and ODI means (p=0.016, p<0.001, p=0.002, p=0.041) (Table 3).

When we look at other studies conducted in our country, the prevalence of PRLBP in pregnant women is between 53.9% and 59%. Among these studies, Sencan et al.[5] worked with a very large series. In this study conducted in 1500 pregnant women, the prevalence of PRLBP was found to be 53.9%. In our study, this rate is 86%. The fact that there is a significant difference in this rate suggests that serious immobilization during the quarantine period may have had an effect on this increase. However, due to the different study populations, these studies' results are insufficient to establish a definitive cause-cause relationship[21,22].

PRLBP is a common disorder that significantly affects the quality of life of pregnancies. Although the treatment is easy to access and practical, most patients do not apply for treatment because they think that it is a condition that depends on the normal course of pregnancy. If possible, it should be ensured that patients are informed of pregnancy, if it is not possible in the pre-pregnancy term, weight gain should be limited, and doing physical activity that does not harm pregnancy is supported. The patient's complaint must be listened to carefully. According to anamnesis, the patient must be directed to the required location. Despite taking precautions if the LBP occurs, it is important to provide the proper management to ensure the patient's quality of life as soon as possible.

The most important limitation of this study is the low number of cases and the lack of patient data other than the pandemic. However, when compared with the studies on this subject in our country, it was observed that the prevalence of PRLBP increased during the pandemic period. However, these results are far from a cause-effect relationship, and further studies are needed on this subject.

Conclusion

Pregnancy-related LBP is a significant public health problem. Identifying risk groups is an important task for early prevention. This study showed that young pregnant women who gain excess weight during pregnancy are candidates for LBP in the later weeks of pregnancy. A significant increase in the prevalence of PRLBP is observed in pregnant women in the COVID-19 pandemic. Factors affecting high LBP in pregnant women during quarantine periods need to be evaluated further.

Ethics Committee Approval: The study was approved by the Local Ethics and Clinical Investigation Committee (Approval number: HNEAH-KAEK 2020/KK/85). Informed consent was taken from all patients and the study was conducted in accordance with the Declaration of Helsinki.

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