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ORIGINAL RESEARCH

Assessment of obstetric-related lower back pain

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ABSTRACT
Background: Pregnancy-related low back pain (LBP) has been theorized to be connected to lumbar posture modifications, maybe in conjunction with abdominal muscle stretching or particular pregnancy-related hormone effects.The present study was conducted to assess obstetric-related lower back pain.
Materials & Methods:70 females with chronic lower back pain were divided into two groups (parity). A visual analog scale was used to measure pain in all patients with chronic back pain, and the Oswestry Disability Index was used to measure their functional status. Schmorl's node presence and modulic alterations as degenerative indicators on lumbar MRI were assessed.
Results: The mean VAS score was 6.2 and 8.5, ODI score was 18.4 and 28.1, Schmorl's nodes was seen in 21 and 40, L1-S1 lordosis angle was 54.2 degrees and 56.4 degrees, L1-L2 lordosis anglewas 3.7 degrees and 4.9 degrees, L2-L3 lordosis angle was 7.1 degrees and 6.4 degrees, L3-L4 lordosis angle was 10.6 degrees and 11.3 degrees, L4-L5 lordosis angle was 21.3 degrees and 18.5 degrees, and L5-S1 lordosis angle was 22.7 degrees and 21.4 degrees in group I and II respectively. The difference was significant (P< 0.05). In group I and group II, grade 1 spondylolisthesis was seen in 14% and 22% and grade 2 spondylolisthesis in 1% and 4% respectively. The difference was significant (P< 0.05).
Conclusion: The parameters related tolow back pain increase as the number of pregnanciesand births increases.Chronic lower back pain was significantly worse and associated with more disability in patients with more than five previous pregnancies.
Keywords:low back pain, spondylolisthesis, estrogen

Introduction

In the general population, back pain is a big issue, and it is believed to be much more prevalent in women who have recently given child.[1] This kind of pregnancy-related low back pain (LBP) has been theorized to be connected to lumbar posture modifications, maybe in conjunction with abdominal muscle stretching or particular pregnancy-related hormone effects.[2]

The end plate cartilage tissue expresses progesterone and estrogen hormone receptors, indicating that the cartilage may react to sex hormones. Therefore, variations in the rate of oestrogen release during pregnancy may have a substantial impact on the likelihood of developing degenerative disc disease and VESC.[3,4] During the postmenopausal stage, disc degeneration is more likely to occur in cases of estrogen deficiency. Therefore, numerous investigations have demonstrated that degenerative disc disease is caused by postmenopausal estrogen deficiency, which also has a negative impact on the quality of the vertebral end plates.[5,6]

A few studies have demonstrated a positive correlation between the frequency of recurrent LBP and the number of full-term pregnancies or total children a woman has. But women who had more than one child also showed a decreased prevalence.[7,8]The present study was conducted to assess obstetric-related lower back pain.

Materials & Methods

The present study consisted of 70 females with chronic lower back pain. All gave their written consent to participate in the study.

Data such as name, age, etc. was recorded. Depending on how many pregnancies they have, they are split into two groups (parity). The first group is called a non-grand multipara for the lady with less than fivepregnancies. The second group is a grand multipara for the lady with five or more pregnancies.A visual analog scale was

used to measure pain in all patients with chronic back pain, and the Oswestry Disability Index was used to measure their functional status. Schmorl's node presence and modulic alterations as degenerative indicators on lumbar MRI were assessed. A lumbar plain radiograph taken with the spine in an erect position was also used to determine the sagittal balance of the spine. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table: I Assessment of parameters

Parameters	Group I	Group II	P value
VAS score	6.2	8.5	0.03
ODI score	18.4	28.1	0.02
Schmorl's nodes	21	40	0.01
L1-S1 lordosis angle	54.2	56.4	0.53
L1-L2 lordosis angle	3.7	4.9	0.71
L2-L3 lordosis angle	7.1	6.4	0.85
L3-L4 lordosis angle	10.6	11.3	0.91
L4-L5 lordosis angle	21.3	18.5	0.16
L5-S1 lordosis angle	22.7	21.4	0.28

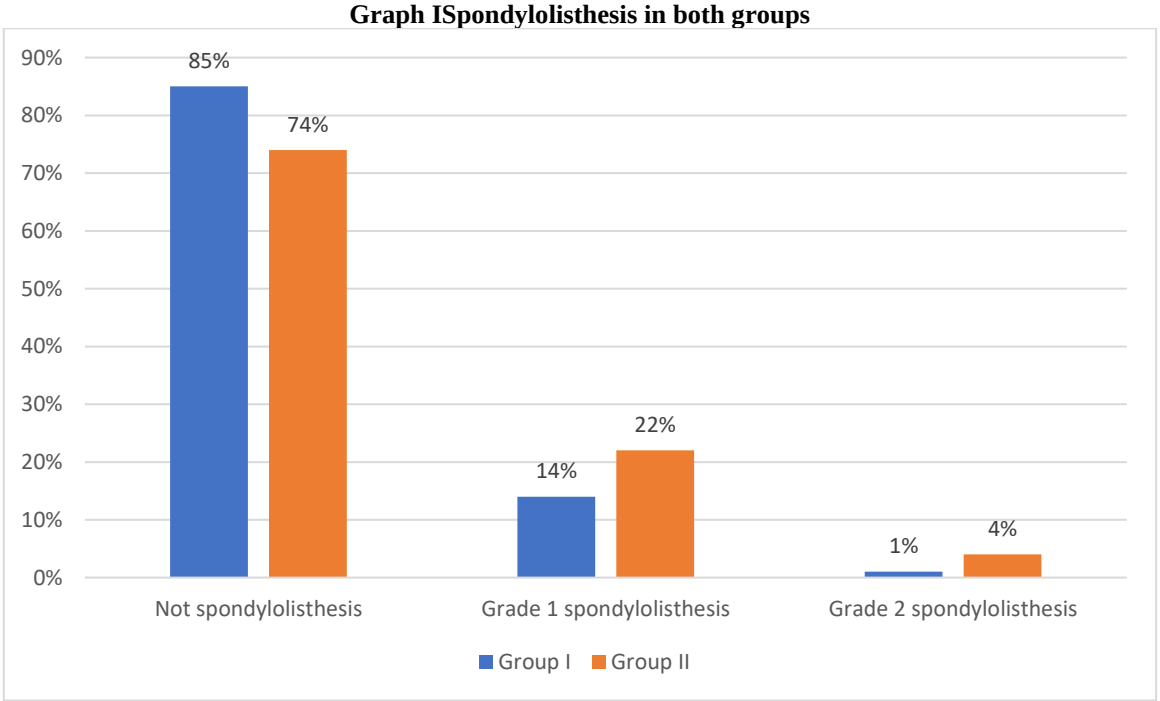
Table I shows that mean VAS scorewas 6.2 and 8.5, ODI score was 18.4and 28.1, Schmorl's nodes was seen in 21 and 40, L1-S1 lordosis angle was 54.2 degrees and 56.4degrees, L1-L2 lordosis angle was 3.7degreesand 4.9degrees, L2-L3 lordosis angle was 7.1degrees and 6.4degrees, L3-L4 lordosis angle was 10.6degreesand 11.3degrees, L4-L5 lordosis angle was 21.3degreesand 18.5degrees, and L5-S1 lordosis angle was 22.7degrees and 21.4degrees in group I and II respectively. The difference was significant (P< 0.05).

Table: II Spondylolisthesis in both groups

Spondylolisthesis	Group I	Group II	P value
Not spondylolisthesis	85%	74%	0.72
Grade 1 spondylolisthesis	14%	22%	0.86
Grade 2 spondylolisthesis	1%	4%	0.910

Table II, graph I shows that in group Iand group II, grade 1 spondylolisthesis was seen in 14% and 22% and grade 2 spondylolisthesisin 1% and 4% respectively. The difference was significant (P< 0.05).

Graph ISpondylolisthesis in both groups



Discussion

According to recent studies, addressing low back pain (LBP) is complex and requires a multidisciplinary approach, particularly during and after pregnancy.[9,10]For example, Migliorini et al.[11] support a subtle pharmaceutical approach, highlighting non-pharmacological techniques as the main form of treatment. Furthermore, acupuncture has the potential to be a significant non-pharmacological intervention for persistent LBP, as demonstrated by Baroncini et al.[12]The present study was conducted to assess obstetric-related lower back pain. We found that the mean VAS score was 6.2 and 8.5, ODI score was 18.4 and 28.1, Schmorl's nodes was seen in 21 and 40, L1-S1 lordosis angle was 54.2 degrees and 56.4 degrees, L1-L2 lordosis angle was 3.7 degrees and 4.9 degrees, L2-L3 lordosis angle was 7.1 degrees and 6.4 degrees, L3-L4 lordosis angle was 10.6 degrees and 11.3 degrees, L4-L5 lordosis angle was 21.3 degrees and 18.5 degrees, and L5-S1 lordosis angle was 22.7 degrees and 21.4 degrees in group I and II respectively. Gungor et al[13]evaluated whether the number of pregnancies contributes to the development of chronic lower back pain, worsening the lumbar disc degeneration and altering the normal lumbar sagittal balance.Group 1 comprised patients with parities <5, while Group 2 included patients with parities ≥5. Group 2's mean visual analog scale score (8.42±1.34 vs. 6.50±1.61) was significantly higher than Group 1's. Group 2 had a significantly higher mean Ostewestry Disability Index score (29.87±6.75 vs. 18.41±7.97) than Group 1. In terms of Modic change, the groups' association was statistically significant. The statistical significance of the relationship between the groups with respect to Schmorl's nodes was also seen. There was no statistically significant difference found in the sagittal balance parameters between the groups. We observed that in group I and group II, grade 1 spondylolisthesis was seen in 14% and 22% and grade 2 spondylolisthesis in 1% and 4% respectively. Svennson et al[14] in their study the association between low-back pain (LBP) and pregnancy and gynecologic factors was investigated in 1,760 women. The life-time incidence of LBP was 66% (incidence group) and the prevalence 35% (prevalence group). Eighty-six percent of the women had been pregnant, and 24% had suffered from LBP during pregnancy. Ten percent of the women in the incidence group and 15% of those in the prevalence group stated that their LBP had started during pregnancy. Fifty-one percent of the women in the prevalence group experienced an increase in their LBP during menstruation. For the purpose of an analysis of covariance, the population was divided by age into those aged 38 to 49 years and those 50 to 64 years of age. A higher number of abortions was found to be directly associated to LBP in 38- to 49-year-old women. In 50- to 64-year-old women, two variables were directly associated to LBP viz., a higher number of live births and a higher frequency of menopausal symptoms.
The limitation of the study is the small sample size.

Conclusion

Authors found that the parameters related tolow back pain increase as the number of pregnanciesand births increases. The parameters related tolow back pain increase as the number of pregnanciesand births increases.Chronic lower back pain was significantly worse and associated with more disability in patients with more than five previous pregnancies.

References

1. Ben-Hur H, Thole HH, Mashiah A, Insler V, Berman V, Shezen E, et al. Estrogen, progesterone and testosterone receptors in human fetal cartilaginous tissue: immunohistochemical studies. Calcif Tissue Int. 1997;60:520–6.
2. Silman AJ, Ferry S, Papageorgiou AC, Jayson MI, Croft PR. Number of children as a risk factor for low back pain in men and women. Arthritis Rheum. 1995;38:1232–5.
3. Frymoyer JW, Pope MH, Costanza MC, Rosen JC, Goggin JE, Wilder DG. Epidemiologic studies of low-back pain. Spine. 1980;5:419–23.
4. Videman T, Nurminen T, Tola S, Kuorinka I, Vanharanta H, Troup JD. Low- back pain in nurses and some loading factors of work. Spine. 1984;9:400–4.
5. Svensson HO, Andersson GB, Hagstad A, Jansson PO. The relationship of low-back pain to pregnancy and gynecologic factors. Spine. 1990;15:371–5.
6. Smith DR, Mihashi M, Adachi Y, Shouyama Y, Mouri F, Ishibashi N, et al. Menstrual disorders and their influence on low back pain among Japanese nurses. Ind Health. 2009;47:301–12.
7. Wijnhoven HA, de Vet HC, Smit HA, Picavet HS. Hormonal and reproductive factors are associated with chronic low back pain and chronic upper extremity pain in women - the MORGEN study. Spine. 2006;31:1496–502.
8. Migliorini F, Mafulli N. Choosing the appropriate pharmacotherapy for non-specific chronic low back pain. J OrthopSurg Res. 2022;17(1):1–3.
9. Baroncini A, Mafulli N, Eschweiler J, Molsberger F, Klimuch A, Migliorini F. Acupuncture in chronic aspecific low back pain: A Bayesian network meta-analysis. J OrthopSurg Res. 2022;17(1):1–15.
10. Legaye J, Duval-Beaupère G, Hecquet J, Marty C. Pelvic incidence: a fundamental pelvic parameter for three-dimensional regulation of spinal sagittal curves. Eur Spine J Of PublEur Spine Soc Eur Spinal Deform Soc Eur Sect Cerv Spine Res Soc. 1998;7:99–103.
11. Migliorini F, Mafulli N. Choosing the appropriate pharmacotherapy for non-specific chronic low back pain. J OrthopSurg Res. 2022;17(1):1–3.

12. Baroncini A, Mafulli N, Eschweiler J, Knobe M, Tingart M, Migliorini F. Management of facet joints osteoarthritis associated with chronic low back pain: a systematic review. The Surgeon. 2021;19(6):512–8.
13. Güngör E, Karakuzu Güngör Z. Obstetric-related lower back pain: the effect of number of pregnancy on development of chronic lower back pain, worsening of lumbar disc degeneration and alteration of lumbar sagittal balance. Journal of Orthopaedic Surgery and Research. 2024 Dec;19(1):1-8.
14. Svensson HO, ANDERSSON GB, HAGSTAD A, JANSSON PO. The relationship of low-back pain to pregnancy and gynecologic factors. Spine. 1990 May 1;15(5):371-5.