

**LOW BACK PAIN IN PREGNANCY**Rajesh Kumar Jain<sup>1</sup>, Sheela Jain<sup>2</sup><sup>1</sup>Associate Professor, Department of Orthopaedics, Government Bundelkhand Medical College, Sagar, M. P.<sup>2</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Government Bundelkhand Medical College, Sagar, M. P.**ABSTRACT****BACKGROUND**

Low back pain in pregnancy can be defined as pain between the 12th rib and the gluteal folds/ pubic symphysis may radiate to the posterolateral thigh, to the knee and calf during the course of pregnancy. It has been estimated that about 50% - 80% of pregnant women will suffer from some kind of low back pain at some point during their pregnancies or during the postpartum period. Unfortunately, there is limited research available regarding low back pain in pregnancy and its management.

This study was conducted to find out prevalence of low back pain during pregnancy, possible risk factors and its outcome.

**MATERIALS AND METHODS**

We have done observational study of 510 pregnant women, who came to the Department of Obstetrics and Gynaecology, BMC, Sagar, during April 2016 to May 2017. Of these, 290 women complained of back pain. After taking consent, we took detailed history of their age, parity, duration of pregnancy (trimester), height, Hb% (for nutritional status), history of back pain during previous pregnancy and before pregnancy, any other risk factors, history of subsided or persistent pain 12 weeks after delivery. All these women were sent to the Department of Orthopaedics for determining the exact sites of pain, its type (whether pelvic girdle pain, lumbar pain or both), severity (determine by visual analogue pain scale), aggravating and relieving factor and any pathological cause of pain. Of these 290 cases, 39 women have known pathological causes of low back pain. We have excluded these cases and remaining 251 cases were included in this study.

**RESULTS**

In our study, we found that out of 510 pregnant women 290 (56.86%) women suffer from back pain. Of these 290 cases, 251 (86.55%) cases have no pathological cause of back pain detected. 87 were primigravida and 164 were multigravida. 92 (56.09%) women have low back pain during her previous pregnancy. 106 (42.23%) women have Hb% below 10 gm%. 59 (23.50%) women have persistent pain even after 12 weeks of delivery. 106 (42.23%) women have pelvis girdle pain, while 63 (25.09%) have lumbar and 82 (32.66%) have both pelvic girdle and lumbar pain. 72 (28.68%) women have first episode of pain that appears at 1<sup>st</sup> trimester, while 134 (53.38%) have 2<sup>nd</sup> and 45 (17.92%) have pain first appearing at 3<sup>rd</sup> trimester. 62 (21.37%) women complain of severe pain (visual analogue pain scale- 6 or more), of these 58 (20%) women required analgesics for pain relief during their course of pregnancy. 228 (78.62%) women complain of mild-to-moderate pain (visual analogue pain scale- 5 or less) and their pain responding to conservative treatment like lifestyle modification, rest, posture change, physiotherapy and local gel application.

**CONCLUSION**

LBP is the most common musculoskeletal complaints of pregnant women. Our study demonstrates that more than half (56.86%) of pregnant women suffer from low back pain. Unfortunately, there is limited research available regarding risk factors, physical therapy intervention for pregnant women experiencing low back pain, so a homogenous approach tends to be used. However, back pain is not homogenous; therefore, special considerations and precautions should be taken while treating this population. Our study try to find out risk factor associated with low back pain in pregnancy. This study is small. Further larger studies of longer durations are required for better understanding of risk factors in order to make protocol for prevention and treatment options.

**KEYWORDS**

Low Back Pain, Back Pain in Pregnancy, Pelvic Girdle Pain, Low Back Pain, Physical Therapy.

**HOW TO CITE THIS ARTICLE:** Jain RK, Jain S. Low back pain in pregnancy. J. Evolution Med. Dent. Sci. 2018;7(03):380-383, DOI: 10.14260/jemds/2018/84

**BACKGROUND**

Low back pain in pregnancy can be defined as pain between the 12th rib and the gluteal folds/ pubic symphysis, may radiate to the posterolateral thigh, to the knee and calf during the course of pregnancy.<sup>[1]</sup>

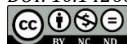
*'Financial or Other Competing Interest': None.*  
*Submission 05-11-2017, Peer Review 27-12-2017,*  
*Acceptance 04-01-2018, Published 13-01-2018.*

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*DOI: 10.14260/jemds/2018/84*



Unlike radiculopathy, posterior pelvic pain usually does not extend beyond the knees. The classic description of pain felt by most women is usually a result of symptoms of both types of low back pain, lumbar and pelvic. This pain is not the result of disc herniation,<sup>[2]</sup> infection, congenital malformation, tumours, trauma or any other pathological causes. Approximately, 70% of women will report low back pain at some point in their lives.<sup>[3]</sup> It has been estimated that about 50% - 80% of pregnant women will suffer from some kind of low back pain at some point during their pregnancies or during the postpartum period.<sup>[4-6]</sup> Although, most cases are mild, approximately one-third of women experience severe pain.<sup>[7]</sup>

Pelvic girdle pain and lumbar pain are two different patterns of LBP during pregnancy, although, a few women

may suffer from combined pain. PGP is more intense during pregnancy than during postpartum period and may convert the natural discomfort of pregnancy into a pathophysiologic condition. LP and PGP should be diagnosed and differentiated early, since the treatment is different for each condition. Conservative management is the gold standard. The aim of this study is to find out prevalence of low back pain during pregnancy, possible risk factors and its outcome after delivery.

## MATERIALS AND METHODS

We have done observational study of 510 pregnant women who came in to the Department of Obstetrics and Gynaecology, BMC, Sagar, during April 2016 to May 2017. Of these, 290 women complained of back pain. After taking consent, we took detailed history of their age, parity, duration of pregnancy (trimester), height, Hb% (for nutritional status), history of back pain during previous pregnancy and before pregnancy, any other risk factor, history of subsided or persistent pain 12 weeks after delivery.

All these women were sent to the Department of Orthopaedics for determining the exact sites of pain, its type (whether pelvic girdle pain, lumbar pain or both), severity (determine by visual analogue pain scale), aggravating and relieving factor and any pathological cause of pain. Of these 290 cases, 39 women have known pathological causes of low back pain like trauma, PIVD, spondylitis and tubercular spondylitis. We have excluded these cases and remaining 251 cases were included in this study.

When treatment is necessary for low back pain, conservative management is the ideal option. Treatment starts with education and activity adjustments. Pregnant women given advice how to stand, walk or bend properly without causing stress on the spine. Accurate posture is essential to improve low back pain. Braces like lumbosacral support was given. Activity modifications, scheduled rest during the day is helpful for relieving muscle spasms and acute pain. Both feet should be elevated, which will help flex the hips and decrease the lumbar lordosis of the spine. We also gave local analgesic gel application. We gave oral analgesic for few days, only to those who had severe pain and not responding to above measure.

## RESULTS

In our study, we found that out of 510 pregnant women 290 (56.86%) women suffer from back pain. Of these 290 cases, 251 (86.55%) cases have no pathological cause of back pain detected. 87 were primigravida and 164 were multigravida. 92 (56.09%) women have low back pain during their previous pregnancies. 106 (42.23%) women have Hb% below 10g%. 59 (23.50%) women have persistent pain even after 12 weeks of delivery. 106 (42.23%) women have pelvic girdle pain, while 63 (25.09%) have lumbar and 82 (32.66%) have both pelvic girdle and lumbar pain. 72 (28.68%) women have first episode of pain that appears at 1<sup>st</sup> trimester, while 134 (53.38%) have the pain that appears at 2<sup>nd</sup> trimester and 45 (17.92%) have pain that first appear at 3<sup>rd</sup> trimester. 62 (21.37%) women complain of severe pain (visual analogue pain scale- 6 or more), of these 58 (20%) women require analgesics for pain relief during their course of pregnancy. 228 (78.62%) women complain of mild-to-moderate pain (visual analogue pain scale- 5 or less) and their pain

responding to conservative treatment like lifestyle modification, rest, posture change, physiotherapy and local gel application.

## DISCUSSION

Pelvic girdle pain and Lumbar pain are two different patterns of low back pain during pregnancy; although, a small group of women suffer from combined pain. Walde was the first who recognised the differences between Pelvic Girdle Pain (PGP) and Lumbar Pain (LP). Later, Ostgaard et al set the criteria for the differentiation between these two entities.<sup>[8]</sup> PGP described as deep, stabbing, unilateral or bilateral, recurrent or continuous pain, presenting between the posterior iliac crest and the gluteal fold, possibly radiating to the posterolateral thigh, to the knee and calf, but not to the foot.<sup>[2]</sup> PGP is more intense during pregnancy than during postpartum period and may convert the natural discomfort of pregnancy into a pathophysiologic condition.

Lumbar pain during pregnancy is very similar to lumbar pain experienced by women who are not pregnant, and it appears as pain over and around the lumbar spine, above the sacrum, making the differentiation between PGP and LP easy. LP may or may not radiate to the foot in contrast with PGP. Tenderness over paravertebral muscles is a common finding. LP aggravates at postpartum period and usually exacerbates by certain activities and postures (e.g. prolonged sitting), but it seems to be less disabling than PGP.<sup>[8]</sup>

Pregnancy related low back pain seems to be a result of quite a few factors such as mechanical, hormonal, psychosocial factors and others.<sup>[4,5,6]</sup> The lumbar region is constituted of five vertebrae that are designed to withstand increased weight and retain a lordotic curve. To maintain stability and provide support, the lumbar region is connected and held secured by a ligamentum longitudinale anterior and superior, ligamentum flavum, ligamentum interspinale, ligamentum intertransversarium and the ligamentum supraspinale. The longitudinal ligament will also be attached to the intervertebral disc and keep the discs in position. Additionally, the lumbar region is supported by strong low back muscles, pelvic muscles and abdominal muscles.

During pregnancy, exaggerated lumbar lordosis increases the mechanical strain on the lower back and put stress on the intervertebral disc. The abdominal muscles also stretch to accommodate the expanding uterus. As they stretch, the muscles become tired and lose their ability to maintain normal body posture causing the lower back to support the majority of the increased weight of the torso.<sup>[9,10]</sup>

A large number of women first experience pain during the first trimester of pregnancy. At that moment, mechanical changes do not yet play a significant role in the onset of pain. This suggests that hormonal changes during pregnancy can play a role in back pain. It has been suggested that the hormone relaxin increases 10-folds in concentration during pregnancy, softening the collagen and causes ligamentous laxity and discomfort. The sacroiliac ligaments, but also other ligaments that surround the pelvic girdle become loose. This causes a decrease in the stability and brings on a potential strain in the pelvic girdle and low back area.<sup>[9,10,11]</sup>

The expanding uterus can press on the vena cava, particularly at night when the patient is lying down. The pain is possibly severe enough to wake the patient up. This combined with the increased fluid volume from fluid

retention during pregnancy leads to venous congestion and hypoxia in the pelvic and lumbar spine.<sup>[9,10]</sup>

Another contributor is the increase in weight. On average, about 11 - 15 kilograms are gained during pregnancy.<sup>[12]</sup> The weight gain increases the amount of force placed across joints, changes the centre of gravity and forces the patient into an anterior pelvic tilt. The anterior displacement of the centre of gravity will cause women to shift their heads and upper body posteriorly over the pelvis causing hyperlordosis of the lumbar spine. This in turn places additional stress on the intervertebral discs, ligaments and facet joints and can lead to joint inflammation.<sup>[13]</sup> In addition, abdominal muscles are stretched and weakened, and the added weight can compress on the lumbosacral plexus.<sup>[14]</sup>

In our study, we found that majority (86.55%) of patients with back pain have no pathological cause. These cases well managed by treatment options include exercising, physiotherapy, stabilisation belts, pelvic support, rest, nerve stimulation, pharmacological treatment, local analgesic gel application, acupuncture, massage, relaxation and yoga, oral analgesic depending on the case. Still significant number of patients has pathological cause of back pain detected. Hence, each and every case should be examined carefully. A more vigorous treatment should be applied in more serious cases depending on the pathology, such as disc herniation or mass, infection, trauma, etc.

Studies have found that when the symptoms are explained, patients can feel more at ease and their anxiety may decrease.<sup>[11]</sup> Physical therapy encompasses several factors such as postural modifications, back strengthening, stretching and self-mobilisation techniques. Functional stability can be maintained throughout pregnancy by strengthening the muscles around the lumbar spine through various back exercises.<sup>[15]</sup> Pelvic tilts, knee pull, straight leg raising, curl up, lateral straight leg raising and water aerobics are recommended, because these exercises could relieve lumbar pain in pregnancy. Relaxation exercises while paying close attention to proper respiration also show to be beneficial.<sup>[16]</sup> The Ottawa Panel also recommends massage therapy in order to treat subacute and chronic low back pain.<sup>[17]</sup>

The intensity of pain is determined by visual analogue scale and Van De Pol et al, the Pregnancy Mobility Index (PMI). This index assesses the ability of doing normal household activities. The patient can answer on a scale from 'no problem' to 'impossible' or 'only with aid of others.' The PMI is used to evaluate the mobility and quality of life of pregnant women who suffer from LBP.

In our study, we found that majority of low back pain are pelvic girdle pain (42.23%) or both pelvic girdle pain and lumbar pain (32.66%). Isolated lumbar pain (25.09%) is less common. Hence, isolated lumbar pain patients should thoroughly examine for any pathological causes. Majority of patients have no association with anaemia. 42.23% of patients have Hb% below 10g%. Incidences are higher among multigravida than in primigravida. 59.09% women have history of low back pain in their previous pregnancies. Majority of low back pain subside, but still significant number of patient's (23.50%) pain remains even 12 weeks after delivery. These findings indicate that counselling regarding proper posture, rest, back strengthen exercises and yoga may have a role even before pregnancy and in between pregnancy.

However, to prove it further large scale and longer duration of study is required.

## CONCLUSION

LBP is the most common musculoskeletal complaints of pregnant women. Our study demonstrates that more than half (56.86%) of pregnant women suffer from low back pain.

LBP during pregnancy may be the result of mechanical, hormonal and other factors associated with the changes of the body. Unfortunately, there is limited research available regarding risk factors, physical therapy intervention for pregnant women experiencing low back pain, so a homogeneous approach tends to be used. However, back pain is not homogeneous; therefore, special considerations and precautions should be taken while treating this population.

Our study try to find out risk factor associated with low back pain in pregnancy. This study is small. Further larger studies of longer durations is required for better understanding of risk factors in order to make protocol for prevention and treatment options.

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