

ANALYSIS OF INCIDENCE OF CHRONIC LOW BACKACHE FOLLOWING CESAREAN DELIVERY UNDER SPINAL ANAESTHESIA VERSUS NORMAL VAGINAL DELIVERY-A RETROSPECTIVE COMPARATIVE STUDY

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Abstract

Background: Chronic low backache is prevalent postpartum, and childbirth has been identified as a key trigger. While spinal anaesthesia during caesarean delivery and biomechanical strain from vaginal delivery are hypothesized contributors, the evidence remains inconclusive. This study aimed to compare the incidence of chronic low backache between caesarean delivery under spinal anaesthesia and vaginal delivery. **Materials and Methods:** In this retrospective comparative study, 250 women during their second pregnancy were included (prior caesarean delivery under spinal anaesthesia or vaginal delivery). The exclusion criteria included spinal pathologies, systemic diseases, or prior general anaesthesia. Data on chronic low backache (>6 months) and obstetric history were collected using a structured questionnaire and analysed. **Result:** Among the 250 participants, 62.4% (156/250) reported chronic low backache persisting >6 months post-delivery. Of these, 89.1% (139/156) had no pre-delivery backache. The incidence of chronic pain was comparable between vaginal (51.7%, 72/139) and caesarean deliveries (48.7%, 67/139). Among caesarean deliveries, 44.7% (33/74) were elective, 55.2% (34/74) were emergency, and 91% (61/67) received spinal anaesthesia. No significant association was found between spinal anaesthesia during caesarean delivery and chronic low backache ($p = 0.9326$). **Conclusion:** Caesarean delivery under spinal anaesthesia did not increase the risk of chronic low backache compared to vaginal delivery. Physiological changes during pregnancy and other risk factors are likely to be primary contributors. These findings support the prioritization of patient-specific prenatal and postnatal care over delivery mode or anaesthesia type for mitigating postpartum back pain.

INTRODUCTION

Chronic low back pain is a very common health condition that affects millions of people globally, significantly affecting the quality of life and productivity.^[1] In women, childbirth can serve as a predisposing factor for chronic low back pain because of the physiological and biomechanical changes occurring during pregnancy and childbirth. Among the various causes of postpartum low backache, mode of delivery and type of anaesthesia used during delivery may be looked at in more detail as these might have a bearing on the prevalence and severity of the condition.^[2-4]

The vast majority of deliveries, especially caesarean deliveries, are carried out under spinal anaesthesia.^[5]

Though considered safe and effective for caesarean section, the long-term implications of spinal anaesthesia on maternal health remain controversial. Chronic low back pain has been questioned.^[6] After a spinal procedure and subsequent complaints of low back pain are not infrequent; therefore, an iatrogenic role for regional anaesthesia in the persistence of back discomfort is mooted. However, there is limited evidence that can establish a direct link between spinal anaesthesia and chronic low backache, and more research is required.^[7,8]

In contrast, normal vaginal delivery involves its own set of physical demands, including pelvic and lumbar strain during labor. These biomechanical stresses could predispose women to a low postpartum backache. Although the prevalence of chronic low

back pain following vaginal delivery is generally lower than that following caesarean delivery, conflicting findings exist in the literature, and the contribution of labor-related mechanical factors to long-term backache is not fully understood.^[6,9,10]

Chronic low back pain does not only affects the physical health of women and has major socioeconomic implications.^[7] It may impair the care-giving abilities of mothers to their newborns, interfere with family relationships, and result in economic losses in terms of decreased productivity and increased healthcare expenditure. The understanding of the role of delivery techniques and anaesthesia in chronic low backaches could be the impetus for improving clinical practices and preventive measures leading to better maternal outcomes.^[1,8,11,12]

This study sought to fill this knowledge gap by retrospectively examining the incidence of chronic low backache in women undergoing caesarean delivery under spinal anaesthesia in comparison to those undergoing normal vaginal delivery. The results can be beneficial for understanding the long-term health consequences of delivery techniques by evaluating whether a meaningful correlation exists between spinal anaesthesia and chronic low backache.

Aim

This study sought to compare the incidence of chronic low back aches in women who had undergone caesarean delivery under spinal anaesthesia with women who had normal vaginal delivery and determine whether spinal anaesthesia has any significant association with chronic low back ache.

MATERIALS AND METHODS

This retrospective comparative study was conducted in the Department of Anaesthesia, Coimbatore Medical College Hospital, after obtaining approval from the Institutional Ethics Committee. Written informed consent was obtained from all participants during antenatal checkups during their second pregnancy.

Inclusion criteria

Women aged 18–45 years and those with prior caesarean delivery (under spinal anaesthesia) or normal vaginal delivery were included.

Exclusion criteria

Patients with a history of spinal pathologies (e.g., disc prolapse, spondylosis, and osteoporosis); previous

deliveries under general anaesthesia; systemic diseases (cardiac, hepatic, and renal); and history of miscarriage, abortion, or non-second parity were excluded.

Methods

A structured questionnaire, administered in the regional language (Tamil), was used to collect data on the following: the presence of chronic low backache lasting more than six months after the first delivery, history of backache prior to delivery, mode of delivery (vaginal or caesarean), and, for caesarean deliveries, the elective or emergency status, and the type of anaesthesia used. It is important to note that while the questionnaire was pilot-tested for clarity, it was not formally validated, which represents a limitation of the study.

Statistical analysis

Continuous data were reported as mean ± standard deviation (SD) and categorical data as frequencies (%). Logistic regression analysis was used to analyse the associations between spinal anaesthesia and backache. SPSS (v18) and SAS (v9.4) were used, with $p < 0.05$ indicating significance.

RESULTS

Among the 250 participants, 62.4% (156/250) reported experiencing chronic low backache persisting for more than six months following their first delivery. A significant majority of the participants (89.2%, 223/250) had no history of backache prior to their first delivery, while only 10.8% (27/250) reported pre-existing back pain. The study population was nearly evenly divided between caesarean delivery (48.8%, 122/250) and normal vaginal delivery (51.2%, 128/250) groups.

More than half of the deliveries (55.2%, 138/250) were classified as emergency procedures, compared to 44.8% (112/250) performed electively.

Spinal anaesthesia was the predominant method, administered to 90% (225/250) of participants undergoing caesarean delivery, while other modes of anaesthesia accounted for 10% (25/250).

Among patients with chronic low backache, 48.7% (67/139) had undergone caesarean delivery under spinal anaesthesia, compared to 51.7% (72/139) who had normal vaginal deliveries. Statistical analysis revealed no significant association between spinal anaesthesia and chronic low backache ($p = 0.9326$) [Table 1].

Table 1: Demographic and clinical characteristics of study participants.

Variable	Category	Number of Patients (%)
Chronic low backache (>6 months after first delivery)	Yes	156 (62.4%)
	No	94 (37.6%)
Backache before delivery	No	223 (89.2%)
	Yes	27 (10.8%)
Type of delivery	Caesarean delivery	122 (48.8%)
	Normal vaginal delivery	128 (51.2%)
Elective/Emergency delivery	Elective	112 (44.8%)
	Emergency	138 (55.2%)

Mode of anaesthesia	Spinal anaesthesia	225 (90%)
	Other modes of anaesthesia	25 (10%)

DISCUSSION

Positional changes occur in the body to accommodate the expanding uterus and weaken the abdominal muscles. Furthermore, hormonal changes loosen the joints and ligaments of the pelvic girdle, resulting in unstable walking. Owing to repetitive stress, spine integrity is compromised, which causes repetitive injury to the zygapophyseal joints, discs, muscles, ligaments, and joints of the spine due to twisting, torquing, and poor posture. During pregnancy, estrogen, progesterone, and relaxin cause generalized muscle and ligament laxity, thereby compromising spinal stability. Many patients experience a shift in the centre of gravity to the heel of their feet and develop hyperlordosis, hyperkyphosis, and reversal of the spinal curve. The zygapophyseal joints and lumbar spine are under further stress with advancing pregnancy owing to increased abdominal girth.

The association between spinal anaesthesia and LBP has been hypothesized to result in poor posture during labor and delivery because effective analgesia, muscular relaxation, immobility, and stressed posture primarily result in postural pain. The aetiology is multifactorial. Physical and physiological changes during pregnancy and after delivery, such as lumbar lordosis, the rise and fall of the centre of gravity, and loss of abdominal muscle support, result in intense stretching of the lower back.

Maternal workload, such as repetitively lifting a baby in bent forward and twisted positions, heavy physical work and even tedious housework, subjective perception of physical strain, and physical exertion, are particularly regarded as the assumed cause by patients with LBP compared to patients with chronic pain of another origin, all of which contribute to triggering LBP after delivery. For most women, pain resolves spontaneously or improves with medical attention and simple treatment; very few patients with sciatica and neurologic claudication require timely surgical intervention.

Other conditions, such as antenatal complaints of headaches or abdominal pain, endurance of back flexors, musculoskeletal subsystem imbalance, hormonal and vascular factors, and predisposing factors such as greater weight and shorter stature, age, marital status, and socioeconomic status, are also considered risk factors for parturient LBP.

CONCLUSION

There was no increased risk of chronic lower back aches following caesarean delivery with spinal anaesthesia. Chronic lower back aches may be caused

by physiological changes during pregnancy. Certain risk factors are associated with lower back pain, but these can be avoided by specific strategies and management plans during pregnancy.

REFERENCES

- Kazdal H, Kanat A, Ozdemir B, Ozdemir V, Guvercin AR. Does the anesthesia technique of cesarean section cause persistent low back pain after delivery? A retrospective analysis. *Eur Spine J* 2022; 31:3640–6. <https://doi.org/10.1007/s00586-022-07388-4>.
- Tabesh H, Seif SB, Farrokhnia F, Rezvani M, Tabesh A. The effect of spinal anesthesia as a risk factor for low back pain in women after cesarean section. *J Isfahan Med Sch*. 2017; 35:32–7. https://jims.mui.ac.ir/article_15157.html.
- Mukhopadhyay A, Bhattacharyya A, Syamal AK, Chanda S. Spinal anesthesia during cesarean section and persisting low back pain: a cross sectional study in West Bengal, India. *Int J Med Res Rev* 2019; 7:496–503. <https://doi.org/10.17511/ijmrr.2019.i06.09>.
- Chia Y-Y, Lo Y, Chen Y-B, Liu C-P, Huang W-C, Wen C-H. Risk of chronic low back pain among parturients who undergo cesarean delivery with neuraxial anesthesia: A nationwide population-based retrospective cohort study. *Medicine (Baltimore)* 2016;95: e3468. <https://doi.org/10.1097/MD.0000000000003468>.
- Aryasa T, Pradhana AP, Ryalino C, Hartawan IG. Post-spinal backache after cesarean section: A systematic review. *Bali J Anesthesiol* 2021; 5:234–8. <https://website.anestesiudayana.com/wp-content/uploads/2022/06/77.-Post-spinal-Backache-After-Cesarean-Section.pdf>.
- Wang LZ, Wei CN, Xiao F, Chang XY, Zhang YF. Incidence and risk factors for chronic pain after elective caesarean delivery under spinal anaesthesia in a Chinese cohort: a prospective study. *Int J Obstet Anesth* 2018; 34:21–7. <https://doi.org/10.1016/j.ijoa.2018.01.009>.
- Tariq S, Afzal A, Abid S, Ans M, Jabbar S, Azam S. Prevalence of Chronic low back pain due to cesarean section under spinal anesthesia among the housewives in Faisalabad District. *Biol Med (Aligarh)* 2020;12. <https://www.researchgate.net/publication/361707491>
- Shanthi SP. Prevalence of back-pain following caesarean section under spinal anesthesia. *Int J Reprod* 2023;12:2877. <https://dx.doi.org/10.18203/2320-1770.ijrcog20232758>
- Teshome ZB, Seifu MA. Management and associated factors of postoperative acute pain in cesarean section performed under spinal anesthesia, prospective cohort study. *Int J Surg Open* 2022; 46:100529. <https://doi.org/10.1016/j.ijso.2022.100529>.
- Algarni RA, Albakri HY, Albakri LA, Alsharif RM, Alrajhi RK, Makki RM, et al. Incidence and risk factors of spinal anesthesia-related complications after an elective cesarean section: A retrospective cohort study. *Cureus* 2023;15: e34198. <https://doi.org/10.7759/cureus.34198>.
- Bekele Z, Ayana M, Haile M, Tesfaye A, Tasew A. Incidence and predictors of postoperative severe acute pain within 24 hours after cesarean section performed under spinal anesthesia at public hospitals in West Shoa, Ethiopia. 2022 prospective cohort study. *Ann Med Surg (Lond)* 2023; 85:4239–47. <https://doi.org/10.1097/MS9.0000000000001031>.
- Dirham NR, Triyudono D, Apriliyani I. Description of The Incidence of Back Pain After Caesarean Section With Spinal Anesthesia. *Java Nurs J*. 2024; 2:257–65. <https://doi.org/10.61716/jnj.v2i3.59>