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ORIGINAL ARTICLE

Assessment of the Prevalence of Chronic Backache as a Complication Post-Dural Puncture

MASOOD WAZIR[1], FARAH AHMAD[2], SYED TAMEEM-UL-HASSAN[3], ABBAS KHAN[4], SAIMA MASOOD[5], LARAYEB WAZIR[6]
[1]*Commandant, Combined Military Hospital, Kohat*
[2]*Professor, Community Health Sciences, Ziauddin University, Karachi*
[3]*Consultant Physical Medicine & Rehabilitation, Combined Military Hospital, Kohat*
[4]*Registrar Medicine, Combined Military Hospital, Kohat*
[5]*Civil Medical Practitioner, Combined Military Hospital, Kohat*
[6]*Resident Trainee Psychiatry, St. Mary' General Hospital, New Jersey, USA*
Correspondence Dr. Masood Wazir, E-mail: masoodwazir66@gmail.com Cell: 03225354724

ABSTRACT

Background: Spinal anesthesia is commonly selected for surgical procedures involving the lower abdomen, pelvis, and lower extremities, such as anorectal, urologic, obstetric, and gynecologic surgeries, due to its effectiveness in providing regional anesthesia in these specific areas. Backache is frequently reported after the spinal anesthesia. Studies consistently show that the prevalence of backache after spinal anesthesia is significant in developing countries, although there are also contradictions.
Aim: To establish a connection between backache and spinal anesthesia.
Methodology: Prospective observational study was conducted inTertiary Care Hospital, KPK, Kohat Pakistan from 1st May 2022 to 31st July 2023. Three hundred and forty-eight patients were enrolled. Numerical rating scale for pain was used to record backache status and a structured questionnaire was used to explore other considerations.
Results: There were 26(7.47%) males and 322(92.53%) females with mean age of 30.37±9.00 years. Two hundred and ninety-three (84.20%) patients had no comorbidities while 55 patients (15.80%) had comorbid conditions. Post-dural backache was observed in 234 patients (67.24%) patients. Among male population, 4(15.38%) patients out of 26 patients have developed chronic backache and 206(63.98%) patients out of 322 have developed chronic backache among females. The severity of backache was measured baseline and at one, three, and six months postoperatively with mean NRS scores of 0.45±1.63 immediately, 3.14±2.14 at one month, 2.74±1.54 at three months, and a score of 2.57±1.79 at six months. Immediately after the procedure, 18 patients (5.17%) reported backache. At 1st and 3rd month, 220 patients (63.22%) experienced backache, a number that remained consistent from 1st to 3rd month. After 6 months, the incidence slightly decreased to 210 (60.34%) patients.
Practical Implication: Post-dural backache is a significant issue, especially among females, requiring targeted postoperative management and preventive strategies. Healthcare providers should implement early interventions like physical therapy and pain management protocols, especially within the first six months.
Conclusion: The high prevalence of post-dural backache among patients undergoing spinal anesthesia in our society, with a significant portion of the patients experiencing chronic backache postoperatively. The severity of backache slightly decreased over a six-month period. These findings emphasize the need for careful monitoring of chronic backache in patients receiving spinal anesthesia.
Keywords: Chronic Backache, Post Dural Puncture Backache, Spinal Anesthesia

INTRODUCTION

Low back pain is a major contributor to global disability, impacting over half a billion people who endure pain for more than three months.[1] Persistent backache stems from a variety of factors: psychological elements like stress, anxiety, and depression, physical factors such as higher BMI and low bone mineral density, occupational risks including heavy lifting and prolonged physical strain with improper postures, and a history of traumatic back injury can heighten pain perception[2].

Spinal anesthesia is gaining popularity for pelvic surgeries because of its rapid onset and high success rate in achieving effective blockade. In Pakistan, clinicians often encounter complaints of backache following spinal anesthesia, which is a common anesthetic technique used in surgeries involving the pelvic region. These surgeries include obstetric, gynecologic, anorectal, and urologic procedures. The prevalence of backache following spinal anesthesia is notably higher among female patients. This is largely due to the cesarean sections, where spinal anesthesia is the preferred method and shown that women undergoing cesarean sections often report backache postoperatively[3].

Post-dural puncture backache is characterized by persistent pain and tenderness in the lumbar area near the site where the spinal needle was inserted, without radiating pain[4]. Several factors contribute to the occurrence of backache post spinal anesthesia, including the size of the spinal needle, the number of attempts to achieve successful lumbar puncture, and patient posture during the procedure. Overweight or obese patients are also at higher risk due to increased pressure on the spine[5].

Post-dural puncture complications can be categorized into immediate and late complications. Immediate complications include hypotension (mild or severe), respiratory problems, post-operative pain, and nausea and vomiting. Late complications include persistent post-operative pain (ranging from mild to severe), puncture site pain, and severe post-dural puncture headache[6]. Evidence supports that persistent low back pain post-surgery is prevalent among patients who have undergone cesarean section deliveries[7].

Chronic backache is a prevalent and challenging condition to manage, often requiring multifaceted approaches for effective treatment. The complexity of chronic backache arises from various potential causes, including mechanical issues, degenerative diseases, and psychological factors. Chronic low back pain is characterized by persistent pain lasting more than three months, extending beyond the typical healing period. It is recognized as one of the most prevalent and economically burdensome musculoskeletal issues in contemporary society[8].

Managing chronic backache is challenging, and among alternative rehabilitative techniques, the behavioral or biopsychosocial approach provides a foundational understanding for addressing persistent pain more effectively[9].

Although global studies report a low incidence of backache post spinal anesthesia, medical practitioners in Pakistan commonly report cases, especially among various women after cesarean section, who suffer from persistent and chronic back pain following spinal anesthesia. This pain, often a consequence of post-dural

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puncture, not only deteriorates their quality of life but also creates a fear for repeating the procedure. This research aims to assess the prevalence of chronic backache among all patients, regardless of gender, who have undergone spinal anesthesia in our facility.

MATERIALS AND METHODS

The prospective observational study was performed after permission from Hospital Ethical Committee at Tertiary Care Hospital, KPK, Kohat Pakistan from 1st May 2022 to 31st July 2023 and 348 patients were enrolled. All patients of both genders, older than 18 years, who underwent both elective and emergency operative surgeries under spinal anesthesia were included. Patients those who were unable to communicate; patients with history of chronic backache; patients with history of numbness feet; history of trauma and joints pain were excluded.

Patients' postoperative data were collected by using a constructed data collection tool. Two data collectors after training were involved to collect the data. After enrolment, the purpose of study was explained to the participants and consent was taken. Patient's demographics, previous history of backache and comorbidities were recorded. Numbness and weakness lower limbs were ruled out. History of trauma and joints pain was ruled out.10-point Numerical Rating Scale (NRS) for pain was used to assess backache immediately, after 1 month, 3 months and 6 months. The immediate NRS was taken at bed side whereas the NRS at 1st. 3rd and 6th month was recorded over telephonic conversation. The data was entered and analyzed through SPSS-20.

RESULTS

There were 26(7.47%) males and 322(92.53%) were females with mean age was 30.37±9.00 years. Two hundred and ninety three (84.20%) patients had no comorbidities while 55(15.80%) patients had comorbid conditions. Post-dural backache was observed in 234 patients (67.24%) patients. Among males, 4 patients (15.38%) out of 26 patients have developed chronic backache and 206 patients (63.98%) out of 322 have developed chronic backache among female population. The severity of backache was measured baseline and at one, three, and six months postoperatively, with mean NRS scores of 0.45±1.63immediately, 3.14±2.14at one month, 2.74±1.54 at three months, and a score of 2.57±1.79 at six months (Table 1, Fig. 1).

The prevalence of backache among participants was recorded at various time points using the Numerical Rating Scale (NRS) where scores greater than zero indicated pain. Immediately after the procedure, backache was reported by 18 patients (5.17%). At 1stmonth, the number of patients experiencing backache was 220 (63.22%) patients. At 3rdmonth, the number of patients experiencing backache was 220 (63.22%) patients same as 1st month. After 6 months, the number slightly decreased to 210 (60.34%) patients (Table 2).

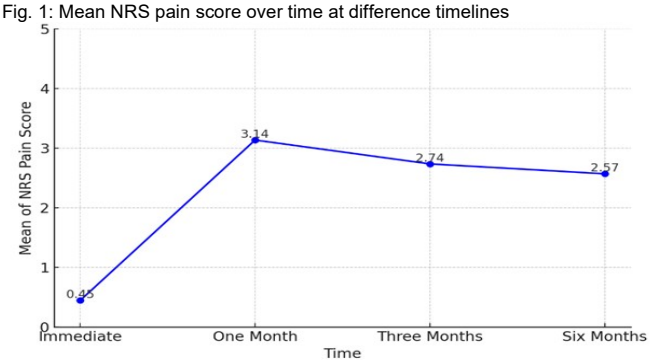
Table 1: Mean NRS at difference timelines (n=348)

Timeline	Mean±SD
Immediately (within 24 hours)	0.45±1.63
At 1st month	3.14±2.14
At 3rd Month	2.74±1.54
At 6th month	2.57±1.79

Table 2: Prevalence of backache among patients at different timelines

Timeline	No.	%
Immediately (within 24 hours)	18	5.17
At 1st month	220	63.22
At 3rd Month	220	63.22
At 6th month	210	60.34

Fig. 1: Mean NRS pain score over time at difference timelines



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DISCUSSION

Postoperative backache is a frequent complication of spinal anesthesia in clinical settings. Addressing and alleviating this pain is crucial to enhance quality of life, optimize anesthesia outcomes, and boost patient satisfaction[11,12]. In the current study, the overall persistence of chronic backache, post spinal anesthesia was 60.34% which is significantly higher than the studies previously done in Ethiopia and Germany that is 40% and in Europe that is 17%.[13,14] This difference might be due to setup difference, difference of technique and equipment, socioeconomic differences and the expectation differences.

At baseline, immediately (within 24 hours) after the spinal anesthesia 5.17% have backache. At one-month post-surgical follow-up, 220(63.22%) patients were suffering with backache, with an average pain severity rating (NRS) of 3.14 out of 10. This incidence was notably higher compared to a previous study in Ethiopia[11], which reported a 31.6% incidence at the fourth week after spinal anesthesia. By three months, 63.22% of total patients experiencing chronic backache, with an average NRS of 2.74. At 6 months, 60.34% of total patients experiencing chronic backache, with an average NRS of 2.57. Notably, there is a lack of studies specifically addressing chronic backache post-dural puncture at 3 and 6 months, however a study has reported chronic persistence backache in 55% of patients post spinal anesthesia.[15] Another study conducted in Faisalabad, Pakistan, revealed a 78% prevalence of chronic low back pain among patients who underwent cesarean sections with spinal anesthesia[16].

In the present study, 322(92.53%) were females, primarily undergoing lower segment cesarean section, as well as surgeries such as hemorrhoidectomies, lower limb amputations, anal fissure EUAs and fissurectomies. Among these female patients, 206 patients (63.98%) reported post-operative chronic backache at 6 months. The remaining 26 patients were male, also undergoing various surgeries including hemorrhoidectomies, lower limb amputations, anal fissure EUAs and fissurectomies. Of these male patients, 4(15.38%) developed post-operative chronic backache at 6 months. The percentage of female patients developed chronic

backache at 6 months is significantly higher than male patients. The higher prevalence of backache in women, compared to men, may be attributed to several risk factors associated with pregnancy. These factors include weight gain, prior lower back pain, reduced physical activity, fatigue, low hemoglobin levels, and poor socioeconomic conditions. Additionally, increased lumbar lordosis during pregnancy leads to postural alterations and inefficient neuromuscular control, further contributing to back pain[17].

The incidence of backache following spinal anesthesia is significantly associated with body mass index, the size of the spinal needle used, the number of insertion attempts, and the frequency of bone contacts during the procedure[13].

In this study, the high prevalence of backache among female patients suggests that many in our community avoid or dislike spinal anesthesia, which contributes to dissatisfaction among female patients. This leads to the increased risk of complications associated with general anesthesia, particularly for patients undergoing Lower Segment Cesarean Section, which is considered harmful to the fetus as it can cause respiratory depression in the new born. In a study conducted in Tunisia, it was found that various complications and side effects of spinal anesthesia including Post Dural Puncture Headache, Post Operative Backache and Intraoperative Hypotension, in addition to sociodemographic factors, may serve as predictors of patient satisfaction levels[18].

Chronic backache, persisting more than six months is problematic for both patients and physicians because it is difficult to treat. It not only affects the quality of life but also increases the burden of disease and has psychological consequences[19]. Managing chronic low back pain presents unique challenges compared to acute low back pain, as its progression and long-term nature often make it difficult to achieve complete recovery[20].

This study recommends enhancing spinal anesthesia techniques and minimizing both pregnancy-related and procedure-related risk factors in the female population to prevent the development of backache. While this study does not explore the risk factors associated with the spinal anesthesia procedure itself, these could be addressed in future research.

CONCLUSION

The higher incidence and prevalence of backache found. This not only leads to patient dissatisfaction but also increases the overall burden of disease and impacts quality of life. The problem is particularly prominent among female patients undergoing Lower Segment Cesarean Section, adding to the challenges faced by mothers caring for newborns. The study emphasizes the difficulty in managing chronic backache in our society due to the lack of a comprehensive biopsy co-social approach and clear management guidelines. To mitigate the high incidence of post-spinal anesthesia backache, the study recommends identifying and modifying factors contributing to this issue.

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1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
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