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PREVALENCE AND FACTORS ASSOCIATED WITH POST-CESAREAN BACK PAIN IN WOMEN UNDERGOING SPINAL ANESTHESIA

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Abstract

Background: Spinal anesthesia (SA) is commonly preferred for various surgical procedures, including those involving the lower extremities, anorectal, urologic, obstetric, gynecologic, and lower abdominal areas. However, post spinal back pain (PSBP) is a notable complication associated with SA, more prevalent than with general anesthesia. Back pain is a widespread health issue affecting a significant portion of the global population, imposing considerable physical and economic burdens.

Objective: The objective of this study to assess the occurrence and determinants of post-cesarean back pain in women undergoing spinal anesthesia.

Methodology: This retrospective cohort study included 50 women who had undergone cesarean sections with spinal anesthesia at Al-Mubarak Hospital Sadiqabad. Data were extracted from medical records, encompassing demographic details, pain assessment, occupational status, previous medical history, and postoperative pain characteristics. Descriptive statistics, Chi-Square test, and Independent Sample t-test were employed for statistical analysis, with a p-value of less than 0.05 considered statistically significant.

Results: The study consisted predominantly young women with a mean age of 29.29 ± 2.44 years and a mean body mass index (BMI) of 24.38 ± 1.72. The cesarean sections were at 38.04 ± 0.80 weeks of gestation. Participants reported an average pain score of 6.06 ± 1.25, with a typical pain duration of 10.20 ± 2.73 hours. Regarding occupational status, 58% were employed, and 42% were unemployed. 18% had a history of previous abdominal operations, while all had undergone a previous C-section. Postoperative pain characteristics varied, with 36% reporting pain lasting less than one

month. Pain intensity and frequency also varied, with significant associations between pain and maternal and surgical factors.
Conclusion: The study underscores the importance of procedural considerations, such as the number of lumbar puncture attempts and needle size, in determining the prevalence of post-cesarean back pain.

Keywords: Post-Cesarean; Back Pain; Spinal Anesthesia; Females.

Introduction

Spinal anesthesia (SA) is often preferred and regularly used in operations involving lower extremities, anorectal, urologic, obstetric, and gynecologic procedures, as well as lower abdominal surgeries (1, 2). Post spinal back pain (PSBP) is one of the complications linked to spinal anesthesia, despite its widespread usage. PSBP is more common with spinal anesthesia than with general anesthesia (3, 4). Back pain is a prevalent health problem that impacts a significant portion of the population worldwide, with estimates suggesting that it affects 50% to 80% of persons at some stage in their life (5, 6). This condition imposes a considerable physical and economic burden on both individuals and society as a whole. Persistent low back pain affects more than 23% of the population, while nonspecific low back pain affects more than 84% of people at some point in their lives. Eleven to twelve percent of those who suffer from this condition may end up disabled in some way (7, 8).

Regardless of the kind of anesthetic used, patients often have low back pain after surgery after spinal anesthesia. However, the anesthetic approach contributes to back pain (9). When most patients' local anesthetic effects wear off, which happens two to six hours following surgery, postoperative surgical pain (PSBP) often presents as moderate discomfort. This pain usually goes away in a few days (10, 11). In very rare circumstances, spinal needle insertion-related nerve injury may result in weeks-long agony or perhaps irreversible suffering (12). Research has shown that 10.7–12.3% of patients report having back discomfort during spinal anesthetic (13, 14). An Ethiopian research found that 38.0% of patients had post-sternotomy pain on the first, second, and third days after surgery, respectively. According to information gathered from an unrelated research conducted in Asella, Ethiopia, 38.0%, 29.9%, 16.0%, and 31.6% of patients reported back pain on the first, second, third, and fourth days after spinal anesthesia (15). The fear of experiencing back discomfort is a contributing factor to a rejection rate of 13.4% for spinal anesthesia (16, 17).

In the city of Chicago, located in the United States, around 9-10% of the individuals who took part in a research reported experiencing back pain after undergoing a surgical procedure known as SA. A study conducted across many centers in Europe found that back pain was the most common complaint among other concerns arising from a procedure called post lumbar puncture, with an occurrence rate of 17% (18, 19). The German observational research, which included 112 individuals, revealed a higher prevalence rate of 40% (20, 21). Research conducted in Turkey and China found that the incidence of PSBP was 29.3% and 39% on the first day, 37% on the second day, and 31% on the third day following surgery, respectively (22). Spinal anesthetic has a significant impact on patient satisfaction, particularly in relation to back pain (23). Unaddressed back pain may result in consequences such as intensifying wound pain, rising pressure inside the skull and eyes, increasing energy expenditure in the heart and body, boosting the demand for oxygen in tissues, and causing delayed release from post-anesthetic care and hospitals (24). Long-term post spinal back pain has been associated with diminished quality of life, illness, absenteeism, decreased job productivity, and increased healthcare expenses (25). Hence, the objective of this research is to assess the occurrence and determinants of back pain in individuals who are receiving spinal anesthetic.

Methodology

This retrospective cohort study included 50 women who had undergone cesarean sections with spinal anesthesia at Al-Mubarak Hospital, Sadiqabad. Relevant data were extracted from their medical records, covering various aspects such as demographic details (age, body mass index, and gestational age), pain assessment (using a numerical rating scale for pain score and measuring pain duration in

hours), occupational status (categorized as employed or unemployed), previous medical history (including previous abdominal operations or C-sections), and postoperative pain characteristics (duration, frequency, intensity of pain, and associated factors like maternal and surgical elements). For statistical analysis, descriptive statistics, Chi-Square test, and independent sample t-test were employed. A p-value of less than 0.05 was considered statistically significant.

Results

In table 1, the study encompassed a cohort of 50 participants, predominantly young women with a mean age of 29.29 ± 2.44 years and a corresponding mean body mass index (BMI) of 24.38 ± 1.72. The Cesarean sections were 38.04 ± 0.80 weeks of gestation. Participants reported an average pain score of 5.50 ± 1.56, with a typical pain duration of 10.20 ± 2.73. Occupational diversity with 58% of participants employed and 42% unemployed. Nearly one-fifth of the participants (18%) reported a history of previous abdominal operations, while all participants (100%) had undergone a previous C-section. Regarding the duration and frequency of postoperative pain, 50% reported pain lasting less than one month, and the majority (66%) experienced no pain at all. Pain intensity varied, with 50% reporting no pain at rest, and 56% reporting mild pain during activity. Interestingly, maternal factors were associated with pain in 42% of cases, while surgical factors were 58% of instances (Figure 1).

Table 1: Characteristics of Study Participants.

n	**50**
Age	29.29±2.44
Body Mass Index	24.38±1.72
Gestational Age	38.04±0.80
Pain Score	6.06±1.25
Pain duration	10.20±2.73
Occupational Status	
Employed	29(58%)
Unemployed	21(42%)
Previous Abdominal Operation	
Yes	9(18%)
No	41(82%)
Previous C-Section	
Yes	50(100%)
No	0(0%)
Duration of Postoperative Pain	
<1 Month	18(36%)
1 Month	17(34%)
2 Month	9(18%)
3 Months	6(12%)
Frequency of Pain	
No Pain	33(66%)
Constant	4(8%)
Daily	3(6%)
Interval of Days	5(10%)
Interval of Weeks	5(10%)
Intensity of Pain at rest	
No	18(36%)
Mild	18(36%)
Moderate	14(28%)
Intensity of Pain during activity	
No	6(12%)
Mild	22(44%)
Moderate	14(28%)
Sever	8(16%)
Associated Pain	
Maternal Factors	21(42%)
Surgical Factors	29(58%)

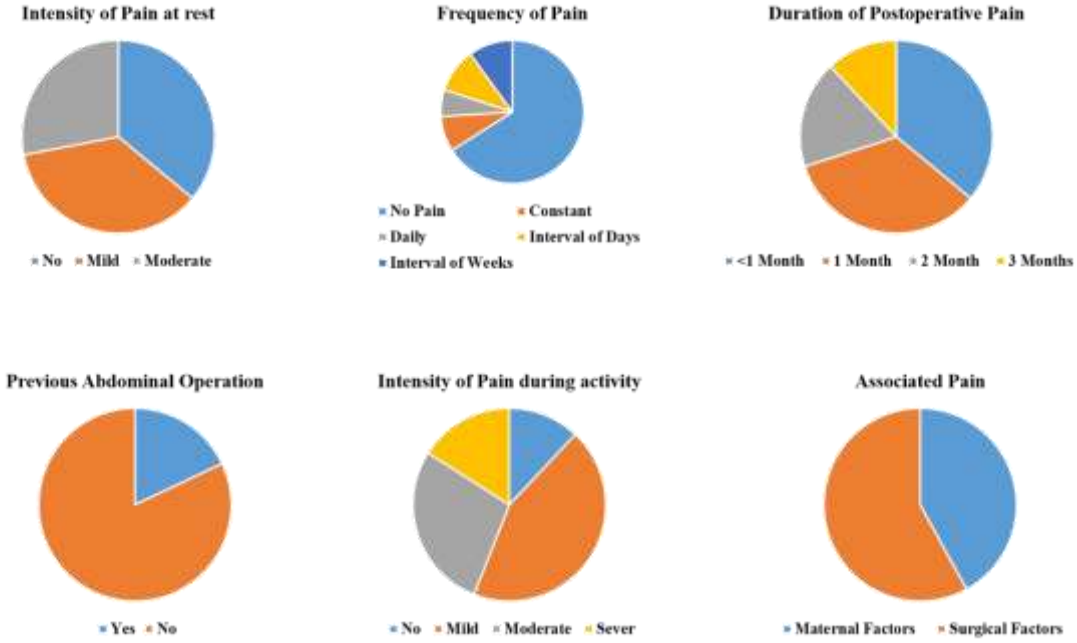

Figure 1: Characteristics of Study Participants.

Table 2 presents two major categories of associated pain – maternal characteristics and surgical factors – and explores their relationship with various pain-related parameters. The duration of time a patient experienced discomfort after surgery was shown to be significantly correlated with surgical variables (p=0.031). Both maternal features and surgical variables did not show a significant connection with the incidence of discomfort elsewhere (p=0.577). Resting pain intensity was significantly correlated with the existence of related surgical variables (p=0.029). The prevalence of related pain was significantly correlated with the degree of pain during exercise (p=0.017). A greater pain score was connected with associated pain, and there was a statistically significant difference between the two groups (p=0.038). Nevertheless, there was no discernible variation in the duration of discomfort (p=0.620).

Table 2: Comparison of Pain related Characteristics in relation to Associated Pain experienced by Women.

		Associated pain				**p-value**
		Maternal Characteristics		**Surgical factors**		
		n=21		**n=29**		
		n	**%**	**n**	**%**	
Duration of postoperative pain	**1 month**	3	14.29%	14	48.28%	**0.031[(a)]**
	2 month	4	19.05%	5	17.24%	
	3 month	2	9.52%	4	13.79%	
	< 1 month	12	57.14%	6	20.69%	
Frequency of pain elsewhere	**Constant**	3	14.3%	1	3.4%	**0.577[(a)]**
	Daily	1	4.8%	2	6.9%	
	Interval of days	1	4.8%	4	13.8%	
	Interval of weeks	2	9.5%	3	10.3%	
	No pain	14	66.7%	19	65.5%	
Intensity of pain at rest	**No**	12	57.14%	6	20.69%	**0.029**
	Mild	5	23.81%	13	44.83%	
	Moderate	4	19.05%	10	34.48%	
Intensity of pain during activity	**No Pain**	1	4.76%	5	17.24%	**0.017[(a)]**
	Mild	12	57.14%	10	34.48%	
	Moderate	8	38.10%	6	20.69%	
	Severe	0	0.00%	8	27.59%	
Pain Score		5.57±1.66		6.41±0.68		**0.038[(b)]**
Pain Duration		10.42±2.94		10.03±2.61		**0.620[(b)]**

Note: (a): Chi Square test, (b): Independent sample t-test.

Discussion

A response rate of 94.1% was in this study, which comprised 397 mothers in total. The participants' average age was 26.96 years with a standard deviation of 4.37. Three hundred seventy-two (93.7%) were married, while twenty-five (6.3%) were unmarried. Of the mothers surveyed, 133 (33.5%) had finished secondary school, and among them, six (1.5%) had master's degrees. According to Bekele et al. (2023), 219 mothers were from West Shoa's urban area, whereas 178 mothers were from the rural area (6). Back discomfort after spinal anesthesia is a typical side effect seen in clinical practice. In order to improve anesthetic results, patient satisfaction, and quality of life, it is essential to alleviate this discomfort (3, 26).

With a 95% confidence interval of 34.0 to 48.4, the present research found that 40.5% of participants had post spinal back discomfort. Research out of Germany found a similar percentage of 40% (20, 27). But that's more than the stated prevalence in Korea, which is 32% (27). Patients who had more than three attempts at lumbar puncture were included in our analysis, which may explain this discrepancy. Cutting tissue and rupturing tiny blood vessels and nerves are two potential outcomes of many lumbar punctures, both of which may exacerbate back discomfort. Because larger-sized spinal needles were used more often in previous research, which might cause injury to different tissues and lead to back pain, the prevalence in study was greater than in Europe (17%) (19) and Iran (5.8%) (28).

Research conducted in underdeveloped nations has shown that a significant number of patients have acute postoperative pain after cesarean sections. This underscores the need of better pain management strategies (29, 30). Insufficient pain management might slow down recovery and functional activities of daily living. Mothers who must tend to a newborn shortly after surgery must prioritize effective pain management. Neglecting to address acute postoperative pain increases the likelihood of chronic pain and numerous medical complications, such as infection, depression, deep vein thrombosis, and pneumonia (31-33).

Discomfort and dissatisfaction are two outcomes of postoperative pain (34). As opposed to studies conducted in South Africa (85.5%) and Hawasa (89.8%), the total incidence of severe postoperative pain within 24 hours following a cesarean section done under spinal anesthesia was 50.4% (35). Moreover, a research conducted in Addis Abeba revealed that 76.2% of participants had acute postoperative pain (36), while a cross-sectional study in Debre Tabor indicated that 37.7% of patients experienced this pain within 1 hour and 76.7% within 6 hours after surgery (37).

Conclusion

This study highlights the prevalence and determinants of post-cesarean back pain following spinal anesthesia. The observed incidence of 40.5%, influenced notably by factors like multiple lumbar puncture attempts and larger needle sizes, highlights the significance of procedural considerations in minimizing patient discomfort. Surgical factors were found to correlate with the duration and intensity of postoperative pain, emphasizing the need for nuanced anesthesia strategies. These findings underscore the necessity for ongoing research to refine anesthesia techniques, particularly in the context of cesarean sections, and advocate for region-specific investigations due to procedural and demographic variations.

Conflict of Interest None

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