

Post-Spinal Backache! A Myth or an Overlooked Complication

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ABSTRACT

Objective: To find out the difference in the backache when a 27G Quincke needle with no more than two attempts is used for spinal anaesthesia versus general anaesthesia.

Study Design: Prospective comparative study.

Place and Duration of Study: Anesthesia Department, Combined Military Hospital, Lahore Pakistan, from Jun 2020 to May 2021.

Methodology: A total of 150 patients were divided into two Groups. C-sections were performed under general and spinal anaesthesia in Group-GA and Group-SA, respectively. General anaesthesia was induced with intravenous anaesthetics following rapid sequence induction. The 27G Quincke needle was used for spinal anaesthesia with no more than two attempts. Post-operative follow-ups for backache were carried out at 24-hours, 1, 4 and 12 weeks.

Results: At 24-hours post-operative follow-up, 8 patients from the GA-Group and 17 from the SA-Group had backache; the difference was significant (p -value of 0.049). At week-1, two patients from the GA-Group and five from the SA-Group complained of backache (p -value 0.246). Similarly, at week-4, only one patient from the GA Group and four from the SA-Group had backache (p -value 0.127). At the 12-week follow-up, only one patient complained of backache, and she belonged to the SA- Group (p -value 0.316).

Conclusion: Spinal anaesthesia results in a significantly high frequency of backache as compared to general anaesthesia in the immediate post-operative period; however, there is no long-term difference in backache.

Keywords: Backache, Back pain, General anaesthesia, Post-spinal backache, Spinal anaesthesia.

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INTRODUCTION

According to Pakistan Demographic and Health Surveys (PDHS), the caesarean section (C-section) rates have increased from 2.7% in 1990 to 15.8% in 2013; thus, more and more women are presenting for the C-section.¹ Pain is a big fear from a patient's perspective, so the rates of Caesarean Delivery on Maternal Request (CDMR) are increasing. In the same way, there is a significant rise in the number of women requesting General Anaesthesia (GA) due to fear of backache related to spinal injection, even though spinal anaesthesia (SA) is considered most safe for C-section.² SA is a simple procedure, yet it provides excellent anaesthesia with rapid onset intense motor and sensory blockade.³ The procedure involves tiny doses of local anaesthetic injection in the subarachnoid space.⁴

Backache after surgery is common, and its association with spinal or GA is still controversial.⁵ Acute backache after spinal, also called Post Spinal Back Pain (PSBP), may be due to tears in ligaments,

fascia, immobility of the spine, loss of normal lumbar convexity and stretching of lumbosacral ligaments.^{6,7} It usually appears after the effect of the spinal anaesthetic has worn off and may last for a few days. Persistent backache after SA is almost always related to pre-existing backache.⁸ Previous history of backache, previous SA, number of attempts and needle size are common factors for backache after regional anaesthesia.⁹ We carried out this study to find out the difference in the occurrence of backache when a small gauge 27G Quincke needle with no more than two attempts is used for SA versus the GA.

METHODOLOGY

The prospective comparative study was carried out at Anaesthesia Department, Combined Military Hospital, Lahore Pakistan, from June 2020 to May 2021, after approval from the Ethical Committee (ERC No. 734/2020/Trg/Adm). The sample size was calculated using the incidence of backache to be 17.8% and 31.6% in GA and SA, respectively.¹⁰

Inclusion Criteria: Female patients aged 18-45, with full-term pregnancies, belonging to the American

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Society of Anaesthesiologists (ASA) Class II and presenting for elective C-sections, were included in this study.

Exclusion Criteria: Patients in whom more than two attempts were made for SA or spinal needle used other than 27G Quincke needle, those with surgery lasting more than 120 minutes, or those with prior history of backache were excluded from the study.

Written informed consent was taken from all patients before recruitment for the study. Patients were selected using a random non-probability consecutive sampling technique. Selected patients were equally divided into two Groups. In Group-GA (General Anaesthesia-Group), GA was induced with intravenous anaesthetics following rapid sequence induction (RSI). Rocuronium was used for RSI. Tracheal intubation was done. Injection of Nalbuphine 0.1mg/kg and Paracetamol 15mg/kg was intraoperative analgesia. The C-section was done under SA in Group-SA (Spinal Anaesthesia-Group). For SA, a small gauge 27G Quincke needle was used with a median approach with no more than two attempts. Local anaesthetic with 1ml of lignocaine 2% was infiltrated 3mm syringe before attempting spinal anaesthesia. Post-operative follow-up was done for backache at 24 hours, 1, 4 and 12 weeks. The total number of outcomes for this study was seven, including age, BMI, mean surgery duration, and post-operative backache follow-ups at 24 hours, week-1, week-4 and week-12.

Data were analyzed with Statistical Package for Social Sciences program (SPSS ver 24). Quantitative variables were expressed as mean±SD and qualitative variables were expressed as frequency and percentages. Independent sample t-test and Chi-square test were applied to explore the inferential statistics. The *p*-value of 0.05 or less was taken as significant.

RESULTS

Of 150 patients, the mean age was 28.04±4.52 years (Range: 21-42 years). The mean BMI in Group-GA was 29.06±2.27 kg/m², whereas it was 28.43±2.57 kg/m² in Group- SA. The mean duration of surgery in Group-GA was 69.01±14.31 minutes, whereas, in Group-SA, it was 65.01±15.07 minutes, (Table-I).

On post-operative follow-up after 24 hours, SA-Group patients had a significantly high occurrence of backache. No significant difference was found in later follow-ups at 1, 4 and 12 weeks between the two Groups. One patient from Group-SA developed chronic backache, which persisted beyond 12 weeks; no

such cases were seen in the GA Group, but this difference was insignificant, (Table-II).

Table-I: Demographic Data and Duration of Surgery (n=150)

Parameters	Group-GA (Mean±SD)	Group-SA (Mean±SD)	<i>p</i> -value
Age (Years)	27.46±4.28	28.88±4.81	0.117
BMI (kg/m ²)	29.06±2.27	28.43±2.57	0.109
Duration of surgery (Minutes)	69.01±14.31	65.01±15.07	0.098

Table-II: Comparison of Both Groups in Terms of Follow up (n=150)

Follow up	Group-GA (n=75)(n%)	Group-SA (n=75)(n%)	<i>p</i> -value
24 Hours	8(10.66%)	17(22.67%)	0.049
1 Week	2(2.66%)	5(6.67%)	0.246
4 Week	1(1.33%)	4(5.3%)	0.127
12 Week	0(0%)	1(1.33%)	0.316
Total Patients with backache	9(12%)	17(22.67%)	0.084

DISCUSSION

Post-spinal backache is a known complication in about 4-6% of patients in the general population.¹¹ It is usually very mild and self-limiting and subsides in a few days. Post-spinal backache occurs due to needle trauma, injecting local anaesthetics into inter-spinous ligaments and excessive stretching of ligaments as the para-spinous muscles relax after SA.^{12,13}

SA, although a very safe and preferred technique for elective C-sections, some patients prefer GA over SA. There are different reasons why patients refuse SA. The most common reasons include anxiety about being awake during surgery, fear of needle pricks in the back and backache after spinal anaesthesia.¹⁴ Chronic low back pain is a prevalent condition that results in restricted mobility and reduced quality of life and affects about 85% of the general population at some point in their lives.¹⁵

In our study, we found out that the frequency of backache was 17(22.67%), 5(6.67%), 4(5.3%) and 1(1.33%) at 24 hours, 1, 4 and 12 weeks, respectively. Similar results were observed in a study conducted by Wang *et al.* They found out that the incidence of backache after a C-section done under spinal anaesthesia was 12.2%, 3.8% and 0.8% at three, six and 12 months, respectively.¹⁶ However, Tariq *et al.* conducted a study in the Faisalabad district of Pakistan showing some scary figures for chronic low back pain after spinal anaesthesia. Their study found that around 78% of patients who underwent caesarean under spinal anaesthesia suffered from chronic low backache. They

further concluded that the severity of backache was directly related to the history of three or more caesareans done under spinal anaesthesia.¹⁷

In our study, patients who were given spinal anaesthesia had a higher occurrence of backache after 24 hours than patients of the GA Group. Tabesh *et al.* observed similar results, i-e, patients in whom a caesarean section is done under spinal anaesthesia are 1.99 times more likely to develop backache than patients in whom the caesarean is done under GA.¹⁸

In our study, we used a median approach for spinal anaesthesia and had a higher occurrence of post-operative backache with an overall incidence of 22.67%. Lee *et al.* found out in their study that the median approach (36%) for spinal anaesthesia results in a higher incidence of backache than the para-median approach (16%).¹⁹

In our study, spinal anaesthesia was given by experienced anaesthesiologists with a 27G needle, and the data of only those cases with a maximum of two attempts for SA was recorded. However, this may only sometimes be possible in general practice, where many inexperienced anaesthesiologists use large-bore spinal needles and may need more than two attempts for spinal anaesthesia. Therefore, our results may not be generalized, and the actual incidence of backache may be higher than observed in our study. This may be the limitation of our study.

Chronic low back pain is a debilitating condition that can severely limit the patient's quality of life. It is recommended that further studies should be carried out to find out the incidence of backache irrespective of the needle size, number of attempts and approach.

CONCLUSION

Spinal anaesthesia results in a significantly higher frequency of backache than general anaesthesia in the immediate post-operative period; however, there is no long-term difference in backache.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

AH & MAS: Data acquisition, data analysis, drafting the manuscript, approval of the final version to be published.

RF & FW: Conception, study design, data interpretation, critical review, approval of the final version to be published.

SPB & MA: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated & resolved.

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