



## Prevalence and Factors Associated with Back Pain among Patients Undergoing Spinal Anaesthesia

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### ABSTRACT

After Surgery back pain is a mostly reported complaint. A lot of studies shows high prevalence of back pain after spinal anaesthesia. It has affects such as reduced quality of life, loss of work productivity, health care costs burden. Hence, beneficiary measures should be taken to reduce or prevented post spinal back. The Main aim of this Research was to assess the prevalence and factors associated with back pain among patients undergoing spinal anaesthesia at Hospicio District Hospital Margao. A total of 30 participants were enrolled in this study. Questions were asked to the patients based on their C section. The overall incidence of back pain is high. BMI, spinal needle sizes, attempts made, and multiple bone contacts are mainly related with the incidence of back pain following spinal anaesthesia. Hence suggested to minimize the attempts of lumbar puncture and bone contacts during spinal anaesthesia. In addition, it would be advised to use a smaller size needle.

### Introduction

Spinal anaesthesia which is also known as spinal block and intradural block is a form of nueraxial regional anaesthesia. Which involves injecting a local anaesthetic in the subarachnoid space. Although spinal anaesthesia is the preferred over GA, there are a lot of complications including PSBP compared to GA.

Worldwide back pain is a health problem affecting 50% and 80% of people at some time in their lives and it is a major physical and economical burden for the individual and the society.

Not taking into consideration the anesthetic technique, postoperative low back pain is often reported as a common complaint after SA but the relation between anesthetic technique and back pain is still not clear. PSBP is usually a mild type of pain and it manifests during the first two to six hrs after the surgical procedure, when the local anaesthetics wear off in most people, and lasts only for a few days. Rarely, the pain may persist for some weeks and becomes permanent because of nerve injury during spinal needle insertion

### Materials and Methods

#### 1. Study Setting and Population

- ❖ A Hospital based cross-sectional study was conducted at the Hospicio South District Hospital Margao From March to May 2021. It has been giving services for a lot of patients in the region.
- ❖ All patients scheduled for elective or emergency surgery under spinal anaesthesia during data collection period were enrolled in this study whereas patients with pre-existing back pain, patients who are mainly kids, traumatic deformity of the spine or congenital abnormalities of the lumbar spine, impaired cognitive ability, and patients undergoing combined spinal and epidural anaesthesia were excluded from the study.

#### 2. Sample Size and Sampling Procedure

- ❖ A QA session was held in which every patient was asked questions like
  - What kind of pain?(pricking, throbbing, radiating, pain)
  - How many Days Did it persist?
  - What other problems did the patient have along with it?
  - What the patient does to reduce it?( Upashaya , Anupashaya)
- ❖ The convenience sampling technique was used in all patients undergoing surgical operation under spinal anaesthesia at The Hospicio

South District Hospital ,Margao until the required sample size was reached i.e. **30 patients**

### 3. **Operational Definition**

#### ❖ ***Post spinal Back Pain***

The symptom of pricking sensation or local tenderness at the site of needle insertion is characterized by tenderness without radiating pain to the buttock or/and to lower extremities and no neurological findings.

#### ❖ ***Number of Punctures***

*It is the number procedures starting from the introduction of the spinal needle and ending with the removal of the stylet with anticipation of CSF flashback or the number of inserting the spinal needle through the soft tissues ligaments to perform subarachnoid block.*

#### ❖ ***Number of Bone Contacts***

*It is the number of contacts of bone structures during an attempt to perform subarachnoid block.*

#### ❖ ***Spinal Needle Gauges***

Spinal needles of size from 23 to 29 G are small needle gauges whereas spinal needle gauges of size from 18 to 22 G are labeled as big needle gauges.

#### ❖ ***Overweight and Obesity***

They are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 to 29.9 is considered overweight, and 30 or above is obese.

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## 4. **Data Collection Procedures**

- ❖ Data was collected by interviewing the patients , and through observation using a semi structured questionnaire prepared from different literature. Patients were asked if they felt local tenderness or pain at the site of needle injection site or not. The patients who had felt pain were asked to give a scoring from 1-10to indicate the intensity of their back pain after the data collector gave them a detailed and adequate information.
- ❖ So, PSBP was assessed withV1-10 score tool whether they had felt pain or not in 24 hr, 48 hr, and 72 hrs postoperatively in postanesthesia care units and wards. If the study participants felt PSBP, then they were asked to mark the level of pain and the data was considered but if they did not feel pain, the data collector observed those patients every 24 hrs until 72 hrs. The data collection procedure was continued until the estimated sample size is reached.

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## Quality Management Of Data

A proper research was done on the spinal anaesthesia procedure and it's consequences so that there won't be any errors. Follow ups were taken. Patients were monitored properly. All sorts of questions were asked to ensure accuracy.

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## Data Processing, Analysis, and Interpretation

The data was processed properly. Charts or table forms were created. Proper analysis was done and interpretation was ruled out

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## Results

### 1) **Prevalence of Postspinal Back Pain**

- ❖ The overall prevalence of PSBP in this study was 40.5%
- ❖ Postoperative data showed the highest incidence found on the first day and the lowest was on the third day. On the first postoperative day, 5(18.1%) of the study participants experienced back pain but 81.9% of them showed no postoperative backache on day one. 4 (11.3%) of the respondents experienced back pain on the second postoperative day. On the 3<sup>rd</sup> postoperative day, 6 (17.9%) of the participants experienced back pain.

### 2) **Factors Associated with Postspinal Back Pain**

- ❖ Both univariable and multivariable logistic regression analyses were done to see factors associated with PSBP. Variables like body mass index (BMI), ASA status, spinal needle size, number of attempts, number of bone contacts, angle of the needle, spinal interspace, history and numbers of previous SA exposures, and the presence of skin infiltration had a p value of <0.2 in the binary logistic regression analysis.
  - ❖ Finally, spinal needle size, number of attempts, and the number of bone contacts were significantly associated with PSBP in the multivariable logistic regression analysis

**Table**

Associated factors with PSBP of the study participants at the Hospicio South District Hospital Margao From March to May 2021.

Variables	Frequency	PSBP	
		Yes	No
BMI			
18.7-25 kg/m <sup>2</sup>	9	4	5
25-29.9 kg/m <sup>2</sup>	10	3	7
≥30 kg/m <sup>2</sup>	11	8	3
Previous SA			
No	14	6	8
Yes	16	7	9
Type of Surgery			
Obstetrics	8	6	2
Gynecology	10	7	3
Orthopedic	7	4	3
Urology	3	2	1
Other	2	1	1
Urgency of Surgery			
Elective	16	12	4
Emergency	14	11	3
Surgical Position			
Supine	6	4	2
Lateral	4	3	1
Lithotomy	20	17	3
Level of interspace puncture			
L2-L3	12	10	2
L3-L4	13	8	5
L4-L5	15	12	3

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## Discussion

- ❖ One of the common complications of spinal anesthesia in clinical practice is postoperative back pain. The reduction of this pain is mandatory to increase the quality of life, expand anesthesia outcomes, and improve patient satisfaction
- ❖ BMI was associated with PSBP and supported by other studies. The present study found that patients who were overweight and obese were more likely to develop PSBP than patients with normal BMI. One of the possible reasons might be due to repeated lumbar puncture and multiple attempts during spinal anesthesia because of difficulties to identify the exact landmark in patients who had higher BMI.

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## Conclusion

This Conclusion of this study is that the overall incidence of back pain is high as compared to most studies. Body mass index, the size of spinal needle, the number of attempts, and the number of bone contacts are significantly associated with the incidence of back pain following spinal anesthesia. Hence, the number of attempts and bone contacts by the health professionals during lumbar puncture should be minimised and smaller spinal should be chosen to reduce the prevalence of postspinal back pain. Finally, a similar study should be done to assess the long-term occurrence of postspinal back pain.

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## REFERENCES

- Z. T. Tekgül, S. Pektaş, M. Turan, Y. Karaman, M. Çakmak, and M. Gönüllü, "Acute back pain following surgery under spinal anesthesia," *Pain Practice*, vol. 15, no. 8, pp. 706–711, 2015.  
View at: [Publisher Site](#) | [Google Scholar](#)
- B. Shikur, A. Marye, and E. Mesfin, "Spinal anesthesia for cesarean delivery at two teaching hospitals in Addis Ababa, Ethiopia," *Ethiopian Medical Journal*, vol. 56, no. 2, pp. 133–140, 2018.

View at: [Google Scholar](#)

T. M. Cook, D. Counsell, and J. A. W. Wildsmith, "Major complications of central neuraxial block: report on the third national audit project of the royal College of anaesthetists†," *British Journal of Anaesthesia*, vol. 102, no. 2, pp. 179–190, 2009.

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