e-ISSN: 0976-822X, p-ISSN:2861-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2023; 15(1); 181-187

Original Research Article

Determining the Prevalence of Headaches and Back Pain after Regional Anesthesia and General Anesthesia: A Comparative Study

Nitin Kumar[1], Rishi Kant[2]

[1]Senior resident, Department of Anesthesiology, AIIMS, Patna, Bihar, India
[2]Senior resident, Department of Anesthesiology, AIIMS, Patna, Bihar, India

Received: 02-12-2022/ Revised: 29-12-2022 / Accepted: 28-01-2023
Corresponding author: Dr. Rishi Kant
Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to investigate the prevalence of headaches and back pain after regional anesthesia compared to general anesthesia.

Methods: A cross-sectional study involving 200 patients (over 10 months) who were admitted to AIIMS, Patna, Bihar, India and undergone Caesarian Section were included in the study.

Results: Our study was made up of 200 participants who have undergone a CS under the two types of anesthesia. Mean age of patients was 30.4 with a std of 6.80. Youngest individual was 16 years old while the oldest was 48 years old. Mean height was 161.49 cm, shortest patient was 140 cm while the longest was 170. Average weight was 72 kg, largest weight was 106 kg while the smallest weight was 52 kg. Mean BMI values were 28.52 kg/m^2.Largest BMI value was 39.66 kg/m^2 while the smallest value was 21.04 kg/m^2.As for the most commonly used anesthesia type, spinal anesthesia was the most common with 160 (80%) patients, while general anesthesia was used only in 40 (20%) patients Fentanyl was the most common anesthetic used in surgery, it was used in 28 (14%) patients. Followed by fentanyl with dolozal/peptidin which were used in 20 (10%) patients. As for analgesics used after surgery, intravenous paracetamol was the most commonly used (46 patients, 23%), followed by sodium diclofenac and ketozor (4 patients, 2%).

Conclusion: Our study has shown that there's no link between the anesthetic procedure and occurrence of back pain and headaches, even though most of the participants have gotten regional anesthesia.

Keywords: Spinal anesthesia · General anesthesia · Cesarean section · Low back pain · Persistent · Technique

Introduction

Spinal anesthesia (SA) or subarachnoid block is a form of regional anesthesia and a kind of neuraxial block involving injection of opiods, local anesthetics or other permissive drugs into the subarachnoid space. It is the most commonly preferred and widely used anesthesia technique in surgeries like lower extremity surgery, anorectal, urologic, obstetric, and gynecologic interventions and lower abdominal procedures.[1-3] Even though spinal

anesthesia is the preferred technique, it has a lot of complications like postspinal back pain (PSBP) and post spinal puncture headache (PSPH) compared to general anesthesia (GA).[4] Cesarean Section (CS) is one of the most common surgeries worldwide and is the most common surgery in obstetrics. Common procedures of anesthesia for CS are spinal and general anesthesia, which aims to alleviate the pain and discomfort in surgery as much as possible and reduce postoperative adverse reactions.[5] Postural headache and Postural Back Pain [PDBP] are two common complications seen in spinal anesthesia following a cesarean section.[6]

Backache is a common complication in general surgery and is seen more frequently than headaches.[7] Spinal headaches are caused by leakage of cerebrospinal fluid through a puncture hole in the membrane that surrounds the spinal cord and typically appears within 2 to 3 days after anesthesia, while backache is usually secondary to localized inflammation, often associated with a degree of muscle spasm and lasts for a few days or a week. [8,9] Regardless of the anesthetic technique, postoperative low back pain is often reported as a common complaint after SA but the association between anesthetic technique and back pain is still unclear.[10] Postspinal back pain (PSBP) is usually a mild type of pain and it manifests during the first two to six hours (hrs) after the surgical procedure, when the local anesthetics wear off in most people, and lasts only for a few days.[11] Rarely, the pain may persist for some weeks and becomes permanent because of nerve injury during spinal needle insertion.[12,13] Treatment for headaches is usually conservative that includes caffeine supplementation, bed rest, and analgesics treatment.[14] Mild cases of back pain are also treated with conservative treatment, and as for moderate and severe it can be treated with an Epidural Blood Patch (EBP).

The aim of the present study was to investigate the prevalence of headaches and back pain after regional anesthesia compared to general anesthesia.

Material & Methods

A cross-sectional study was conducted in Department of anesthesiology AIIMS, Patna, Bihar, India for 10 months which included 200 patients who have gone through a cesarean section under general and spinal anesthesia. All patients scheduled for elective or emergency surgery under spinal anesthesia and general anesthesia during data collection period were enrolled in this study.

Inclusion Criteria

Our sample included patients who have undergonea CS and don't have a history of back pain while it excluded those who had a history of back pain, who have underwent surgery on the spinal cord, and those who had kidney and liver diseases.

Exclusion Criteria

1. Patients with pre-existing back pain
2. Patients <18years,
3. Traumatic deformity of the spine or congenital abnormalities of the lumbar spine, impaired cognitive ability, and patients undergoing combined spinal and epidural anesthesia.

Postspinal 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.

Visual Analogue Scale (VAS): It is a method of pain assessment tool determined by the patient making a mark of their pain intensity on a line which is 100 mm. long. It is a horizontal line with "no pain" at one end to "worst possible pain" at the other end of the line.

Angle of Lumbar Puncture: The angle of lumbar puncture is the angle of needle bevels with respect to spinal ligaments

which is perpendicular or parallel to the fibers of supraspinous and interspinous ligaments.

Data Collection Procedures

Data was collected by chart review, patient interview, and through observation using a semi-structured questionnaire prepared from different literature. Patients were asked whether they felt local tenderness or pain at the site of needle injection site or not. The patients who had felt pain were asked to mark on 100 mm horizontal line pain assessment tool (VAS score tool) to indicate the intensity of their back pain after the data collector gave them detailed and adequate information. So, PSBP was assessed with VAS score tool whether they had felt pain or not in 24 hr, 48 hr, and 72 hrs postoperatively in post-anesthesia care units (PACU) 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

Statistical Analysis

Data were analyzed using SPSS version. Descriptive analysis was done on all our descriptive variables. Percentages and frequencies were used for qualitative data, while the mean and standard deviation were used for quantitative data. A Chi-square test was done to examine the correlation between quantitative data.

Results

Table 1: Demographic variables

Age	
Mean(std)	30.04(±6.80)
Youngest age	16
Old stage	48
Height	
Mean(std)	161.49(±4.40)
Smallest value	140
Largest value	170
Weight	
Mean(std)	72(±7.42)
Smallest value	52
Largest value	106
BMI values 28.52(±2.28)	
Smallest value	21.04
Largest value	39.66

Our study was made up of 200 participants who have underwent CS under the two types of anesthesia. Mean age of patients was 30.4 with a std of 6.80. Youngest individual was 16 years old while the oldest was 48 years old. Mean height was 161.49 cm, shortest patient was 140 cm while the longest was 170. Average weight was 72 kg, largest weight was 106 kg while the smallest weight was 52 kg. Mean BMI values were 28.52 kg/m^2, largest BMI value was 39.66 kg/m^2 while the smallest value was 21.04 kg/m^2.

Table 2: Variables regarding anesthesia

Type of anaesthesia	
Regional	160(80)
General	40(20)

Anesthetics used during surgery	
Fentanyl	28(14)
Fentanyl with Dolozal/Peptidin	20(10)
Not available	156(78)
Analgesics used after surgery	
Sodium diclofenac	2(1)
Intravenous Paracetamol	46(23)
Ketozor	2(1)
Not available	150(75)
Surgery time	
Mean(std)	1.15(±0.30)
Shortest time	1
Longest time	2

As for the most commonly used anesthesia type, spinal anesthesia was the most common with 160 (80%) patients, while general anesthesia was used only in 40 (20%) patients Fentanyl was the most common anesthetic used in surgery, it was used in 28 (14%) patients. Followed by fentanyl with dolozal/peptidin, which was used in 20 (10%) patients As for analgesics used after surgery, intravenous paracetamol was the most commonly used (46 patients, 23%), followed by diclofenac sodium and ketozor (4 patients, 2%).

Table 3: Relationship between anesthesia type and occurrence of back pain and headache

	Anaesthesia type		
	Regional	**General**	**P value**
Back pain			0.320
Yes	64(40)	12(30)	
No	96(60)	28(70)	
Headache			0.045
Yes	88(55)	16(40)	
No	72(45)	24(60)	

There was also no correlation between occurrence of headache and anesthesia type, as patients who had headaches and undergone regional anesthesia was 40%, compared to spinal anesthesia (55%).

Table 4: Relationship between anesthesia type and occurrence of age, BMI and pain scale

Anesthesia		**type**	
Age mean/BMI/pain scale	Regional	General	P value
Age	29.87	31	0.350
BMI	28.39	29.35	0.0130
Pain scale (VAS)	1	1.06	0.720

As for the relationship between type of anesthesia, BMI, age mean and pain scale we found a statistical relationship between these variables. Average BMI in patients who undergone general anesthesia was 29.35 kg/m 2, compared to 28.39 kg/m 2 in spinal anesthesia, with a P value of 0.0130.

Discussion

Spinal anesthesia for cesarean section is a popular and effective technique. Advantages over epidural block include the absence of risk of systemic local anesthetic toxicity, simplicity of technique, and rapid onset of surgical anesthesia; however, there is an inevitable risk of postdural puncture headache (PDPH) after spinal anesthesia, and until recently, the incidence of this complication was high enough to limit its use for cesarean section. Cesarean Section (CS) is one of the most common surgeries worldwide and is the most common surgery in obstetrics. Common procedures of anesthesia for CS are spinal and general anesthesia, which aims to alleviate the pain and discomfort in surgery as much as possible and reduce postoperative adverse reactions.[15] Postural headache and Postural Back Pain [PDBP] are two common complications seen in spinal anesthesia following a cesarean section.[16] Although headaches don't usually occur after general anesthesia, they are not uncommon but are seen more in spinal anesthesia.[17] Backache is a common complication in general anesthesia and is seen more frequently than headaches.[18]

Anesthesia can be regional or general. General anesthesia is associated with better hemodynamic stability than in regional anesthesia.[19] As for regional anesthesia, it is done by applying anesthetics through the spinal cord or through the dura matter, which results in better surgical outcomes in terms of avoiding mechanical ventilation and reducing the amount of blood loss.[20]Both types of anesthesia can cause complications in older people. General anesthesia can increase pulmonary complications, hypotension and nausea and vomiting after surgery.[21,22] Regional anesthesia can cause hypotension during surgery, headaches, injury to neurons and is a contraindication in severe aortic stenosis and coagulation defects.[23,24] The main aim of choosing an anesthetic type for CS was to ensure the well-being of the fetus and the mother. Operations have become safer as the years have gone by, but there is still morbidity and mortality that can affect the fetus and the mother.[25] Probable causes for back pain are hematoma formation, abscess formation and hyper expansion of ligaments.[26] Another study, which, in contrast to our results, has found a link between back pain and spinal anesthesia compared to general anesthesia.[27]A frequent iatrogenic complication for spinal anesthesia is postdural headache which is related to accidental dural puncture and leakage of cerebrospinal fluid.[28]We found that to be similar to a study done by Benzon et al. which showed that there wasn't a huge difference in the occurrence of back pain between the two types of anesthesia.[29] Another study, in contrast to our results, has found a link between back pain and spinal anesthesia compared to general anesthesia.[30]

Conclusion

Our study has shown that there's no link between the anesthetic procedure and occurrence of back pain and headaches, even though most of the participants have gotten regional anesthesia.

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