Journal of Chemical Health Risks

www.jchr.org

JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

Compared Investigation into the Impact of Spinal Anaesthesia During Seating and Lateral Positions on the Cardiovascular State and Sensory Blockage Onset Time in LSCS

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(Received: 07 January 2024 Revised: 12 February 2024 Accepted: 06 March 2024)

KEYWORDS

LSCS, Hemodynaic Parameters, Sensorybloc k, Local Anesthetic, Paramedian

ABSTRACT

AIM: - Examine whether the spinal anesthesia impacts the hemodynamic parameters and the beginning of sensory block through lateral and sitting postures of LSCS.

Material and method: - The study included a total of 60 patients and divided into Group S (patients receiving block in sitting position) and Group L (patients receiving block in lateral position). Each group consisted of 30 patients. The study analyzed the onset time of spinal anesthesia, height of sensory block, and hemodynamic parameters at different time intervals for both the sitting and lateral groups.

The study's data was collected and analyzed using the appropriate statistical methods in SPSS. The obtained results were compared using Repeated Measures ANOVA and One Way ANOVA**.**

Result: - From the study, the sitting position had a marginally higher action onset than the lateral position. Throughout the trial, the heart rates of patients from group S were marginally higher than the patients of group L. In both groups, the SpO2 of the study subjects was substantial. From the time before spinal Anesthesia to 6 minutes after spinal Anesthesia, study participant's blood pressure was higher in the group S than in the group L, and from the time interval of 8 minutes to 30 minutes, it was higher in the group L than in the group S.

Conclusion: With the evidence at hand, it is clear that a conclusion can be drawn. Based on these conclusive results, it is undeniable that... performing LSCS (Lower Segment Caesarean Section) under spinal block in the lateral position results in faster motor and sensory block, lesser anaesthetic consumption, and greater patient satisfaction. This is because the onset of action is shorter in lateral position than in sitting position**.**

Introduction

J. Leonard Corning gave the first spinal Anesthesia in dogs. The first spinal anesthesia in human beings was provided by **August Bier** in 1898. The most common positions for administering spinal anesthetic are sitting or lateral (but prone positions are also an option). The most popular method is midline; however, lateral (paramedian), or lumbosacral may be utilized. Following cleaning and drapery, the appropriate area (often L3-L4

Journal of Chemical Health Risks
www.jchr.org
JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

or L4-L5) is punctured, and the local anesthetic is administered once the free flow of CSF has been verified. Although a tiny amount is found in the spinal cord's material, spinal anesthesia mostly affects the dorsal ganglia and spinal nerves. The medications bupivacaine and xylocaine (lignocaine) are used in spinal anesthesia. At a concentration of 5%, xylocaine is utilized; it is hyperbaric, meaning that its specific gravity is greater than that of CSF. The 7.5% dextrose additive makes it hyperbaric. Bupivacaine is used in 0.5% concentration and is made hyperbaric by adding 8% dextrose. A small dose of fentanyl (10-25mcg) improves the sensory effect of spinal block without increasing the risk of significant respiratory depression; therefore, it is routinely used. Morphine can also be used as an alternative, but because of respiratory depression, it is not preferred.

Two types of spinal needles are:

Dura cutting (Standard Quincke-Babcock and Greene needle), Dura separating (Whitacre, Sportte and Pitkin)

Incidence of post spinal headache with Dura cutting needles is high. Dura separating needles have pencil tip point end and post spinal headache is less.

Complications of spinal Anesthesia include hypotension (most common), bradycardia, apnea, nausea and vomiting. Postoperative complications include Urinary retention (most common), neurological complications and post spinal headache.

The most popular technique for lower segment cesarean sections (LSCS) is spinal anesthesia [1]. One typical negative outcome of spinal anesthesia is hypotension, occurring between 30% and 60% of the time[2]. After spinal anesthesia, pregnant patients are more likely to have hypotension because of the uterus's constriction of the aortocaval space and the opioids' cephalad distribution in the subarachnoid space [3].

There are benefits and drawbacks to both sitting and lateral positions for spinal anesthetic procedures [4]. Certain patients, such as those who have undergone sedatives, emergency patients, have numerous pregnancies, or have umbilical cord prolapse, may find it challenging to remain in the sitting posture during spinal anesthesia, even if it is more accessible for fat or uncertain landmark pregnant women. The lateral position is more suited for spinal anesthesia in these circumstances. However, it is important to be aware of the hemodynamic changes that occur after spinal anesthesia in a sideways position [5]

Hypotension in a seated position is brought on by sympathetic lysis exacerbated by peripheral blood clotting brought on by spinal anesthesia [7]. Acidemia, nausea, vomiting, and dizziness are just a few of the issues that the mother and fetus experience as a result of the hypotension [8]. The reasoning given above suggests that spinal anesthesia in the lateral position could be connected to a lower level of hypotension. Numerous research have been done on the various outcomes, frequency of hypotension, and start of anesthesia in sitting and lateral postures for LSCS [6].

Spinal anesthesia is a preferred technique for lower segment cesarean section (LSCS) as it helps to avoid problems associated with general anesthesia, such as airway manipulation, aspiration, and cognitive dysfunction. Two postures were compared in terms of effectiveness: seated and lateral. The study postulated that there would be a distinction in the two postures' rates at which sensory blockage began, along with hemodynamic changes in various patients.
In this randomized study, conducted during a lower segment cesarean section (LSCS), the impact of spinal anesthesia in the lateral and sitting postures was contrasted. In both the sitting and lateral groups, the study tracked hemodynamic parameters such as heart rate, hypotension, SpO2, diastolic and systolic blood pressure, as well as the beginning time of sensory block.

Objectives

This randomised investigation compared the impact of spinal anaesthesia on the onset of sensory block and hemodynamic parameters during LSCS in the sitting and lateral positions.
Systolic and diastolic blood pressure comparisons in sitting and lateral groups.
SpO2, heart rate, and hypotension in sitting and lateral groups were compared.
Comparison of onset of sensory block in sitting and lateral groups.

Journal of Chemical Health Risks

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JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

Methods

Study Population

After receiving written informed consent from patients and approval of the ethical committee, this study was conducted. For the study, a convenience sample of 60 patients were selected (30 individuals in each group). Patients getting spinal anesthesia were selected from among candidates for cesarean sections who fulfill the inclusion criteria. The inclusion criteria included age range of 18 to 45 years, absence of diabetes, hypertension, heart disease, renal disease, eclampsia, pre-eclampsia, or contraindications to spinal anesthesia (raised ICP, shock, coagulation issues, and anemia). Exclusion criteria will include multiple pregnancies, an emergency caesarean, not having permission to participate in the trial, and a failed spinal anaesthetic.

Study Design

Sixty women undergoing LSCS will be divided into two groups, with 30 in the sitting position (group S) and 30 in the lateral position (group L). Patients will be divided into two groups at random.

All patients will receive 10 ml/kg Ringer solution via a peripheral venous cannula no. 18 after entering the operating room, and a non-invasive monitoring equipment will be used to evaluate their heart rate, systolic and diastolic blood pressure, mean arterial pressure, and initial SpO2. Next, a 25 gauge Quincke needle was used to provide spinal anesthesia to patients in groups S and L while they were seated and in the left lateral posture. The patient will be put to sleep right away after receiving a 15 mg hyperbaric bupivacaine 0.5 percent injection into the subarachnoid space, which will follow CSF aspiration. Then, over the following ten minutes, both groups' systolic and diastolic blood pressure, heart rate (HR), and SpO2 will be recorded every two minutes.

Every minute, the sensory block will be evaluated using a pinprick, and the start time—or the amount of time needed to achieve the T6 sensory level—will be noted. The newborn's Apgar score (at 1 and 5 minutes), the dosages of ephedrine and atropine, nausea, vomiting, and the level of sensory-motor block in 5 and 10 minutes following spinal anesthesia will all be assessed. The patient's pleasure will be measured (in percentage) and recorded after the procedure. A systolic blood pressure reading of less than 90 mmHg is referred to as hypotension, and 6 mg of mephentermine will be used to treat it. Bradycardia is described as a heart rate of fewer than 55 beats per minute. 0.6 mg of atropine is used to treat bradycardia. The sensory block will be assessed using the following scale:

Painless: Excellent

Mild tolerable pain: Good

Moderate pain requiring sedatives: Acceptable

Severe pain requiring General Anesthesia: Poor

Patients will be classified from class I through class IV based on their physical state, according to the American Society of Anesthesiologists (ASA) criteria. Patients' satisfaction will be measured in 3 points:

Not comfortable score 1, comfortable score 2, very comfortable score 3.

INCLUSION CRITERIA

Those patients were included in the study who were undergoing LSCS with normal hemodynamic conditions and having ASA grade I and II.

EXCLUSION CRITERIA

Those patients were excluded in the study who was having ASA grade III and IV, Anemic patients having coagulation disorder and maternal complications with surgery.

Results

Sitting	Mean ± SD B.S. A	Mean ± SD A.S. A	Mean ± SD 2Min	Mean ± SD 4 Min	Mean ± SD 6 Min	Mean ± SD 8 Min	Mean ± SD 10 Min	Mean ± SD 15 Min	Mean ± SD 30 Min	F-value	p-value
Heart	94.27 ± 11.36	93.40 ± 10.97	92.93±10.16	92.77 ± 9.47	91.13±8.92	91.43 ± 9.29	90.80 ±8.62	90.53 ± 9.57	89.63±7.81	4.67	<0.0001
SBP	131 ± 9.69	128.77 ± 9.59	127 ± 8.94	126.43±7.86	125.7±6.93	123.83±6.75	121.33±7.86	120.93±6.40	117.93 ± 4.43	20.64	<0.0001
DBP	84.63 ± 7.89	82.53 ± 7.19	81.23 ± 6.57	80.30 ± 6.99	79.67±6.26	78.63 ± 7.62	77.50 ±7.82	76.83 ±7.62	75.10 ± 7.05	15.4	<0.0001
SPO2	97.83 ± 0.70	98.03 ± 0.81	98.30 ± 1.02	98.70 ± 0.92	99.10±0.76	99.27 ± 0.78	99.57 ±0.57	99.47 ±0.68	99.47 ± 0.68	52.87	<0.0001

Table.1. Comparison of hemodynamic variables within the group according to the sitting position

In the present study Table 1.shows that mean and standard deviation of heart rate of study participants of

Journal of Chemical Health Risks

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JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

group sitting position at different time intervals was: B.S.A 94.27 ± 11.36, A.S.A93.40 ± 10.97, 2 minutes 92.93±10.16, 4 minutes 92.77 ± 9.47, 6 minutes 91.13±8.92, 8 minutes 91.43 ± 9.29, 10 minutes 90.80 ±8.62, 15 minutes 90.53±9.57, 30 minutes 89.63±7.81. Its F-value was 4.67 and P-value <0.0001 which means it was non-significant.

The study shows that the mean and standard deviation of Systolic blood pressure of study participants of group sitting position at different time intervals was :B.S.A131 ± 9.69, A.S.A 128.77 ± 9.59, 2 minutes 127 ± 8.94, 4 minutes 126.43±7.86, 6 minutes 125.7±6.93, 8 minutes 123.83±6.75, 10 minutes 121.33±7.86, 15 minutes 120.93±6.40 and 30 minutes 117.93±4.43. Its F-value was 20.64 and P-value was <0.0001 which means it was non-significant.

The study shows that the mean and standard deviation of Diastolic blood pressure of study participants of group sitting position at different time intervals was: B.S.A84.63 ± 7.89, A.S.A 82.53 ± 7.19, 2 minutes 81.23 ± 6.57, 4 minutes 80.30 ± 6.99, 6 minutes 79.67±6.26, 8 minutes 78.63 ± 7.62, 10 minutes 77.50 ±7.82, 15 minutes76.83±7.62 and 30 minutes 75.10±7.05.Its F-value was 15.4 and P-value was <0.0001 which means it was non-significant.

The study shows that the mean and standard deviation of $SpO_2$of study participants of group sitting position at different time intervals was: B.S.A97.83 ± 0.70, A.S.A 98.03 ± 0.81, 2 minutes 98.30 ± 1.02, 4 minutes 98.70 ± 0.92, 6 minutes 99.10±0.76, 8 minutes99.27 ± 0.78, 10 minutes99.57 ±0.57, 15 minutes99.47 ±0.68 and 30 minutes99.47 ± 0.68 .Its F-value52.87 was and P-value was <0.0001 which means it was non-significant.

Lateral	Mean ± SD B.S. A	Mean ± SD A.S. A	Mean ± SD 2Min	Mean ± SD 4 Min	Mean ± SD 6 Min	Mean ± SD 8 Min	Mean ± SD 10 Min	Mean ± SD 15 Min	Mean ± SD 30 Min	F-value	p-value
Heart	85.53±11.58	85.5 ± 11.36	85.10±11.39	86.03±12.50	85.40±11.24	84.33±11.32	84.57±9.66	84.13 ±9.67	83.33±9.68	1.16	0.327
SBP	133 ± 8.23	132.27±7.39	130.47±7.07	129.43±7.57	127.53±7.41	125.26±7.47	124.33±7.33	124.26±6.38	124.43±6.46	33.44	<0.0001
DBP	79.50±10.04	79.80±8.80	79.27 ±8.59	79.20±7.52	78.87 ±7.52	78.97±7.12	78.37±6.85	77.43±6.38	77.67 ±5.40	0.645	0.739
SPO2	98.20 ± 0.76	98.22 ± 0.77	98.33 ± 0.71	98.47±0.82	98.77 ± 0.77	99.00 ± 0.69	99.00±0.0.83	99.37±0.76	99.33 ± 0.76	27.12	<0.0001

Table.2.Comparison of hemodynamic variables within the group according to the lateral position

In the present study Table 2.shows that mean and standard deviation of heart rate of study participants of group lateral position at different time intervals was: B.S.A 85.53±11.58, A.S.A 85.5 ± 11.36, 2 minutes 85.10±11.39, 4 minutes 86.03±12.50, 6 minutes 85.40±11.24, 8 minutes 84.33±11.32, 10 minutes 84.57±9.66, 15 minutes 84.13 ±9.67, 30 minutes 83.33±9.68. Its F-value was 1.16and P-value 0.327which means it was non-significant.

The study shows that mean and standard deviation of systolic blood pressure of study participants of group lateral position at different time intervals was: B.S.A 133 ± 8.23, A.S.A 132.27±7.39, 2 minutes 130.47±7.07, 4 minutes 129.43±7.57, 6 minutes 127.53±7.41, 8 minutes 125.26±7.47, 10 minutes 124.33±7.33, 15 minutes 124.26±6.38, 30 minutes 124.43±6.46. Its F-value was 33.44 and P-value <0.0001 which means it was non-significant.

The study shows that mean and standard deviation of diastolic blood pressure of study participants of group lateral position at different time intervals was: B.S.A 79.50±10.04, A.S.A 79.80±8.80, 2 minutes 79.27 ±8.59, 4 minutes 79.20±7.52, 6 minutes 78.87 ±7.52, 8 minutes 78.97±7.12, 10 minutes 78.37±6.85, 15 minutes 77.43±6.38, 30 minutes 77.67 ±5.40. Its F-value was 0.645 by applying anova test and P-value 0.739 which means it was non-significant.

The study shows that mean and standard deviation of SpO_2 of study participants of group lateral position at different time intervals was: B.S.A 98.20 ± 0.76, A.S.A 98.22 ± 0.77, 2 minutes 98.33 ± 0.71, 4 minutes 98.47±0.82, 6 minutes 98.77 ± 0.77,8 minutes 99.00 ± 0.69, 10 minutes 99.00±0.0.83, 15 minutes 99.37±0.76, 30 minutes 99.33 ± 0.76. Its F-value was 27.12 and P-value <0.0001 which means it was non-significant.

Heart Rate (BPM)	Position	Mean	Std. Deviation	t-value	p-value
Before Spinal Anaesthesia	Sitting	94.27	11.36	2.95	0.005*
	Lateral	85.53	11.58		
After Spinal Anaesthesia	Sitting	93.40	10.97	2.74	0.008*
	Lateral	85.50	11.36		
2 Minutes	Sitting	92.93	10.16	2.81	0.007*
	Lateral	85.10	11.39		
4 Minutes	Sitting	92.77	9.47	2.35	0.022*
	Lateral	86.03	12.50		
6 Minutes	Sitting	91.13	8.92	2.19	0.033*
	Lateral	85.40	11.25		
8 Minutes	Sitting	91.43	9.29	2.66	0.01*
	Lateral	84.33	11.32		
10 Mimutes	Sitting	90.80	8.62	2.64	0.011*
	Lateral	84.57	9.66		
15 Mimutes	Sitting	90.53	9.57	2.58	0.013*
	Lateral	84.13	9.67		
30 Mimutes	Sitting	89.63	7.81	2.78	0.007*
	Lateral	83.33	9.68		

Table.3. Comparison of Heart rate of study participants according to their positions

In the present study when comparing heart rate of study participants according to their position i.e. Sitting and lateral at different time intervals its mean and standard

Journal of Chemical Health Risks
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JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

deviation in sitting position at the time interval of B.S.A was 94.27±11.36, A.S.A 93.40±10.97, 2 minutes 92.93±10.16,4 minutes 92.77±9.47, 6 minutes 91.13±8.92,8 minutes 91.43±9.29, 10 minutes 90.80±8.62, 15 minutes 90.53±9.57 and 30 minutes 89.63±7.81. The T-value at the different time intervals was B.S.A 2.95, A.S.A 2.74, 2 minutes 2.81, 4 minutes 2.35, 6 minutes 2.19, 8 minutes 2.66, 10 minutes 2.64, 15 minutes 2.58 and 30 minutes 2.78. The p-value at the respective time intervals was 0.005*, 0.008*, 0.007*, 0.022*, 0.033*, 0.01*, 0.011*, 0.013* and 0.007* which means they are significant.

Similarly when comparing heart rate of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in lateral position at the time interval of B.S.A was 85.53±11.58, A.S.A 85.50±11.36, 2 minutes 85.10±11.39, 4 minutes 86.03±12.50, 6 minutes 85.40±11.25, 8 minutes 84.33±11.32, 10 minutes 84.57±9.66, 15 minutes 84.13±9.67 and 30 minutes 83.33±9.68. The T-value at the different time intervals was B.S.A 2.95, A.S.A 2.74, 2 minutes 2.81, 4 minutes 2.35, 6 minutes 2.19, 8 minutes 2.66, 10 minutes 2.64, 15 minutes 2.58 and 30 minutes 2.78. The p-value at the respective time intervals was 0.005*, 0.008*, 0.007*, 0.022*, 0.033*, 0.01*, 0.011*, 0.013* and 0.007* which means they are significant.

SBP	Position	Mean	Std. Deviation	t-value	p-value
Before Spinal Anaesthesia	Sitting	131.00	9.69	0.991	0.326
	Lateral	133.30	8.23		
After Spinal Anaesthesia	Sitting	128.77	9.59	1.58	0.119
	Lateral	132.27	7.39		
2 Minutes	Sitting	127.00	8.94	1.67	0.101
	Lateral	130.47	7.07		
4 Minutes	Sitting	126.43	7.86	1.51	0.138
	Lateral	129.43	7.57		
6 Minutes	Sitting	125.70	6.93	0.99	0.326
	Lateral	127.53	7.41		
8 Minutes	Sitting	123.83	6.75	0.78	0.439
	Lateral	125.27	7.47		
10 Minutes	Sitting	121.33	7.86	1.58	0.119
	Lateral	124.43	7.33		
15 Minutes	Sitting	120.93	6.41	2.02	0.048
	Lateral	124.27	6.38		
30 Minutes	Sitting	117.93	4.43	4.55	<0.0001**
	Lateral	124.43	6.46		

Table.4. Comparison of Systolic blood pressure of study participants according to their positions

In the present study when comparing systolic blood pressure of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in sitting position at the time interval of B.S.A 131.00±9.69, A.S.A 128.77±9.59 , 2 minutes 127.00±8.94, 4 minutes 126.43±7.86 , 6 minutes 125.70±6.93 , 8 minutes 123.83±6.75 , 10 minutes 121.33±7.86, 15 minutes 120.93±6.41 and 30 minutes 117.93±4.43 .The T-value at the different time intervals was B.S.A 0.991 , A.S.A 1.58 , 2 minutes 1.67 , 4 minutes 1.51, 6 minutes 0.99 , 8 minutes 0.78 , 10 minutes 1.58 , 15 minutes 2.02 and 30 minutes4.55. The p-value at the time intervals of B.S.A was 0.326, A.S A 0.119, 2 minutes 0.101, 4 minutes 0.138, 6 minutes 0.326, 8 minutes 0.439, 10 minutes 0.119, 15 minutes 0.048 which are not significant and at 30 minutes the p-value was <0.0001** which means it is highly significant.

In the study when comparing systolic blood pressure of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in lateral position at the time interval of B.S.A 133.30±8.23, A.S.A 132.27±7.39 , 2 minutes 130.47±7.07 , 4 minutes 129.43±7.57 , 6 minutes 127.53±7.41 , 8 minutes 125.27±7.47 , 10 minutes 124.43±7.33, 15 minutes 124.27±6.38 and 30 minutes 124.43±6.46 .The T-value at the different time intervals was B.S.A 0.991 , A.S.A 1.58 , 2 minutes 1.67 , 4 minutes 1.51, 6 minutes 0.99 , 8 minutes 0.78 , 10 minutes 1.58 , 15 minutes 2.02 and 30 minutes 4.55. The p-value at the time intervals of B.S.A was 0.326, A.S A 0.119, 2 minutes 0.101, 4 minutes 0.138, 6 minutes 0.326, 8 minutes 0.439, 10 minutes 0.119, 15 minutes 0.048 which are not significant and at 30 minutes the p-value was <0.0001** which means it is highly significant.

DBP	Position	Mean	Std. Deviation	t-value	p-value
Before Spinal Anaesthesia	Sitting	84.63	7.89	2.2	0.032*
	Lateral	79.50	10.04		
After Spinal Anaesthesia	Sitting	82.53	7.19	1.32	0.193
	Lateral	79.80	8.80		
2 Minutes	Sitting	81.23	6.57	0.996	0.323
	Lateral	79.27	8.59		
4 Minutes	Sitting	80.30	7.00	0.586	0.56
	Lateral	79.20	7.52		
6 Minutes	Sitting	79.67	6.26	0.448	0.656
	Lateral	78.87	7.52		
8 Minutes	Sitting	78.63	6.42	0.19	0.85
	Lateral	78.97	7.12		
10 Minutes	Sitting	77.50	7.82	0.457	0.65
	Lateral	78.37	6.85		
15 Minutes	Sitting	76.83	7.62	0.882	0.381
	Lateral	78.43	6.38		
30 Minutes	Sitting	75.10	7.05	1.58	0.119
	Lateral	77.67	5.40		

Table.5. Comparison of Diastolic blood pressure of study participants according to their positions

In the present study when comparing diastolic blood pressure of study participants according to their position

Journal of Chemical Health Risks

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JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

i.e. sitting and lateral at different time intervals its mean and standard deviation in sitting position at the time interval of B.S.A 84.63±7.89, A.S.A 82.53±7.19 , 2 minutes 81.23±6.57 , 4 minutes 80.30±7.00 , 6 minutes 79.67±6.26 , 8 minutes 78.63±6.42 , 10 minutes 77.50±7.82, 15 minutes 76.83±7.62 and 30 minutes 75.10±7.05 .The T-value at the different time intervals was B.S.A 2.2 , A.S.A 1.32 , 2 minutes 0.996 , 4 minutes 0.586, 6 minutes 0.448 , 8 minutes 0.19 , 10 minutes 0.457 , 15 minutes 0.882 and 30 minutes 1.58. The p-value at the time intervals of B.S.A was 0.32*which is significant and at A.S A 0.193, 2 minutes 0.323, 4 minutes 0.56, 6 minutes 0.656, 8 minutes 0.85, 10 minutes 0.65, 15 minutes 0.381 and at 30 minutes 0.119 which means it is not significant.

In the study when comparing diastolic blood pressure of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in lateral position at the time interval of

B.S.A79.50±10.04, A.S.A 79.80±8.80 , 2 minutes 79.27±8.59 , 4 minutes 79.20±7.52 , 6 minutes 78.87±7.52 , 8 minutes78.97±7.12 , 10 minutes 78.37±6.85, 15 minutes 78.43±6.38 and 30 minutes 77.67±5.40 .The T-value at the different time intervals was B.S.A 2.2 , A.S.A 1.32 , 2 minutes 0.996 , 4 minutes 0.586, 6 minutes 0.448 , 8 minutes 0.19 , 10 minutes 0.457 , 15 minutes 0.882 and 30 minutes 1.58. The p-value at the time intervals of B.S.A was 0.32*which is significant and at A.S A 0.193, 2 minutes 0.323, 4 minutes 0.56, 6 minutes 0.656, 8 minutes 0.85, 10 minutes 0.65, 15 minutes 0.381 and at 30 minutes 0.119 which means it is not significant.

SPO2	Position	Mean	Std. Deviation	t-value	p-value
Before Spinal Anaesthesia	Sitting	97.83	0.70	1.94	0.057
	Lateral	98.20	0.76		
After Spinal Anaesthesia	Sitting	98.03	0.81	0.822	0.414
	Lateral	98.20	0.76		
2 Minutes	Sitting	98.30	1.02	0.147	0.884
	Lateral	98.33	0.71		
4 Minutes	Sitting	98.70	0.92	1.04	0.303
	Lateral	98.47	0.82		
6 Minutes	Sitting	99.10	0.76	1.69	0.097
	Lateral	98.77	0.77		
8 Minutes	Sitting	99.27	0.78	1.39	0.169
	Lateral	99.00	0.69		
10 Minutes	Sitting	99.57	0.57	3.08	0.003*
	Lateral	99.00	0.83		
15 Minutes	Sitting	99.47	0.68	0.535	0.595
	Lateral	99.37	0.76		
30 Minutes	Sitting	99.47	0.68	0.716	0.477
	Lateral	99.33	0.76		

Table.6. Comparison of SPO2 of study participants according to their positions

In the present study when comparing SpO_2 of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in sitting position at the time interval of B.S.A 97.83±0.70, A.S.A 98.03±0.81 , 2 minutes 98.30±1.02 , 4 minutes 98.70±0.92 , 6 minutes 99.10±0.76 , 8 minutes 99.27±0.78 , 10 minutes 99.57±0.57, 15 minutes 99.47±0.68 and 30 minutes 99.47±0.68 .The T-value at the different time intervals was B.S.A 1.94 , A.S.A 0.822 , 2 minutes 0.147 , 4 minutes 1.04, 6 minutes 1.69, 8 minutes 1.39 , 10 minutes 3.08 , 15 minutes 0.535 and 30 minutes 0.716. The p-value at the time intervals of B.S.A was 0.057, A.S A 0.414, 2 minutes 0.884, 4 minutes 0.303, 6 minutes 0.097, 8 minutes 0.169 which are not significant and at 10 minutes the p-value was 0.003* which is significant and at 15 minutes and 30 minutes the p-value was 0.595 and 0.477 respectively and which means it is not significant.

In the study when comparing SpO_2 of study participants according to their position i.e. sitting and lateral at different time intervals its mean and standard deviation in lateral position at the time interval of B.S.A 98.20±0.76, A.S.A 98.20±0.76 , 2 minutes 98.33±0.71 , 4 minutes 98.47±0.82 , 6 minutes 98.77±0.77 , 8 minutes 99.00±0.69 , 10 minutes 99.00±0.83, 15 minutes 99.37±0.76 and 30 minutes 99.33±0.76 .The T-value at the different time intervals was B.S.A 1.94 , A.S.A 0.822 , 2 minutes 0.147 , 4 minutes 1.04, 6 minutes 1.69, 8 minutes 1.39 , 10 minutes 3.08 , 15 minutes 0.535 and 30 minutes 0.716. The p-value at the time intervals of B.S.A was 0.057, A.S A 0.414, 2 minutes 0.884, 4 minutes 0.303, 6 minutes 0.097, 8 minutes 0.169 which are not significant and at 10 minutes the p-value was 0.003* which is significant and at 15 minutes and 30 minutes the p-value was 0.595 and 0.477 respectively and which means it is not significant.

Mean	Std. Deviation	t-value	p-value
3.50	0.51	0.254	0.800
3.47	0.51		

Table.7. Comparison of onset of block (in minutes) according to the positions of study participants

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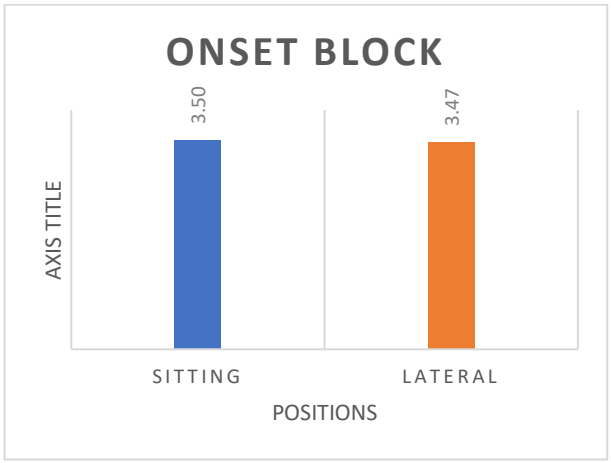

Fig:1. Comparison of onset of block (in minutes) according to the positions of study participants:-

In the present study when onset of block was compared according to position it's mean value and standard deviation was 3.50±0.51 in sitting position and 3.47±0.51 in lateral position. The T-value was 0.254 and P-value 0.800 which is not significant.

Sitting	*Lateral*	*Chi-Square*	*p-value*
7(23.33%)	8(26.67%)		
6(20.0%)	5(16.67%)		
6(20.0%)	8(26.67%)	1.28	0.865
3(10.0%)	4(13.33%)		
8(26.67%)	5(16.67%)		

Table.8. Comparison of height of sensory block according to the positions of study patients

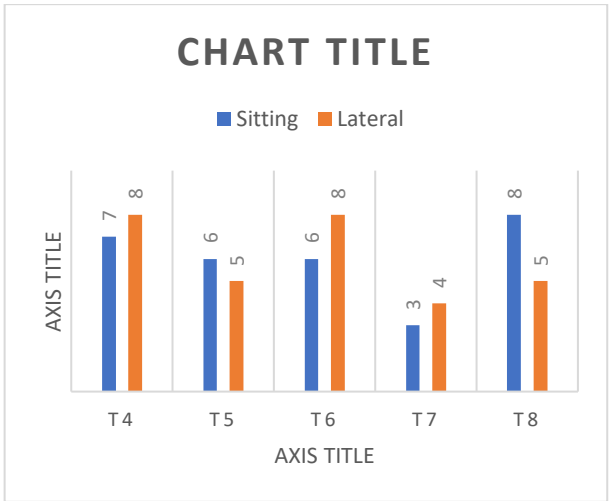

Fig:2. Comparison of height of sensory block according to the positions of study patients:-

In the present study when comparison was carried out of height of sensory block according to the position it was at

T4 level- in sitting position 7 (23.33%) and in lateral position 8(26.67%) and its chi-square value was 1.28 and P-value was 0.865,

T5 level- in sitting position 6(20.0%) and in lateral position 5(16.67%) and its chi-square value was 1.28 and P-value was 0.865,

T6 level- in sitting position 6(20.0%) and in lateral position 8(26.67%) and its chi-square value was 1.28 and P-value was 0.865,

T7 level- in sitting position 3(10.0%) and in lateral position 4(13.33%) and its chi-square value was 1.28 and P-value was 0.865,

T8 level- in sitting position 8(26.67%) and in lateral position 5(16.67%) and its chi-square value was 1.28 and P-value was 0.865.

DISCUSSION

From the study it is clear that onset of action in sitting position is slightly higher than of lateral position. The heart rate of the study participants of sitting position group was slightly higher throughout the study period than that of the lateral positioned patients. The spo2 of the study participants was significant in both the groups. The blood pressure of the study participants from the time interval of before spinal Anesthesia to 6 minutes after spinal Anesthesia was higher in group S than of group L and from time interval of 8 minutes to 30 minutes blood pressure was higher in group L than of group S.

Atashkhooei et al (2018) conducted a randomized clinical trial to examine the impact of women's positions during spinal anesthesia during caesarean section on hemodynamic conditions. The results showed that hypotension was significantly lower in the lateral position than in the sitting position, and there was no statistically significant difference between the two groups. In comparison to the lateral position group, the sitting position group experienced a delayed start time of the sensory block in 1 and 5 minutes [10]. According to our research, sitting posture had a stronger sensory block commencement of action than lateral position. Additionally, blood pressure was higher in a lateral

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JCHR (2024) 14(2), 185-192 | ISSN:2251-6727

posture than in a sitting position during the first six minutes following sensory blackout. Our investigation was therefore correlated.

Muhammad et al (2018), found that hypotension was significantly less prevalent in the lateral position than in the sitting position (30.7 percent vs. 52.3 percent) after studying 130 pregnant women undergoing caesarean sections under spinal anesthesia with hyperbaric bupivacaine. The results of this investigation on the prevalence of hypotension six and eight minutes following spinal anesthesia agree with his findings [9]. So did our study show, chances of hypotension were lesser in lateral position than that of the sitting position. So, our study was correlating with the study.

CONCLUSION

Because the result clearly indicates the onset of action in the lateral position is lesser than of the sitting position, we can conclude that taking spinal anesthesia in the lateral position for LSCS surgery results in a more rapid sensory and motor block, reduced anesthetic consumption, and enhanced patient satisfaction.

Study limitation: - The study's tiny sample size was one of its main shortcomings and solely LSCS patients.

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