



CROSSED LEG SITTING POSITION FOR SUBARACHNOID BLOCK IN PREGNANT PATIENTS UNDERGOING LSCS. IS IT BENEFICIAL? A PROSPECTIVE OBSERVATIONAL STUDY.

Anesthesiology

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ABSTRACT

Patient positioning during administration of spinal anaesthesia is very important. Poor positioning may cause repeated spinal needle insertions and increase the risk of back pain, post-dural puncture headache (PDPH), epidural hematoma, and neural trauma. The sitting position is frequently used for patients undergoing spinal anaesthesia, especially when low lumbar and sacral levels of sensory anaesthesia are needed for the surgical procedure. Aim: To assess successful needle placement in subarachnoid anaesthesia in patients in crossed leg and traditional sitting position. Methods: This prospective, randomized controlled trial was conducted in Government Lal Ded Hospital, Srinagar over the period of 2 months with the aim to compare the crossed leg sitting position and traditional sitting position during spinal anaesthesia administration for LSCS procedure. Results: In the present study it was observed that the mean age of participants was 24.84 ± 4.98 years and 25.32 ± 3.421 years respectively, mean height was 154.3 ± 5.4 cm & 157 ± 3.912 cm respectively and mean weight was 63.1 ± 6.7 kg & 64.2 ± 9.1 kg respectively. Conclusion: The present study concluded that the crossed leg sitting (CLSP) position is more appropriate than traditional sitting position (TSP) as majority of the patients were more comfortable in crossed leg sitting position (CLSP) than traditional sitting position (TSP) with better landmark palpation. Further, majority of the patients had successful needle placement in first attempt with less needle bone contact in crossed leg sitting position.

KEYWORDS

LSCS, Spinal anaesthesia, Crossed leg sitting position. Traditional sitting position, Comfort and spinal anaesthesia.

INTRODUCTION

The development of regional anaesthesia started with the isolation of local anaesthetics, the first being cocaine (the only naturally occurring local anaesthetic). The first regional anaesthetic technique performed was spinal anaesthesia, and the first operation under spinal anaesthesia was in 1898 in Germany by August Bier.

Spinal anaesthesia success rate is affected by several factors, such as the quality of the injection landmark, quality radiologic images of the vertebrae, the skill of the anaesthesiologist, patient position, lumbar flexion, and the distance between the skin and the subarachnoid space (1,2).

Patient positioning during administration of spinal anaesthesia is very important. Poor positioning may cause repeated spinal needle insertions and increase the risk of back pain, post-dural puncture headache (PDPH), epidural hematoma, and neural trauma. The sitting position is frequently used for patients undergoing spinal anaesthesia, especially when low lumbar and sacral levels of sensory anaesthesia are needed for the surgical procedure. The most important point for performing a neuroaxial block in a sitting (hamstring stretch position) position is reducing lumbar lordosis (3,4). The traditional sitting position (TSP) or lateral position is the standard position used for regional anaesthesia. (5,6) In the TSP, the success rate of spinal needle placement on the first try is 40% - 50% (7).

The crossed-leg sitting position (CLSP) is one of the alternative positions recommended for the administration of regional anaesthesia. [7,8] The CLSP causes knee and hip flexion, resulting in posterior pelvic leaning and reduced lumbar lordosis (8,9).

Thus, the present study was conducted to compare the ease of insertion of the spinal needle for sub arachnoid block by placing parturient in either TSP or CLSP.

AIMS AND OBJECTIVES

- To assess successful needle placement in subarachnoid anaesthesia in patients in crossed leg and traditional sitting position
- To evaluate chances of bone hitting and needle manipulation

- To compare the patient and operator ease

MATERIAL AND METHODS

This prospective, randomized controlled trial was conducted in Government Lal Ded Hospital, Srinagar over the period of 2 months.

A total of 200 study subjects (underwent LSCS) were included in the study after obtaining the informed consent. The study subjects were categorized into 2 groups, i.e.: Group A (100 patients received spinal anaesthesia in standard position) and Group B (100 patients received spinal anaesthesia in crossed leg sitting position).

The proportion of successful spinal needle placement to the subarachnoid space, ease of landmark palpation, and the number of needle-bone contacts in both groups were then assessed and analysed.

Subjects were positioned in sitting and crossed-leg sitting position and the following data were recorded for each intervention: the number of successful first attempts of spinal needle placement, the difficulty level of landmark palpation for injection, the number of needle-bone contacts and the patient comfort with the crossed-leg sitting positioning.

Inclusion Criteria

Pregnant females 21 - 35 years of age with ASA physical status II who planned to undergo LSCS under spinal anaesthesia.

Exclusion Criteria

Those who refused for spinal anaesthesia, subjects with relative and absolute contraindications to spinal anaesthesia (coagulation disorders, thrombocytopenia, elevated intracranial pressure, severe hypovolemia, severe heart valve disorders, local infection at the injection site, allergy to local anaesthetic agents, significant anatomical disorder of the spine, wound/scar on the lumbar area), ASA physical status III and subjects with obstetrical emergencies (acute foetal distress, obstetrical shock, Amniotic Fluid embolism, etc).

Tuffier's line is a line drawn across the iliac crest that crosses the body of L4 or L4-L5 interspace. Palpation in the midline identifies the interspinous ligament. The extent of the space is noted by palpating the

cephalad and caudad spine. Patients back was prepared with an antiseptic by starting at the area of intended injection and moving out. A skin wheal of local anaesthetic was placed at the intended spinous interspace. Spinal needle injection of Quincke 25G on L4-L5 was done and needle was directed cranially with a midline approach. Success rate of first attempt of spinal needle placement, number of attempts, number of needle- bone contact, need for assistance during giving the sub arachnoid block and patients comfort level were noted. In case of success at the first attempt or successful spinal needle with <10 needle-bone contact and patients comfort, drug injection was given. In case of failed spinal needle injection, >9 needle-bone contact or patient getting uncooperative, general anaesthesia was considered. Difficulty levels of landmark palpation for injection were classified as follows: easily palpable (the lower border of the superior spinal process and the upper border of the inferior spinal process were clearly palpable, and the second palpation gave a consistent result), hardly palpable (the lower border of the superior spinal process and the upper border of the inferior spinal process were palpable, but the second palpation gave an inconsistent result), and impalpable (the spinal process could not be palpated due to vertebrae malformation, such as scoliosis, presence of a vertebral implant, thick subcutis tissue, or ankylosing spondylitis), need for assistance during giving the block was noted as : required assistance or did not require assistance. The comfort level of the patient was asked in the post operative period and as noted as : satisfied or not satisfied. Complications of spinal anaesthesia (low back pain, post dural puncture headache, neural trauma, epidural hematoma) up to 24 hours after the procedure were noted.



Fig. 1: Crossed Leg Sitting Position And Traditional Sitting Position.

The data was collected and recorded in detail in the record sheet. The data was analysed through SPSS version 17.0.

OBSERVATION AND RESULT

Table 1 Demographic Variables

Variable	Crossed leg sitting Mean $\pm$ SD	Traditional sitting Mean $\pm$ SD
Age	24.84 $\pm$ 4.98	25.32 $\pm$ 3.421
Height	154.3 $\pm$ 5.4	157 $\pm$ 3.912
Weight	63.1 $\pm$ 6.7	64.2 $\pm$ 9.1

Table 1 depicted that the mean age of the study participants who received anaesthesia in crossed leg sitting position and traditional sitting was 24.84 $\pm$ 4.98 years and 25.32 $\pm$ 3.421 years respectively, mean height was 154.3 $\pm$ 5.4 cm & 157 $\pm$ 3.912 cm respectively and mean weight was 63.1 $\pm$ 6.7 kg & 64.2 $\pm$ 9.1 kg respectively.

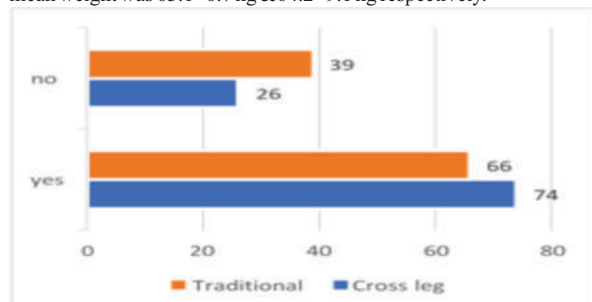


Figure 2. Successful needle placement

It was observed that the crossed-leg sitting position was more appropriate than traditional sitting position as 74% patients had successful needle placement on first try among crossed leg sitting position group than traditional sitting group position (66%) as shown in figure 2.

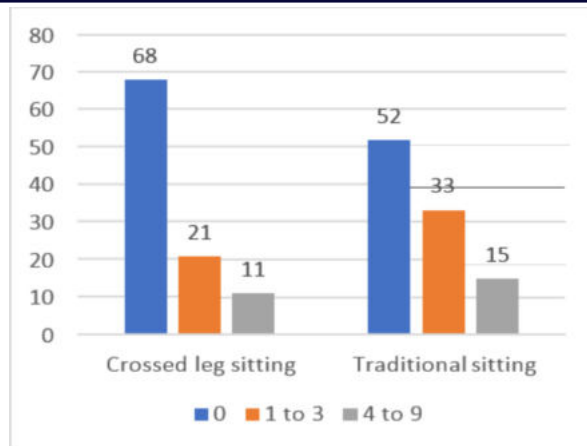


Figure 3. Needle – bone contacts

It was found that the majority of the patients (68%) do not have needle-bone contact in group with crossed leg sitting and among group with traditional sitting 52% patients do not have needle-bone contact as depicted in figure 3.

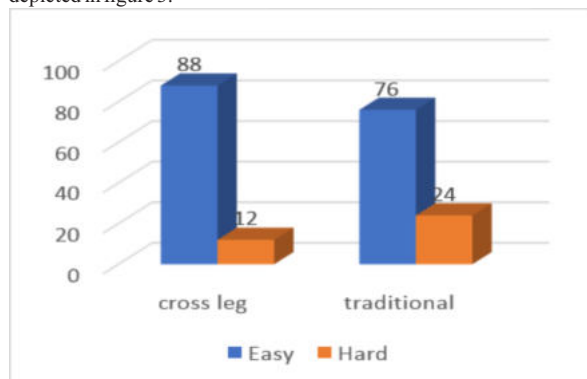


Figure 4. Landmark Palpation

It was observed that the palpation of landmark was much easier among group with crossed leg sitting than traditional sitting position as represented in figure 4.

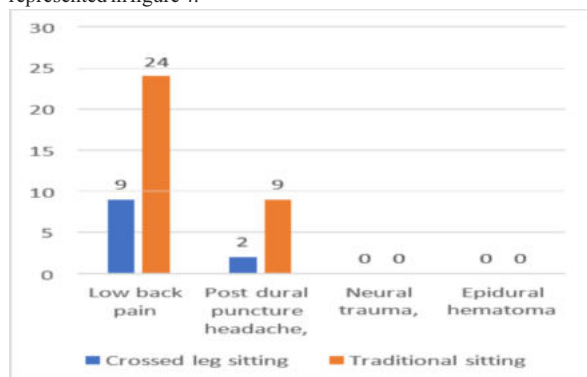


Figure 5. Post-operative Complications

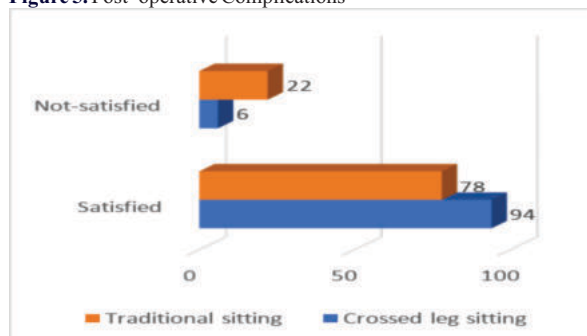


Figure 6. Comfort Level

Figure 5, depicted that the group with traditional sitting, experiences the most common post-operative complications than crossed leg sitting group.

It was reported that crossed leg sitting technique was more comfortable for the study participants than traditional sitting as 94% study participants among crossed leg sitting were satisfied as compared to traditional sitting position (78%) as presented in figure 6.

DISCUSSION

The present study found the mean age of participants was 24.84 ± 4.98 years and 25.32 ± 3.421 years respectively, mean height was 154.3 ± 5.4 cm & 157 ± 3.912 cm respectively and mean weight was 63.1 ± 6.7 kg & 64.2 ± 9.1 kg respectively. The findings are correlated with the study conducted by Puthenveetil N *et al.*, (2020) wherein it was found that the mean age of the study subjects was 26.88 ± 3.972 years and 27.48 ± 4.312 years respectively, mean height was 157.76 ± 6.300 cm & 159.20 ± 4.203 cm and mean weight was 66.52 ± 9.566 kg & 66.56 ± 6.971 kg.

It was observed that the crossed-leg sitting position was more appropriate than traditional sitting position as majority of the patients among crossed leg position had successful placement of needle in first attempt, there was very lesser needle-bone contact than traditional sitting, accuracy of palpation of landmark was high and level of comfort was high among the crossed leg patients. The findings are consistent with the study conducted by Puthenveetil N *et al.*, (2020) wherein it was reported that crossed leg sitting position during administration of anaesthesia for LSCS was more effective technique than traditional sitting as there was more successful attempts, more comfort and easy palpation of landmark. (10)

Similarly, Manggala SK *et al.*, (2016) also observed that crossed leg sitting position during administration of anaesthesia for surgical procedure was more appropriate technique to promote patients comfort and has more rate of successful spinal needle administration in first attempt. (11)

CONCLUSION

The present study concluded that the crossed leg sitting (CLSP) position is more appropriate than traditional sitting position (TSP) as majority of the patients were more comfortable in crossed leg sitting position (CLSP) than traditional sitting position (TSP) with better landmark palpation. Further, majority of the patients had successful needle placement in first attempt with less needle bone contact in crossed leg sitting position.

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