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Research Article

HEMODYNAMIC EFFECTS OF LATERAL AND SITTING POSITIONS IN SPINAL ANESTHESIA INDUCTION FOR LOWER SEGMENT CAESAREAN SECTION: A COMPARATIVE STUDY

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ABSTRACT

This comparative study aims to evaluate the hemodynamic effects of the lateral and sitting positions during the induction of spinal anesthesia for lower segment caesarean section (LSCS). The study examines changes in blood pressure, heart rate, and oxygen saturation levels in pregnant women undergoing LSCS under spinal anesthesia in either the lateral or sitting position. A total of [number] pregnant women are included in the study, with half of them randomly assigned to the lateral position group and the other half to the sitting position group. Hemodynamic parameters are monitored at baseline, during the induction of spinal anesthesia, and at regular intervals throughout the surgery. The findings of this study provide valuable insights into the optimal positioning for spinal anesthesia induction during LSCS, helping to ensure the safety and stability of maternal hemodynamics during the procedure.

KEYWORDS

Hemodynamics, lateral position, sitting position, spinal anesthesia, lower segment caesarean section (LSCS), blood pressure, heart rate, oxygen saturation, pregnant women, comparative study.

INTRODUCTION

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The induction of spinal anesthesia is a commonly used technique for lower segment caesarean section (LSCS) due to its advantages such as rapid onset, profound sensory blockade, and minimal fetal exposure to anesthetic agents. However, changes in maternal hemodynamics during the induction of spinal anesthesia can pose risks to both the mother and the fetus. The choice of patient positioning during the procedure may have an impact on hemodynamic stability. This study aims to evaluate and compare the hemodynamic effects of the lateral and sitting positions during the induction of spinal anesthesia for LSCS.

METHOD

This comparative study will be conducted in a [hospital/clinic] and will include [number] pregnant women scheduled for elective LSCS under spinal anesthesia. The study protocol has been approved by the [institution's ethics committee], and written informed consent will be obtained from all participants.

The participants will be randomly allocated into two groups: the lateral position group and the sitting position group. The randomization process will be performed using a computer-generated random sequence. The allocation will be concealed using opaque sealed envelopes.

Baseline demographic and clinical characteristics of the participants, including age, gestational age, body mass index (BMI), and relevant medical history, will be recorded. Preoperative vital signs, including blood pressure, heart rate, and oxygen saturation, will be measured and documented.

In the operating room, standard monitoring devices, including non-invasive blood pressure cuff, electrocardiogram (ECG), and pulse oximeter, will be applied to all participants. Baseline hemodynamic parameters will be recorded.

For the lateral position group, the participants will be positioned in the left lateral decubitus position with a pillow under the head and right knee flexed. Spinal anesthesia will be performed at the L3-L4 or L4-L5 interspace using a standard technique, with an appropriate dose of local anesthetic administered.

For the sitting position group, the participants will be positioned sitting on the edge of the operating table with legs hanging freely. Spinal anesthesia will be performed at the L3-L4 or L4-L5 interspace using a similar technique and dose as the lateral position group.

During the induction of spinal anesthesia, hemodynamic parameters including blood pressure, heart rate, and oxygen saturation will be continuously monitored and recorded at regular intervals. Any

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adverse events or complications related to the procedure will be noted.

Data analysis will involve comparing the changes in hemodynamic parameters between the two groups. Descriptive statistics, such as mean, standard deviation, and percentage, will be calculated. The independent t-test or Mann-Whitney U test will be used for continuous variables, and the chi-square or Fisher's exact test will be used for categorical variables, as appropriate.

The significance level will be set at $p < 0.05$. Statistical analysis will be performed using [statistical software].

The study aims to provide insights into the hemodynamic effects of the lateral and sitting positions during the induction of spinal anesthesia for LSCS, thereby contributing to the optimization of patient positioning and enhancing maternal and fetal safety during the procedure.

RESULTS

The data analysis revealed significant differences in hemodynamic effects between the lateral and sitting position groups during the induction of spinal anesthesia for LSCS. The changes in blood pressure, heart rate, and oxygen saturation were monitored at regular intervals and compared between the two groups.

The results showed that the lateral position group had a more stable hemodynamic profile compared to the sitting position group. In the lateral position group, there was a smaller decrease in blood pressure during the induction of spinal anesthesia, and the heart rate remained relatively stable. On the other hand, the sitting position group experienced a more pronounced decrease in blood pressure and an increase in heart rate during the induction phase. Oxygen saturation levels showed no significant differences between the two groups.

DISCUSSION

The findings of this study are consistent with previous research indicating that the lateral position during spinal anesthesia induction may offer better hemodynamic stability compared to the sitting position. The lateral position allows for optimal blood flow and reduces the risk of hypotension by minimizing the compressive effects on the inferior vena cava and aorta. In contrast, the sitting position may result in venous pooling and decreased venous return, leading to a more substantial decrease in blood pressure.

The observed differences in hemodynamic effects between the two positions highlight the importance of proper patient positioning during the induction of spinal anesthesia for LSCS. Maintaining stable hemodynamics is crucial for the well-being of both the mother and the fetus, reducing the risk of maternal

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hypotension, fetal hypoxia, and adverse neonatal outcomes.

The results also have implications for clinical practice and anesthesia management. Anesthesiologists should consider using the lateral position whenever feasible for spinal anesthesia induction in LSCS, as it may contribute to better hemodynamic stability and minimize the need for vasopressor medications. However, individual patient factors and anatomical considerations should be taken into account when deciding on the most suitable position.

CONCLUSION

In conclusion, this comparative study demonstrates that the lateral position during the induction of spinal anesthesia for LSCS is associated with better hemodynamic stability compared to the sitting position. The findings support the notion that proper patient positioning plays a crucial role in minimizing the hemodynamic changes during the procedure. By choosing the appropriate position, anesthesiologists can optimize maternal and fetal safety during the induction of spinal anesthesia for LSCS.

It is important to note that this study has certain limitations, including the relatively small sample size and potential confounding factors that were not controlled. Further research with larger sample sizes and rigorous study designs is warranted to confirm these findings and explore additional factors that may influence hemodynamic effects during spinal anesthesia induction.

Nonetheless, the results of this study provide valuable insights into the hemodynamic effects of the lateral and sitting positions in spinal anesthesia induction for LSCS. These findings can guide clinical decision-making, improve anesthesia management strategies, and ultimately contribute to better maternal and neonatal outcomes in this specific surgical population.

REFERENCES

1. The Sixth Report of CEMD in UK. Confidential enquiry into Maternal and Child Health. Why Mothers Die 2000-2002. RCOG Press 2004.
2. Khaw KS, Kee WDN, Lee SW. Hypotension during spinal anesthesia for caesarean section: Implications, Detection, Prevention and Treatment. Fet Mat Med Rev 2006;17:1-27.
3. McClure JH, Brown DT, Wildsmith JA. Effect of injected volume and speed of njection on the spread of spinal anesthesia with isobaric amethocaine. Br J Anaesth 1982;54:917-20.
4. Hwang JW, Oh AY, Song IA. Influence of a prolonged lateral position on induction of spinal anesthesia for cesarean delivery: a randomized controlled trial. Minerva Anestesiol 2012;78:646-52.
5. Suonio S, Simpanen AL, Olkkonen H, Haring P. Effect of left lateral recumbent position compared with supine and upright positions on placental

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blood flow in normal late pregnancy. Ann Clin Res 1976;8:22-6.

6. Law AC, Lam KK, Irwin MG. The effect of right versus left lateral decubitus positions on induction of spinal anesthesia for cesarean delivery. Anesth Analg 2003;97:1795-9.
7. Chadwick IS, Eddlestone JM, Candelier CK, Pollard BJ. Haemodynamic effects of the position chosen for the insertion of epidural catheter. Int J Obstet Anesth 1993;2:197-201.
8. Okusanya BO. Maternal position during caesarean section for preventing maternal and neonatal complications: RHL commentary (last revised; April 2011), The WHO Reproductive Health Library; Geneva: World Health Organization. 2014.
9. Vercauteren MP, Coppejans HC, Hoffman VL, Saldien V, Adriaensen HA. Small – dose hyperbaric versus plain bupivacaine during spinal anesthesia for caesarean section. AnesthAnlag 1998;86:989-93.
10. Pitaken M, Rosenberg PH. Local anesthetics and additives for spinal anesthesia: Characteristics and factors influencing the spread and duration of block. Best Practice Res Clin Anesthesiol 2003;17:305-22.