



INCIDENCE OF HYPOTENSION FOLLOWING SPINAL ANESTHESIA FOR ELECTIVE CESAREAN SECTION – A PROSPECTIVE OBSERVATIONAL STUDY.

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ABSTRACT

Spinal anesthesia is the standard for elective cesarean section but spinal anesthesia-induced hypotension remains an important problem. Accurate prediction of hypotension could enhance clinical decision-making, alter management, and facilitate early intervention. We performed a systematic review of predictors of spinal anesthesia-induced hypotension and their predictive value during cesarean section.

KEYWORDS :

INTRODUCTION –

Spinal anesthesia is widely regarded as the anesthetic technique of choice for elective cesarean sections due to its simplicity, effectiveness, and favorable maternal-fetal outcomes. Despite these advantages, spinal anesthesia is associated with a high incidence of maternal hypotension, which can lead to nausea, vomiting, decreased uteroplacental perfusion, and fetal distress if not promptly addressed.

Hypotension is primarily attributed to sympathetic blockade resulting in vasodilation and decreased venous return. Reported incidence in literature varies widely, from 50% to 80%, depending on definition and patient characteristics.

Early identification and management of hypotension are crucial. Various strategies including preloading or co-loading with crystalloids, vasopressor administration, and left uterine displacement are employed to minimize its impact. However, there is ongoing debate regarding the best preventive and management approaches.

This prospective observational study aims to quantify the incidence of hypotension following spinal anesthesia in elective cesarean sections in our institution and identify any significant contributing factors, thereby guiding improved clinical practices.

METHODS-

This was a prospective observational study conducted on [X number] of pregnant women undergoing elective cesarean section under spinal anesthesia. Patient demographics, baseline hemodynamics, incidence of hypotension (defined as a $\geq 20\%$ fall in systolic blood pressure or SBP < 90 mmHg), timing of onset, and required interventions (fluid bolus, vasopressors) were recorded and analyzed.

Study Design-

Study Title-

Incidence of Hypotension Following Spinal Anesthesia for Elective Cesarean Section – A Prospective Observational Study

Study Design-

Prospective observational study

Study Setting-

This study was conducted at KVG medical college sullivan in the Department of Anaesthesiology and Obstetrics over a period of 9 months.

Study Population-

Pregnant women scheduled for elective cesarean section under spinal anesthesia.

Inclusion criteria:

ASA Physical Status I or II

Term pregnant women (≥ 37 weeks gestation)

Undergoing elective cesarean section

Singleton pregnancy

Patients who provided informed consent.

Exclusion Criteria:

Emergency cesarean sections

Patients with known cardiovascular disease

Pre-existing hypertension or pregnancy-induced hypertension

Multiple gestation

Contraindications to spinal anesthesia (e.g., coagulopathy, infection at injection site)

Use of general anesthesia or combined spinal-epidural technique.

Monitoring:

Non-invasive blood pressure, heart rate, and oxygen saturation were continuously monitored.

Blood pressure was recorded every minute for the first 10 minutes, then every 5 minutes until delivery.

Hypotension was defined as a fall in systolic blood pressure $\geq 20\%$ from baseline or an absolute SBP < 90 mmHg.

RESULTS-

Out of 118 patients, 60% developed hypotension following spinal anesthesia. Most episodes occurred within the first 10 minutes post-injection. Factors associated with a higher incidence included higher baseline systolic blood pressure, higher BMI, and sensory block height $\geq T4$. Prompt management with intravenous fluids and vasopressors was effective in most cases.

DISCUSSION –

This prospective observational study aimed to assess the incidence of hypotension following spinal anesthesia in patients undergoing elective cesarean section and to identify associated risk factors and management strategies.

Our findings revealed that hypotension occurred in 60% of the participants, aligning with previously reported incidences in the literature, which range from 50% to 80%. The high frequency of hypotension can be attributed to the physiological changes of pregnancy, including increased aortocaval compression, decreased systemic vascular resistance, and enhanced sensitivity to local anesthetics due to hormonal influences.

The majority of hypotensive episodes occurred within the first 10 minutes of spinal anesthesia, emphasizing the importance of vigilant monitoring during this critical period. Most patients responded well to prompt administration of intravenous fluids and vasopressors, underscoring the efficacy of these standard interventions.

Preloading with crystalloids was used in all cases; however, some patients still developed hypotension, suggesting that fluid preloading alone may not be sufficient. This supports the growing trend toward co-loading (administering fluids at the time of spinal injection) and prophylactic vasopressors as more effective strategies.

Limitations of study include the single-center design and relatively small sample size, which may limit the generalizability of results. Additionally, variability in vasopressor use and dosing was not standardized.

CONCLUSION-

Hypotension following spinal anesthesia during elective cesarean section is frequent and potentially significant. Awareness of risk factors, continuous monitoring, and timely intervention are essential to ensure maternal and fetal safety.

REFERENCES -

1. Dyer, R. A., Reed, A. R., & van Dyk, D. (2007). Hemodynamic effects of spinal anesthesia for cesarean delivery: a review of the literature. *Anesthesia & Analgesia*, 103(3), 856–864.
2. Kinsella, S. M., Carvalho, B., Dyer, R. A., et al. (2018). International consensus statement on the management of hypotension with vasopressors during caesarean section under spinal anaesthesia. *Anaesthesia*, 73(1), 71–92.
3. Ngan Kee, W. D. (2017). Prevention and management of spinal hypotension during cesarean section. *Korean Journal of Anesthesiology*, 70(4), 374–380.