

Study of Spinal Anaesthesia in Stable Eclampsia Patients

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Abstract

Introduction: Anaesthesia for caesarean section in patients with eclampsia has always been a task of challenge. Regional anaesthesia has gained popularity in management of such cases in last few years as it avoids the problems associated with general anaesthesia. The present study aims at studying the effects of spinal anaesthesia in stable eclampsia patients. *Material and Methods:* Fifty pregnant patients with history of eclampsia without any complications posted for emergency caesarean section were included in the study. All of them received spinal anaesthesia with injection Bupivacaine (0.5% heavy) 1.8 ml and 25 mcg fentanyl. All the patients were studied with respect to any hemodynamic variations intra-operatively, episodes of convulsions, need for conversion to general anaesthesia and any post-operative complications. *Results:* Only five patients had episodes of hypotension intra-operatively and one patient had post-operative convulsion. None of them had any significant postoperative complication or need for ICU admission. *Conclusion:* Spinal anaesthesia can be safely used in patients with stable eclampsia for caesarean section.

Keywords: Caesarean Section; Stable Eclampsia; Spinal Anaesthesia.

Introduction

Anaesthesia for caesarean section in patients with eclampsia has always been a task of challenge. Various anatomical and physiological changes in patients with pre-eclampsia and eclampsia has made the decision of anaesthesia for caesarean section difficult.

Both general and regional anaesthesia have been used in these patients but the choice still remains controversial. General anaesthesia has its own disadvantages due to problems of difficult airway [1] exaggerated pressor response to laryngoscopy and intubation and drug interaction between magnesium and non-depolarising muscle relaxants [2,3].

Regional anaesthesia is gaining popularity in management of patients with pre-eclampsia and eclampsia and has been successfully used in patients with stable eclampsia. Stable eclampsia is defined as a patient with history of eclampsia who is conscious, oriented, seizure free, and has stable vital parameters, no signs of raised intracranial pressure and no coagulopathy [1,4].

We studied the safety of spinal anaesthesia in patients with stable eclampsia posted for emergency caesarean section.

Material and Methods

After obtaining approval from the institutional ethical committee, the study was conducted in

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S.R.T.R. Rural Government medical college in the year 2015-2017. Fifty parturients with history of eclampsia posted for emergency caesarean section were included in our study.

A thorough pre-anaesthetic evaluation with respect to NBM status, evidence of last convulsion, number of convulsions, drugs given to control the convulsions, whether patient was a diagnosed case of pre-eclampsia and on treatment, and any other significant history.

Patients were examined for her level of consciousness, heart rate, systolic and diastolic blood pressure, respiration. Airway assessment and systemic examination was done. Urine output was checked and patient was taken on the operating table after obtaining an informed high risk consent.

Intravenous access was obtained with 18G cannula and IV infusion of Ringer's Lactate started. All the monitors like pulse-oximetry, NIBP, SpO₂ were attached for intra-operative monitoring. Patients were pre-medicated with injection Ranitidine 50mg. IV and injection ondasetron 4mg IV.

Spinal anaesthesia was given in left lateral position with 25G needle and injection Bupivacaine (0.5% heavy) 1.8 ml and 25 mcg fentanyl injected in the subarachnoid space. Immediately patient was made supine and a 15° left lateral tilt given. Sensory block was assessed by pin prick and motor block by modified Bromage scale.

A sensory level of T6 was considered adequate to begin with the caesarean section. Intra-operatively, vital parameters like heart, systolic and diastolic blood pressure, SpO₂, need for vasopressors, occurrence of any intra-operative convulsion and need for conversion to general

anaesthesia was recorded. Following delivery of the baby, injection oxytocin 20 IU infusion was started. APGAR score was recorded immediately at birth and at 5 min. thereafter. After completion of the caesarean section the patient was observed in the recovery for 4 hours and then shifted to ward.

Results

The demographic data of all the patients included in the study is shown in Table 1

As it is seen in table 2, none of the patients had significant bradycardia or desaturation intra-operatively. Incidence of hypotension intra-operatively was at 5 min, 10 min and 15 min after institution of spinal anaesthesia and only 10% patients required vasopressors for its correction.

Out of the fifty patients who underwent caesarean section under spinal anaesthesia, only five patients (10%) had hypotension intra-operatively (systolic Bp < 90mmHg) and required vasopressors as shown in Fig. 1

One patient was irritable and restless after induction of anaesthesia and hence needed to be sedated with injection Midazolam 1mg IV. None of the patients had intraoperative convulsions, high spinal or total spinal.

None of the patients had a need for conversion to general anaesthesia and the caesarean section was uneventful in almost all the patients.

Only one patient had postoperative convulsion in the recovery room which was managed with injection midazolam 2 gm IV. The post-operative period was uneventful in rest of the patients.

Table 1: Demographic Data

	Mean ± SD
Age (yrs)	24.02±3.56
Weight (kg)	49.94±3.53
Height (cm)	157.66±6.97



Fig. 1: Patients having hypotension intra-operatively

Table 2: Trends of hemodynamic parameters

Time	Pulse rate	Mean Bp	Spo2
Per-operative	83.68±5.34	120.24±7.35	98.04±0.75
1 min	85.74±5.47	122.04±7.35	98.18±0.74
3 min	87.34±4.66	115.98±7.01	98.24±0.76
5 min	88.84±4.49	92.8±8.6	98.04±0.75
10 min	87.30±7.59	92.96±6.78	98.16±0.82
15 min	88.28±5.89	90.32±4.79	98.06±0.77
20 min	88.84±4.49	96.24±4.56	98.60±0.96
30 min	86.68±11.31	101.08±6.72	98.16±0.82
40 min	88.96±12.57	109.60±6.98	98.24±0.76
50 min	93.16±10.00	115.98±7.01	98.18±0.74
60 min	92.44±7.70	122.04±7.35	98.18±0.79

Discussion

Eclampsia is one of the most challenging obstetric emergency and hence requires expert anaesthetic management with respect to maintenance of airway, blood pressure stabilisation, maintenance of fluid status, and prevention of convulsions⁵. Anaesthesia for caesarean section in such patients has always been a task of challenge and the choice of anaesthesia remains controversial.

General anaesthesia, which was used earlier in these patients had many problems like difficult airway [1], hypertensive response to laryngoscopy, risk of aspiration and drug interaction between magnesium sulphate and non-depolarising muscle relaxants [2,3].

Nowadays regional anaesthesia is gaining popularity in such patients for caesarean section as most of the drawbacks with general anaesthesia are avoided. Razzaque et al has studied spinal anaesthesia in stable eclampsia patients and has found it to be safe [6]. Though it is thought that spinal anaesthesia will produce precipitous fall in blood pressure in these patients, various studies have found that it supports hemodynamic stability and chances of hypotension are less as these patients have high levels of circulating catecholamines which may protect them against hypotension [7].

Hypotension associated with regional anaesthesia can be avoided by using low dose local anaesthetics supplemented with opioids for subarachnoid block, use of vasopressors and careful volume expansion as we did in our patients. Despite of all these precautions, one cannot guarantee about non-occurrence of hypotension and hence careful intra-operative monitoring is required [8].

In our study, we had only 5 patients (10%) with episodes of hypotension and none of the patients had bradycardia. Similar findings were also observed by Antonie et al [7] who observed that there is less

chance of hypotension in pre-eclamptics under spinal anaesthesia.

We selected all stable eclampsia patients in our study who did not have any associated complications like thrombocytopenia, increased ICT, uncontrolled convulsions, restlessness, unconsciousness (GCS<9), respiratory failure and haemorrhage. Though many studies have demonstrated the safety of spinal anaesthesia in unstable eclamptics, its use in such patients has to be taken with a pinch of salt. Jide Michael Aolayan et al [9] performed spinal anaesthesia in restless eclamptics and found it to be safe. Paramore et al [10] documented that spinal anaesthesia could actually prevent further restlessness and convulsions in eclamptic patients for reasons not known. Including stable and unstable eclampsia patients in our study would add to errors in the result and hence we selected only stable eclampsia patients.

The coagulation profile and platelet counts of all the patients in our study was normal as one of the concerns with regional anaesthesia is development of epidural or spinal hematoma due to associated thrombocytopenia. A platelet count > 75000/microlit with normal PTT and PT have been recommended for administration of regional anaesthesia in such patients. Similarly American society of regional anaesthesia recommends that patients on low dose aspirin is not a contraindication for regional anaesthesia [11]. General anaesthesia is preferred in patients who have coagulopathy and regional anaesthesia should be avoided in such patients [12]. We used small bore needle (25G) in these patients for lumbar puncture to minimise the risk of spinal hematoma.

Only one patient in our study had postoperative convulsion which could be attributed to her pathology of eclampsia and could have occurred even if general anaesthesia would have been used. None of the patients had any post-operative

complication or prolonged hospital stay. Basu et al² found that parturients with general anaesthesia had prolonged hospital stay. This finding again adds to the benefit of spinal anaesthesia in such patients.

While comparing the APGAR scores of the babies, all the newborns had APGAR score 9/10 immediately at birth and score of 10, five minutes after delivery. Dasgupta et al [13] compared neonatal outcome in women with severe pre-eclampsia under spinal anaesthesia and found that APGAR score of the neonates delivered by using spinal anaesthesia was better than those in whom general anaesthesia was used. Hence we can say that spinal anaesthesia is safe not only to mother but also to the neonate as the deleterious effects of various drugs administered to the mother for general anaesthesia on the fetus are avoided.

Conclusion

Finally to conclude, we can say that spinal anaesthesia can be safely administered in stable eclampsia patients providing stable hemodynamics intra-operatively, less post-operative complications, less duration of post-operative hospital stay and also safe to the newborn.

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Conflicts of Interest

Nil

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