

CASE REPORT

Anesthesia for cesarean section in eclamptic parturients with obtunded consciousness at a remote place with limited resources

Poonam Gupta and Ameeta Sahni

Department of Anesthesia, G.B. Pant Hospital, Port Blair, Andaman and Nicobar Islands (India)

Correspondence: Dr Poonam Gupta, Department of Anesthesia & Intensive Care, Safdarjang Hospital, New Delhi -110029 (India); E-mail: p.gupta182@gmail.com

ABSTRACT

Eclampsia, characterized by a convulsive disorder with pre-eclampsia before during or after labor has an unpredictable outcome with high morbidity and mortality. Controversies still exist in the management of eclampsia, both from the obstetric and anesthesia point of view. The definitive treatment is termination of pregnancy. The choice of anesthesia for a lower segment cesarean section (LSCS) between regional (spinal or epidural) and general anesthesia remains controversial. General anesthesia is usually preferred in eclamptic patients with convulsions, as patients may be unconscious and might have raised intracranial pressure, coagulopathy and pulmonary edema. Spinal anesthesia is well established in conscious stable eclamptic but its role in unstable eclamptic patient has not been documented.

We present the safe and successful conduct of two cases of urgent LSCS in convulsing eclamptic parturients under spinal anesthesia at a remote location with infrastructure constraints like trained manpower, critical care and laboratory facilities etc. Both became conscious subsequently and their postoperative course was uneventful.

Key words: Eclampsia; Convulsions; Anesthesia, Spinal; Anesthesia, General; Thrombocytopenia

Citation: Gupta P, Sahni A. Anesthesia for cesarean section in eclamptic parturients with obtunded consciousness at a remote place with limited resources. *Anaesth Pain & Intensive Care* 2016;20(3):361-364

Received: 1 September 2016; **Reviewed:** 12 September 2016; **Accepted:** 15 September 2016

INTRODUCTION

Eclampsia is an unpredictable, multisystem disorder characterized by the occurrence of generalized convulsions during labor or within 7 days of delivery and not caused by epilepsy or other convulsive disorders.¹ Despite increased awareness and advancement in medical treatment, it is still a major cause of perinatal maternal and fetal mortality and morbidity globally, more so in developing countries.

In countries like India, illiteracy, lack of accessible antenatal clinics, lack of high dependency units and delay in hospitalization add to the morbidity and mortality. Working in this type of adverse environment is really a big challenge for the anesthesiologist as well as for the obstetrician.

We present here an uneventful conduct of urgent LSCSs under spinal block in two parturients, who

were in active labor with eclamptic seizures and obtunded consciousness levels. These parturients were airlifted from remote islands to our institution, where although qualified anesthesiologists were available but with constraints in infrastructure, e.g. lack of adequate laboratory investigations and a good critical care unit.

CASE REPORT 1

A 23 year old woman weighing 90 kg, G2 P1 L1 with 32 weeks of gestation was transported from a remote island following generalized tonic-clonic convulsions. She was on regular antenatal follow up and was on tab. labetalol 100 mg for pregnancy induced hypertension (PIH). She received inj magnesium sulfate 4 gm deep intramuscularly (IM) before being transported. On examination she was unconscious, had Glasgow Coma Scale (GCS) of 9/15 (E2V2M5). Her baseline vital signs were, heart

eclamptic parturients with obtunded consciousness

rate (HR) 110/min, blood pressure (BP) 180/110 mmHg, respiratory rate (RR) 16/min. Oxygen saturation (SpO₂) was 95% on polymask (flow rate of 4 lit/min). Cardiovascular and respiratory systems were normal. Urinary catheterization showed frank hematuria. No laboratory report of liver function tests (LFT) or platelet count was available to rule out HELLP syndrome. Bleeding time (BT) and clotting time were 2 min and 30 sec, 5 min and 20 sec respectively. Fetal heart rate was 160 / min and irregular. Decision for emergency LSCS was taken. In operating room (OR) she convulsed again. Case was discussed with obstetrician and hematuria was attributed to obstructed labor. Inj magnesium sulfate 4 gm IM was repeated. Seizures were aborted by two boluses of thiopentone 50 mg. Supplemental oxygen was added, airway maintained with a Guedel's oropharyngeal airway. Airway management cart was kept ready. Uneventful emergent LSCS was performed under subarachnoid block (SAB) using 1.8 ml of bupivacaine heavy 0.5% in lateral position on second attempt with two assistants holding her for the block.

A baby boy was delivered with an APGAR score of 7 and 9 at 1 and 5 min. Perioperatively, her vital signs remained stable. Postoperative period was unremarkable with normal coagulation profile and platelet count. She regained consciousness in the evening.

CASE REPORT 2

A 33 year old, G3 P0 A2 weighing 95 kg, was brought to the primary health centre following convulsions at 32 weeks of gestation. She had been irregular with her antenatal clinic (ANC) visits, and also received treatment for hypertension irregularly. At the primary health center she received inj diazepam 5 mg, and inj magnesium sulphate 4 gm IM and was later airlifted to our center the next day. She was shifted to OR for emergency LSCS. She was disoriented, delirious and thrashing about with a GCS of 10/15 (E2V3M5). Her heart rate was 120/min and a blood pressure of 170/112 mmHg. Oxygen saturation (SpO₂) was 97% on air. Breathing and heart sounds were normal. No investigations other than an old blood for hemoglobin and urine analysis report were available. Two boluses of inj midazolam 1 mg were given to sedate her. Decision for emergency LSCS was taken for fetal distress.

After checking for difficult intubation cart, LSCS was performed under SAB, using 1.8 ml inj bupivacaine 0.5% heavy. Oxygen was supplemented by ventimask with FiO₂ 0.4%.

A flaccid, 2 kg baby girl (APGAR of 3 and 4 at 1 and 5 min) was delivered, was resuscitated and taken to the nursery. The maternal postoperative period was uneventful. Both mother and child were discharged after two weeks.

DISCUSSION

Eclampsia, being a complex disease syndrome, taxes the expertise of the most experienced anesthesiologist, who has to focus on maintenance of airway, blood pressure stabilization, optimisation of fluid status, prevention of seizures and in delivering the baby.²

Anesthesiologists are usually involved late in the management of these patients during emergency LSCS. The choice of anesthetic technique for patients with eclampsia remains controversial and quite challenging.

No technique, general anesthesia (GA) or central neuraxial blockade, is without pitfalls. GA is considered unsafe because of potential problems with difficult airway,³ exaggerated hypertensive response to laryngoscopy and intubation, risk of aspiration pneumonitis and drug interactions between magnesium and non-depolarizing muscle relaxants.⁴

Regional anesthesia seem a safer option as the above pitfalls might be avoided, but feared because of risk of sudden severe hypotension. However, this fear is unwarranted as these parturients have high levels of circulating catecholamines which may protect them against a fall in BP.⁵ The regional anesthesia-related hypotension can be avoided by use of lowest possible effective dose of local anesthetic, meticulous use of ephedrine and careful volume expansion. Still, there is no absolute guarantee of safety with this technique and a close monitoring of vital parameters is mandatory.⁶

Another concern is risk of development of epidural/spinal hematoma, because of associated thrombocytopenia. Incidence reported ranges from 1:1,50,000 to 1:2,20,000.⁷

There is no census on "safe" platelet count, a count of at least 75,000 or 80,000 / μ L and normal partial thromboplastin (PTT) and prothrombin times (PT) have been recommended before initiating regional anesthesia in severely preeclamptic and eclamptic parturients.

Patients with preeclampsia may have rapidly changing platelet counts and hence single value may not be a reliable predictor. Clinical judgement

relying on history and physical examination of patients for any evidence of easy bruising and bleeding from the venipuncture site or petichae at pressure cuff site can alert us for coagulopathy.

Single shot spinal anesthesia with finer needle may be a safer option for conduct of LSCS in conscious eclampsia with stable vitals and no coagulopathy.^{8,9,10} Studies have demonstrated some benefits of subarachnoid block over GA in stable eclamptic patients.^{11,12} GA is a preferred choice in parturients with coagulopathy, pulmonary edema or eclampsia who are unconscious with GCS < 9.¹³ Razzaque et al¹⁴ have shown the safety of spinal anesthesia over GA for LSCS in eclamptics.

Both of our patients had eclampsia, and had received inj magnesium sulphate as well as benzodiazepine to control the seizures and tab labetalol for control of blood pressure at remote primary health center and later airlifted to tertiary center where authors were posted.

In case 1 parturient had seizures on OR table despite inj magnesium sulphate. Seizure was controlled by inj thiopentone and our case 2 parturient was restless and received midazolam before spinal anesthesia. Case 1 parturient also had hematuria, which was attributed to obstructed labor rather than any coagulation disorder.

Emergency LSCS was performed under single shot spinal anesthesia using low dose heavy bupivacaine based on clinical examination negative for bleeding disorder. Intraoperative period was uneventful.

GA would have been a technique of choice in these patient with unstable eclampsia however, in situation like ours with inadequate critical

care facility, untrained staff, lack of specialized laboratory, a single shot spinal anesthesia with low dose of bupivacaine using fine needle proved to be an alternative technique with good maternal and fetal outcome.

One more drawback was that we did not get a platelet count or coagulation profile in the post-partum period as these facilities were expensive and not easily available.

Thus, the technique of anesthesia has to be chosen judiciously based on individual patient condition and facilities available to yield the best possible results.

CONCLUSION

Subarachnoid block (SAB) is a simple technique, provides rapid, high quality surgical anesthesia with avoidance of complications related to emergency GA. With vigilant intraoperative and postoperative clinical monitoring it may be considered a safe alternative technique in difficult conditions with primitive facilities in unstable eclamptics even with obtunded consciousness and/or restlessness.

Competing interest: The authors declare no competing interests

Authors' contribution: The authors were posted to this remote location on government duty for a finite period. More such cases are done routinely under SAB by the practicing anesthesiologists at this centre. Both the authors contributed in conduct of cases and in writing manuscript.

Acknowledgements: We wish to thank Dr A. L. Janardhan, consultant anesthetist at G.B. Pant Hospital, Port Blair, Andaman & Nicobar Islands (India), nurse anesthetist, paramedics, obstetricians and everybody who participated in the report.

REFERENCES

1. Majhi AK, Mondal A, Mukherjee GG. Safe motherhood- a long way to achieve. *J Indian Med Assoc.* 2001;99:132-37. [PubMed]
2. Smith GC, Fretts RC. Stillbirths-seminar. *Lancet.* 2007;370(9600):1715-25. [PubMed]
3. Brimacombe J. Acute pharyngolaryngeal oedema and pre-eclamptic toxemia. *Anesth Inten Care.* 1992;20:97-8. [PubMed]
4. Sinatra RS, Philip BK, Naulty JS, Ostheimer GW. Prolonged neuromuscular blockade with vecuronium in a patient treated with magnesium sulfate. *Anesth Analg.* 1985;64:1220-2. [PubMed]
5. Aya AG, Mangin R, Vialles N, Ferrer JM, Robert C, Ripart J, et al. Patients with severe preeclampsia experience less hypotension during spinal anaesthesia for elective caesarean delivery than healthy parturients: a prospective cohort comparison. *Anesth Analg.* 2003;97:867-72. [PubMed]
6. Khan ZH. Preeclampsia/Eclampsia: An Insight into the Dilemma of Treatment by the Anesthesiologist. *Acta Med Iran.* 2011;49(9):565-74. [PubMed] [Free full text]
7. Vandermeulen EP, Van Aken H, Vermeylen J. Anticoagulants and spinal-epidural anaesthesia. *Anesth Analg.* 1994 Dec;79(6):1165-77. [PubMed]
8. Chaudhary S, Salhotra R. Subarachnoid block for caesarean section in severe preeclampsia. *J Anaesthesiol Clin Pharmacol.* 2011 Apr;27(2):169-73. doi: 10.4103/0970-9185.81821. [PubMed] [Free full text]
9. Visalyaputra S, Rodanant O, Somboonviboon W, Tantivitayatan K, Thienthong S, Saengchote W. Spinal versus epidural anesthesia for cesarean delivery in severe preeclampsia: a prospective randomized, multicenter study. *Anesth Analg.* 2005;101:862-8. [PubMed]
10. Aya AG, Vialles N, Tanoubi I, Mangin R, Ferrer JM, Robert C, et al. Spinal anesthesia-induced hypotension: a risk comparison between patients with severe preeclampsia and healthy women undergoing preterm caesarean delivery. *Anesth Analg.* 2005 Sep;101(3):869-75 [PubMed]
11. Nafiu OO, Salam RA, Elegbe EO. Anaesthetic dilemma: spinal anaesthesia in an eclamptic patient with mild thrombocytopenia and an "impossible" airway. *Int J Obstet Anesth.* 2004 Apr;13(2):110-3. [PubMed]
12. Basu MK, Begun H, Abdul Karim M, Rahaman MK. Randomised comparison of general anaesthesia and subarachnoid block for caesarean delivery in pregnancies complicated by eclampsia. *J Bang Soc Anaesthesiol.* 2006;19:44-50.
13. Dennis AT. Management of pre-eclampsia: issues for anaesthetists. *Anaesthesia.* 2012; 67(9):1009-20. doi: 10.1111/j.1365-2044.2012.07195.x. [PubMed] [Free full text]
14. Razzaque M, Rahman K, Sashidharan R. Spinal is safer than GA for LSCS in eclamptics (abstract) *Anesthesiology.* 2001;94:A34.

