

Total Intravenous Anesthesia Management Of A Patient With Cerebral Palsy During Cesarean

S Sahin, A Çolak, M ?nal, C Arar, T Yand?m

Citation

S Sahin, A Çolak, M ?nal, C Arar, T Yand?m. *Total Intravenous Anesthesia Management Of A Patient With Cerebral Palsy During Cesarean*. The Internet Journal of Anesthesiology. 2007 Volume 16 Number 1.

Abstract

Cerebral palsy is a nonprogressive disorder of motion and posture. The causes are multiple, but all result in damage to the central nervous system .

We described the anaesthetic management of a 34-year-old, 72 kg, 165 cm pregnant woman with cerebral palsy was scheduled for cesarean section at 35 weeks gestation. Anesthesia was induced by propofol intravenously After the umbilical cord was clamped, we performed total intravenous anesthesia, intraoperative and postoperative course uneventfully.

In this case report, we presented total intravenous anesthesia management of a patient with cerebral palsy who progressed uneventful intra and postoperative period.

INTRODUCTION

Cerebral Palsy (CP) is a non-progressive disorder of the motor system secondary to brain injury during early development. Associated non-motor problems are frequent and contribute significantly to the disability. Some of the conditions associated with cerebral palsy require surgical intervention. Problems during the peri-operative period may include hypothermia, nausea and vomiting and muscle spasm. Peri-operative seizure control, respiratory function and gastro-oesophageal reflux also require consideration. Intellectual disability is common and, in those affected, may range from mild to severe. Postoperative pain management and the prevention of muscle spasm is important(,).

In this study, it is aimed to present Total Intravenous Anesthesia (TIVA) management of a patient with cerebral palsy during cesarean section.

CASE REPORT

We described the anaesthetic management of a 34-year-old, 72 kg, 165 cm pregnant woman with cerebral palsy was scheduled for cesarean section at 35 weeks gestation. Cerebral palsy had been diagnosed when she was a neonate. She could walk by himself, although with difficulty. Before operation at preanesthesia, no cardiovascular, respiratory, digestive and renal systems abnormalities were detected. Hemoglobin, white cell count, platelet count , coagulation tests, plasma electrolytes, were normal. Because she could

not be positioned for spinal anesthesia and general anesthesia was selected. She was monitored with peripheral oxygen saturation (SpO₂), electrocardiogram (leads II, V1), cutaneous temperature (T), noninvasive blood pressure (NIBP). Heart rate: 98 min⁻¹, blood pressure: 135/55 mmHg, body temperature 37.2 °C. Anesthesia was induced by using 2 mg/kg propofol intravenously. During adequate anesthesia, tracheal intubation was performed without any neuromuscular blockers. After tracheal intubation, 50 % oxygen in air inhalation was started. The interval between induction and delivery was 20 minutes. After delivery 10 IU oxytocin was administered. Apgar scores were 9 and 10 at 1 and 5 minutes. After the umbilical cord was clamped Total Intravenous Anesthesia maintenance was achieved by using 6 mg/kg propofol and 1 µg.kg⁻¹.min⁻¹ remifentanyl infusion intravenous. After recovery of muscle tone, spontaneous breathing was adequate, trachea was extubated. No respiratory or hemodynamic problems were occurred. The patient was admitted to recovery room with stable vital signs (average blood pressure: 115/55 mmHg, heart rate 85 beats.min⁻¹, peripheral oxygen saturation 99%, body temperature 37.2 °C). Thirty minutes later she was sent to service with stable vital signs.

DISCUSSION

Cerebral palsy is an almost common disorder with an estimated prevalence of 2-4/1000 population. Major causes are hypoxia of brain , central nervous system infections,

birth trauma and consecutive hematoma. The classical findings are spasticity, paralysis, seizures, unsteady gait, dysarthria and mental retardation. The treatment is usually symptomatic and the development of intensive care units (2). Cerebral palsy had been diagnosed when our patient was a neonate. The range of motion of the patient's limbs was severely limited because of spastic quadriplegia; however, she could walk by himself, although with difficulty.

Regional anesthesia is particularly valuable for patients with cerebral palsy but general anesthesia is sometimes required for delivery. Because our patient suffered from severe curvature of the spine, and general anesthesia was selected (1).

Gregory et al.(3) reported that propofol for induction and maintenance of anaesthesia at caesarean section a comparison with thiopentone/enflurane. There were no differences in maternal recovery times or psychomotor performance. Saricaoglu et al.(4) suggest that noncommunicative/nonverbal children with Cerebral palsy require less propofol to obtain the same BIS values (i.e. 35–45) than do otherwise healthy children. We performed total intravenous anesthesia, intraoperative and postoperative course uneventfully.

Moorthy et al. (5) concluded that Cerebral palsy patients showed resistance to vecuronium and rapid recovery from neuromuscular block, compared with non- Cerebral palsy patients. The resistance may be secondary to acetylcholine receptors (AChR) proliferation. Succinylcholine use in certain clinical conditions (e.g., burns, denervation, muscle damage, etc.), may lead to a dramatic and sometimes fatal increase in serum potassium.(6,7,8) . In the present case,

during adequate anesthesia, tracheal intubation was performed without any neuromuscular blockers.

In conclusion, Total Intravenous Anesthesia can be safely used to Cerebral palsy . We think that general anaesthesia can be performed successfully with hemodynamic stable.

CORRESPONDENCE TO

Anaesth Dr. Sevtap Hekimoglu Sahin Trakya University Medical Faculty, Department of Anaesthesiology and Reanimation, 22030, Edirne, TURKEY Tel No: 0 90 284 2357641/3200 Fax No: 0 90 284 2358096 E-mail. sevtaphekimoglu@mynet.com

References

1. Nolan J, Chalkiadis GA, Low J et al. Anaesthesia and pain management in cerebral palsy. *Anaesthesia* 2000; 55: 32-41.
2. Eicher PS, Batshaw ML. Cerebral palsy. *Pediatric clinics of North America* 1993; 20: 327-44.
3. G. Yau, T. Gin, M. C. Ewart et al. Propofol for induction and maintenance of anaesthesia at Caesarean section A comparison with thiopentone/enflurane. *Anaesthesia* 1991; 46 (1): 20-23.
4. F. Saricaoglu, N. Celebi, M. Celik. The evaluation of propofol dosage for anesthesia induction in children with cerebral palsy with bispectral index (BIS) monitoring. *Pediatric Anesthesia* 2005 ;15(12): 1048-1052.
5. Moorthy SS, Krishna G, Dierdorf SF. Resistance to vecuronium in patients with cerebral palsy. *Anesth Analg* 1991;73:275-7.
6. Gronert GA, Theye RA. Pathophysiology of hyperkalemia induced by succinylcholine. *Anesthesiology* 1975; 43: 89-99.
7. Dierdorf SF, McNiece WL, Rao CC, et al. Effect of succinylcholine on plasma potassium in children with cerebral palsy. *Anesthesiology* 1985;62:88 -90.
8. Melton AT, Antognini JF, Gronert GA. Prolonged duration of succinylcholine in patients receiving anticonvulsants: evidence for mild up-regulation of acetylcholinereceptors? *Can J Anaesth* 1993;40:939-42.

Author Information

Sevtap Hekimoglu Sahin

Department of Anaesthesiology and Reanimation, Trakya University Medical Faculty

Alkin Çolak

Department of Anaesthesiology and Reanimation, Trakya University Medical Faculty

Mehmet ?nal

Department of Anaesthesiology and Reanimation, Trakya University Medical Faculty

Cavidan Arar

Department of Anaesthesiology and Reanimation, Trakya University Medical Faculty

Tar?k Yand?m

Department of Anaesthesiology and Reanimation, Trakya University Medical Faculty