

OPIS PRZYPADKU/CASE REPORT

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Combined spinal epidural anaesthesia for elective caesarean section in a parturient with Friedreich's Ataxia**Berrin Gunaydin¹, Nuray Bozkurt², Gokcen Emmez¹, Aslihan Aykut¹, Didem Kcali¹**¹ Department of Anaesthesiology, Gazi University School of Medicine, Ankara, Turkey² Department of OBGYN, Gazi University School of Medicine, Ankara, Turkey**Abstract**

Case report. We herein present the first reported case of a parturient with Friedreich's Ataxia (FA) who received uneventful combined spinal epidural (CSE) anaesthesia with ropivacaine, sufentanil and morphine for elective caesarean section. *Anestezjologia i Ratownictwo 2012; 6: 409-411.*

Keywords: *Friedreich's Ataxia, caesarean section, anaesthesia; combined spinal epidural (CSE), ropivacaine, sufentanil, morphine*

Introduction

Friedreich's ataxia (FA) is a rare autosomal recessive neurodegenerative disorder. Disease may seem to be problematic during pregnancy. However, 31 women with FA who had 65 pregnancies resulting in 56 live offspring in a retrospective study demonstrated that women with FA could have uncomplicated pregnancies [1]. There are few reports on the anaesthetic management of patients with FA in the obstetric population [2-5]. Peridural anaesthesia has been performed for caesarean delivery only in one of these case reports [5]. Therefore, we have reported combined spinal epidural (CSE) anaesthesia using intrathecal sufentanil and morphine followed by epidural ropivacaine administration via catheter for the first time in a 34 year-old primigravida with a history of FA underwent elective caesarean delivery due to neurologic consultation.

Case report

A 34 year-old (height: 164 cm, weight: 89 kg, gravida 1, para 0) female with a history of FA diag-

nosed in 2002 presented to the labor and delivery ward at 38⁴ weeks gestation for elective caesarean section. She reported ataxia and dysarthria. She was unable to walk and was confined to a wheelchair. Sensory sensation was intact bilaterally in her lower extremities. Laboratory tests were unremarkable except for high alkalene phosphatase level (193 IU). She was receiving bicyclic antidepressant sertraline (lustral 50 mg tablet) due to depression occurred at 12 weeks' gestation.

After fasting overnight, ranitidine 50 mg and metoclopramide 10 mg intravenous (iv) was administered half an hour before the CSE anaesthesia procedure. On arrival to the operating room infusion of Ringer's lactate (RL) solution (10 mL/kg) and standard monitors including heart rate, ECG, non-invasive blood pressure and pulse oximeter were performed. After routine preparations, CSE anaesthesia was performed with needle through needle technique (18 G Tuohy epidural needle and 27 G Whitacre spinal needle) using midline approach between L3-4 intervertebral space in the sitting position. Loss of resistance to saline was used to identify the epidural space which was found in 5 cm depth. Intrathecal sufentanil 2 µg and morphine

100 µg were administered through Whitacre spinal needle. Afterwards epidural catheter was placed into the epidural space uneventfully at the first attempt. Epidural catheter was left in approximately 5 cm depth. Thereafter, the patient was turned to supine with left uterine displacement provided by tilting the operation table approximately 15-20° to the left. Meanwhile, urinary catheter was placed by an obstetrician.

Baseline measurements including noninvasive blood pressure, heart rate, and peripheral oxygen saturation (SpO₂) were 165/122 mmHg, 123 beat/min and 98%, respectively. A test dose of ropivacaine 15 mg (*Naropin*® 7.5 mg/mL, 10 mL injection, AstraZeneca) was injected through the epidural catheter to rule out intravascular insertion of the epidural catheter. Then initially 8 mL ropivacaine was injected via epidural catheter which resulted a sensory block at T6 dermatome within 10 minutes. Three minutes after adding 4 mL ropivacaine through the epidural catheter, sensory block reached to T4 dermatome and onset of surgery was allowed. Four minutes after skin incision, uterus incision and umbilical cord clamping were performed successively within 1 minute (min). A healthy newborn (3040 g and 49 cm) was born. Apgar scores at 1 and 5 min were 8 and 9, respectively. According to the umbilical artery and venous blood gas analysis pH values were 7.39 and 7.34, respectively. Infusion of oxytocine 10 IU in 1 liter RL solution was started. Additionally, 8x7 cm uterine myoma was excised.

Monitored parameters were recorded every 2 min in the 1st 10 min, every 5 min in the first hour (h) and every 10 min until the patient moved to the recovery unit. No hypotension episode was observed until 50 minutes after skin incision which was measured as 98/52 mmHg and then it was successfully treated with iv administration of ephedrine 5 mg. Operation including caesarean delivery and myoma uteri excision lasted 56 minutes.

The sensory block level was evaluated by absence of sensation to cold alcoholic swab and by loss of pinprick using short beveled end of a needle with a blunt tip and at mid-clavicular level bilaterally every 5 min during the operation. Postoperative recordings were made every 10 min until discharge from the recovery unit and then every 30 min until regression of sensory block. When motor block was assessed immediately after sensory block assessment using modified Bromage scale (0 = no paralysis, 1 = unable to raise extended leg, 2 = unable to flex knee, 3 = complete paralysis), she

could only flex her knees and move her feet.

According to the postoperative evaluation of block, she could move her feet bilaterally in the ward six hours after the completion of the surgery.

Postoperative analgesia was provided with patient controlled epidural analgesia (PCEA) for 24 hours. Ropivacaine 0.2% including 0.2 µg/mL sufentanil was set to deliver 6 mL/h background infusion, 3 mL bolus on demand with 10 min lock-out interval and 30 mL 4-h limit. Ondansetron 8 mg was administered 2 hours before midnight to treat nausea. Epidural catheter was removed 36 hours after the operation. Tenoxicam 20 mg (Oksamen-L 20 mg, flakon, Mustafa Nevzat, Türkiye) was ordered twice a day until discharge. As soon as bowel sounds returned on the postoperative 2nd day, peroral paracetamol was started.

Upon postpartum psychiatry consultation, sertraline was discontinued. She was discharged on the postoperative 3rd day. After 3 weeks, her neurologic examination did not change or worsen by revealing plantar flexion 2/5 and dorsiflexion 3/5 with hypoesthesia in the legs. Postpartum cranial magnetic resonance imaging did not display any change with respect to the MRI performed before pregnancy.

Discussion

We have reported a 34 year-old primigravida with a history of FA underwent elective caesarean delivery with CSE anaesthesia using intrathecal sufentanil and morphine followed by epidural ropivacaine administration via catheter.

There are several reports for the anesthetic management of FA particularly in children. However, limited cases related to obstetric anaesthesia have been presented because of the rarity of the disease [2-5]. Only one of these reported cases received peridural anaesthesia with 8 mL ropivacaine and 10 µg sufentanil after administration of test dose including 2 mL prilocaine for caesarean delivery [5]. In that case report the authors stated that their choice was peridural anaesthesia rather than general anaesthesia because of the possible increased sensitivity to muscle relaxants. Regarding general anaesthesia, because of the possible precipitation of hyperkalemia with suxamethonium and sensitivity to non-depolarizing muscle relaxants requirement for continuous neuromuscular monitoring has been strictly recommended [5]. On the other hand as for regional anaesthesia options, CSE anaesthe-

sia may offer advantages over either epidural or spinal anaesthesia techniques by allowing us to provide better dose titration with rapid onset associated with more controlled postoperative analgesia. Therefore, in the present case report we have preferred CSE anaesthesia using a similar maintenance protocol via epidural route with ropivacaine.

For caesarean delivery local anesthetic agent of choice is typically bupivacaine [6], while ropivacaine is commonly preferred for neuraxial labor analgesia because of its features on blocking nerve fibers responsible for pain transmission (Ad and C fiber) rather than motor function (Ab fiber) due to its high pKa ($\cong 8.2$) and low lipid solubility [7]. Additionally, ropivacaine might be used as a test dose to reduce the likelihood of inadvertent intravascular and intrathecal administration [7]. Based on these data, we have also used ropivacaine both for maintaining peroperative anaesthesia and postoperative analgesia via epidural catheter in addition to use it as an epidural test dose in the present case report. Moreover, CSE technique allowed us to inject intrathecal opioids alone followed by epidural ropivacaine. Then, we used same PCEA protocol including 0.2% ropivacaine with 0.2 $\mu\text{g}/\text{mL}$ sufentanil to provide postoperative analgesia presented by Hanusch et al [5]. The reasons why we administered

intrathecal opioids alone were to provide analgesia without motor block and to avoid intrathecal ropivacaine which is not FDA approved [6].

In conclusion choice of regional anaesthesia technique for caesarean delivery in parturients with FA might be challenging. In contrast to the single shot spinal anaesthesia with 2.5 mL bupivacaine with 25 μg fentanyl for elective caesarean delivery of parturient with FA [8], we recommend CSE as a safe option. Because CSE technique not only offered us to use intrathecal opioids alone but also provided per- and postoperative analgesia with epidural catheter using ropivacaine in that particular neuromuscular disorder.

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Konflikt interesów / Conflict of interest
Brak/None

Piśmiennictwo

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