

SUBARACHNOID ANESTHESIA WITH ROPIVACAINE DURING EMERGENCY CESAREAN SECTION IN A PATIENT WITH PREVIOUS NEUROTOXICITY DUE TO LOCAL ANESTHESIA: CLINICAL CASE

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ABSTRACT

The authors describe the clinical case of a pregnant woman in the 39th week of gestation who underwent an emergency cesarean section. The history revealed a previous operation 10 years earlier (discectomia L2-L3) under general anesthesia, and an umbilical hernia 2 years later under spinal anesthesia using hyperbaric lidocaine 5%, with subsequent symptoms of mild and transitory neuropathy. Subarachnoid anesthesia in the current surgery did not cause any neurological damage and the symptoms described after the previous subarachnoid anesthesia did not reappear.

Key words: Local-regional anesthesia, neurotoxicity, cesarean section, ropivacaine.

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Introduction

Neurological complications due to subarachnoid anesthesia are usually caused by bleeding in the spinal canal, which can cause serious neurological damage, and infection. However, there are also some rarer cases of neurological damage in the spinal marrow and nerve roots, which is often permanent and is of controversial origin, following central blocks.

In the extensive review by Auroy et al.⁽¹⁾, there have been 12 cases of neurological complications out of 40,640 subarachnoid anesthetics: 7 radiculopathy and 5 cauda equine syndromes). In 9 of them hyperbaric lidocaine 5% was used. As shown in the literature, neurological damage due to local anesthesia must be considered among the many complications of spinal anesthesia, although diagnosis is by exclusion. The most common causes of neurological complications such as radiculopathy and cauda equine syndromes must be excluded: trauma, marrow ischemia, infections, compression by hematoma, abscesses, hernia, and spondilodistesi.

Direct neurological damage seems to be caused by the use of lidocaine, especially in high doses.

Materials and methods

In October 2013, a Caucasian female patient aged 37, weight 72kg, height 168cm, in the 39th week of gestation, underwent a cesarean section due to the sudden appearance of slowed fetal heart rate. The history revealed no relevant pathology or allergy to foods or drugs, nor voluptuary habits smoking or alcohol use. Pre-operative lab tests showed normal values, and the clinical/instrumental exam revealed no cardiac, circulatory or respiratory abnormality. Ten years earlier there was a previous discectomia L2-L3 under general anesthesia, and two years later there was an umbilical hernia using spinal anesthesia with hyperbaric lidocaine 5%.

After the latter surgery the patient suffered urinary incontinence and weakness in the lower limbs which healed spontaneously. The patient's records excluded any causes other than local anesthesia.

Although the history suggested neuropathy due to local anesthesia, and since the patient had consumed food recently, the surgery proceeded using subarachnoid anesthesia⁽²⁾. The injection was administered with the patient seated, using a Sprotte 25G needle between the 3rd and 4th lumbar intervertebral space. Ropivacaine (18mg) was associated with morphine (50g). The solution was prepared by mixing 7.5mg/ml (4ml) with 1ml dextrose at 25%⁽³⁾. The association with morphine prolonged the duration and intensity of the anesthetic

Results

Continuous monitoring of the vital signs showed no pathological variation in values, and no neurological complications were exhibited. In contrast to the previous surgery, at the end of this anesthesia no neurological symptoms were observed.

Discussion

Although the patient's history included neurological marrow damage after local anesthesia, we chose local-regional anesthesia rather than general anesthesia due to the significantly lower risk of pneumonia ab ingestis due to inhalation of gastric content⁽⁴⁾, and risk of mortality due to the difficulty in controlling the airways of a pregnant woman⁽²⁾. Local anesthetics commonly used for spinal anesthesia are lidocaine, levobupivacaine, and ropivacaine⁽³⁾. Lidocaine used to be the standard in brief surgery but is no longer used due to the frequent occurrence of transitory neurological symptoms⁽¹⁾. Currently, ropivacaine is being used more and more in brief surgery. The use of hyperbaric solution guarantees less neurotoxicity and better analgesic effect, compared to the isobaric form, and a more uniform distribution in the marrow⁽⁵⁾.

Conclusions

The use of hyperbaric ropivacaine offers less neurotoxicity and more convenience than other anesthetics. It is especially indicated when the patient history includes previous neurotoxicity or neurological damage.

References

- 1) Auroy Y, Narchi P, Messiah A, Litt L, Rouvier B, Samii K. *Serious complications related to regional anesthesia: Results of a prospective survey in France*, *Anesthesiology* 1997; 87: 479-486.
- 2) Morgan BM. *Anesthesia for emergency cesarean section*, *Br J. Obst Gynaecol* 2010; 97-420.
- 3) Lim Y, Ocampo CE, Sia AT. *A comparison of duration of analgesia of intrathecal 2.5 mg of bupivacaine, ropivacaine, and levobupivacaine in combined spinal epidural analgesia for patients in labor*, *Anesth Analg* 2004; 98: 235-9.
- 4) Brady M, Kinn SD, Stuart P. *Preoperative fasting for adults to prevent perioperative complications*. (Cochrane Review). In: *The Cochrane Library*, Issue 1, 2004. Chichester, UK: John Wiley & Sons Ltd. CD004423.
- 5) Gupta R, Bogra J, Singh PK, Saxena S, Chandra G, Kushwaha JK. *Comparative study of intrathecal hyperbaric versus isobaric ropivacaine: A randomized control trial*, *Saudi J Anaesth*. 2013 Jul-Sep; 7(3): 249-253.

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