CASE REPORTS

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Case report

Management of anesthesia during C-section of a multiple sclerosis pregnant woman: Case report and literature review☆

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ABSTRACT

Case description of a pregnant woman at term with a history of Multiple Sclerosis, scheduled for C-section and with a diagnosis of fetal macrosomia; the patient had undergone a C-section in the past during pro-dromal labor. The physical examination showed no motor or sensory deficit. The CBC showed anemia and mild lymphocytosis. The patient underwent cesarean section under single-dose epidural anesthesia with no complications and favorable evolution. Multiple sclerosis is a rare neurological condition, even rarer in pregnant women undergoing C-section. So a literature search was undertaken aimed at improving the management of anesthesia in this group of patients.

Manejo anestésico en cesárea de una gestante con esclerosis múltiple: Reporte de un caso y revisión de la literatura

Palabras clave:
Esclerosis Múltiple
Anestesia
Operacón Cesárea
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RESUMEN

Se describe el caso de una gestante a término de 26 años con antecedente de Esclerosis Múltiple programada a cesárea con diagnóstico de macrosomía fetal y cesareada anterior una vez, en pródromos de trabajo de parto. Al examen físico no déficit motor ni sensitivo. Hemograma anemia y linfocitosis leve. La paciente fue sometida a cesárea con anestesia epidural dosis única sin complicaciones y con evolución favorable. La esclerosis múltiple es una enfermedad neurológica poco frecuente y aún menos frecuente en gestantes con esclerosis múltiple sometida a cesárea por lo que se realizó una búsqueda de la literatura para un mejor manejo anestésico de este grupo de pacientes.

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Introduction

Multiple Sclerosis (MS) is a demyelinating disease of the central nervous system (CNS) affecting people in their productive years of life. It is of particular interest because of its diverse presentation, the difficulty for making a diagnosis, the concurrent factors leading to its development, and potential etiology.[1–5] The prevalence of Multiple Sclerosis in Lima, Peru is of 7.69 × 100.000 inhabitants (95% confidence interval 7.09–8.30) which is an average prevalence for the area.[6]

There is agreement in Peru in saying that the Relapsing-Recurrent (RR) form is the most frequent form of MS, with a higher prevalence in females (2:1 ratio); the age of onset of the disease is in average 31.5 years of age and the delay in making the diagnosis is 3.8 years. The most frequent symptoms at the onset of the disease were optical neuritis (ON) (36%), motor symptoms (35%) and sensitive symptoms (33%). In the course of the disease other cerebellar (49%) and sensitive (47%) symptoms developed, in addition to sphincter involvement (42%).[7]

The purpose of this paper was to present a clinical case regarding the management of anesthesia during a C-section in a pregnant woman with multiple sclerosis and to do a literature review.

A comprehensive literature search was undertaken from 1985 to 2013, using Medline, Embase, Lilacs, Cochrane, Scielo (search criteria: cesarean section, anesthesia, and multiple sclerosis). Four clinical cases, a cohort trial and 3 reviews on the topic were identified (date of the search: October 18, 2013).

Case report

A 26-year-old pregnant woman in her second pregnancy with 40 weeks in gestation was scheduled for emergency obstetric cesarean section at the Hospital Nacional Alberto Sabogal Sologuren, with diagnosis of fetal macrosomia, previous cesareada, prodromal labor.

Medical history, diagnosis of intermittent relapsing multiple sclerosis with two years of evolution, with an onset of dysarthrya, hemiplegia and left facial paralysis. The last relapse was seven months ago and the patient received ambulatory treatment with 300 mg oral gabapentin, and 100 mg oral thiamine.

The preoperative evaluation showed no associated conditions. The grandfather on the mother's side had a diagnosis of multiple sclerosis. The physical examination showed no evidence of motor deficit (the evaluation included paresis of the upper and lower limbs, in addition to cranial nerves) or sensory deficit (the patient was assessed using the pin-prick perception technique). The airway evaluation resulted in Mallampati II and the thyromental distance was >6 cm. The blood tests revealed anemia and mild neutrophilia: there were no other laboratory findings. The surgical risk was level II and ASA II (inactive disease).

Considering the standard C-section management and the absence of relevant contraindications, the decision was made to administer epidural anesthesia. The informed consent was obtained and the patient was informed about the possibility of a relapse of her disease after delivery (not only because of the regional anesthetic block).

The heart rate, pulse oximetry, ECG, and blood pressure were all monitored at the OR. The patient was pre-hydrated with 500 ml of 0.9% sodium chloride. The anesthesia was administered with the patient in a sitting position in the space between the third and the fourth lumbar vertebrae, using a 18-touhy needle for the administration of 2% lidocaine without epinephrine, for a total dose of 500 mg.

The evolution of the epidural anesthesia was evaluated with a sensitive block (based on pinch perception) of the dermatome T10 at 4 min, peak sensitive block of the dermatome T5 at 25 min; regression 2 dermatomes at 65 min, regression to dermatome T10 at 130 min.

During the 60 min of the surgical intervention, the patient did not experience any hypotension (lowering of the systolic blood pressure below 25% de la basal, systolic basal pressure 127 mmHg and lowest recorded systolic pressure 115 mmHg) or bradycardia (heart rate below 60), or any other complication derived from the anesthetic technique. The intraoperative analgesia was evaluated using the visual analog scale (0–10) with a score of 3 during the skin incision, the incision of the uterus, delivery and uterine exteriorization; 0 score during closure of the peritoneum and the skin. There was no need to administer any additional intraoperative analgesia. Metamizol 2 g and dexamethasone 4 mg were administered intravenously.

The motor block was then assessed at the post-anesthesia care unit (PACU), with full recovery after 120 min of the start of anesthesia. Postoperative pain was evaluated with VAS 3, 2 h after the start of anesthesia, VAS 4 at 4 h, 12 h and 24 h. There were no postoperative complications. A neurological evaluation was performed at 72 h, 7 days and 30 days, showing no neurological complications or relapse of the disease (the motor deficit was evaluated in terms of paresis of the lower and upper limbs, in addition to the cranial nerves; the sensitive deficit was evaluated using the pin-prick perception technique).

Discussion

MS is an acquired demyelinating neurological condition characterized by neurological remission of the symptoms, followed by neurological deficit and progressive disability as time passes.

The medical research on the use of regional anesthesia in MS women are limited and in some cases the results are contradictory. Pre-existing neurological conditions are still a problem because of lawsuits and thus some anesthesiologists tend to prefer general anesthesia, as has been reported by Vercauteren and Heytens[8], or in the retrospective trial by Drake et al.[9] However, there is no strong proof about any serious consequences from regional anesthesia in these patients.

Historically, the use of regional anesthesia techniques for this population of patients has been contraindicated for fear of further deteriorating the neurological evolution (patients with a history of neurological involvement may be more susceptible to injury when exposed to a secondary insult such

as mechanical trauma, toxicity of the local anesthetic agent, neuronal ischemia).

Some cases have been reported in the literature against regional anesthesia, such as Levesque et al.[10]; nevertheless, some authors prefer using epidural anesthesia also in C-sections.[11,12] However, following delivery other conditions may generate some confusion around the relapse of the disease: pregnancy, surgical stress, high temperature, breast feeding, and only at the end, anesthesia could be involved.

During the last decade, many data suggest that loco-regional anesthesia is safe for these patients. Perlas and Chan[11] say that multiple sclerosis shall not be considered a contraindication for epidural anesthesia or for spinal anesthesia, and an in-depth discussion with the patient should take place emphasizing the available options.

In a survey by Drake et al., obstetric anesthesia in the UK, the authors find divergent opinions; however, most would use a spinal block for C-section, although there are still some that would use epidural or general anesthesia, placing emphasis on the importance of completing the informed consent following a pre-anesthesia evaluation.

Pasto et al[12] in his cohort trial on epidural anesthesia for C-section in MS patients showed that there is no correlation between epidural anesthesia and relapse or post-partum disability.

The case herein discussed was a night emergency, so no prior neurological evaluation was available and the decision was made to administer epidural anesthesia (because of the advantage of being a slower onset block, with less hemodynamic changes because there is no direct contact between the local anesthetic agent and the bone marrow or the encephalon; besides, the patient is awake and able to see the baby). One of the main reasons for choosing this technique is the existence of a higher methodological quality trial showing the safety of epidural anesthesia; furthermore, by avoiding general anesthesia the manipulation of the airway – that in itself is considered a difficult airway – is also avoided. Our results were satisfactory in terms of the intraoperative anesthesia, while the length of the anesthesia is comparable to the healthy population treated in the same manner. No neurological deficits were identified during delivery or in the following 30 days.

The decision must be based on a careful analysis of the risks and benefits for each individual patient, keeping in mind a comprehensive neurological evaluation and the patient's own preferences. In fact, many suggest that the patient should actively participate in the decision making process during the pre-anesthesia evaluation. A successful management could be possible with the cooperation of the anesthesiologist, the gynecologist, and the neurologist involved in the perinatal care of this high-risk group.

Completing a detailed informed consent with the participation of the patient and the family is crucial to avoid medical-legal issues.

According to the available studies, apparently the behavior of epidural anesthesia in MS pregnant women is similar to the behavior in pregnant women who do not have the disease.

Based on the current information, it seems that postpartum women with multiple sclerosis have the same probability of relapse as any other MS patient.

Conflicts of interest

The author has no conflicts of interest to declare.

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