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Guillain-Barre Syndrome in a Patient Posted for Elective Caesarean Delivery: An Anaesthetic Dilemma

Aithal RR, Shenoy SK*, Ramakrishna R, Akshatha D and Varghese M
Department of Anaesthesiology, Kasturba Medical College, India

***Corresponding author:** Sweekar Kudpi Shenoy, Department of Anaesthesiology, Kasturba Medical College Mangalore, India, Tel: +918431290502; Email: skshenoy@live.com

Case Report
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Abstract

Guillain-Barre syndrome (GBS) is an acute polyneuropathy most commonly associated with acute flaccid paralysis which may be associated with sensory and autonomic neuropathy. Antecedent infection may trigger an immune response which may cause a cross reaction leading to demyelination and degeneration of axons in nerves.

Here we present a case of a 28 year old female, G2P1 at 37 weeks of gestation with a history of previous lower segment caesarean section (LSCS) and oligohydramnios with suspected Guillain-Barre syndrome posted for elective LSCS. She presented with dribbling of saliva from angle of mouth and inability to close both eyes with slurring of speech since 2 days. MRI brain was advised which showed no specific changes. Neurology evaluation was done and Guillain-Barre syndrome with isolated facial diplegia was suspected. Due to risks associated with general anaesthesia and succinylcholine in this patient, a decision was made to proceed with a low dose spinal anaesthesia. Once administered, the level of subarachnoid block was noted to be at T6. The caesarean section proceeded uneventfully with no major hemodynamic changes. A healthy baby girl was delivered and patient was noted to have full motor and sensory recovery in the post-operative period.

Providing anaesthesia to patients with Guillain-Barre syndrome can be very challenging. Meticulous pre-anaesthetic planning is needed. A thorough pre-anaesthetic evaluation considering risks and benefits of each modality of anaesthesia is crucial before anaesthetizing these patients.

Keywords: Guillain-Barre Syndrome; Caesarean Section; Subarachnoid Block; Pregnancy

Abbreviations: GBS: Guillain-Barre Syndrome; LSCS: Lower Segment Caesarean Section.

Introduction

Guillain-Barre syndrome (GBS) is an acute polyneuropathy most commonly associated with acute flaccid paralysis which may be associated with sensory and autonomic neuropathy [1]. An immune response triggered by infection may cause a cross reaction with nerves resulting in demyelination and degeneration of axons [2]. The Facial nerve is the most common cranial nerve involved leading to facial palsy in these patients. This may be associated with bulbar involvement, ophthalmoplegia, and tongue weakness [2]. Proximal limb weakness and sensory system involvement may also occur.

Here we present a case of a 28 year old female, G2P1 at 37 weeks period of gestation posted for elective LSCS indicated in view of oligohydramnios and previous history

of LSCS with newly diagnosed bilateral lower motor neuron Facial nerve palsy suspected as Guillain-Barre syndrome.

Case Report

A 28 year old lady, G2P1 at 37 weeks period of gestation was posted for elective LSCS in view of oligohydramnios and previous LSCS with newly diagnosed bilateral lower motor neuron facial nerve palsy. On pre-anaesthestic evaluation she was found to have a history of dribbling of saliva from the angle of mouth, difficulty in closing both eyes, and slurring of speech with difficulty in swallowing liquids which was sudden in onset and non-progressive since 2 days.

On examination she was found to have less prominent nasolabial folds, inability to blow cheeks outwards, inability to close both eyes fully, deviation of angle of mouth to right side and absence of forehead wrinkling on both sides. This was suggestive of bilateral symmetrical lower motor neuron type of facial nerve palsy. Other cranial nerve examinations were within normal limits. Motor and sensory system was also noted to be within normal limits. Power was 5/5 in all four limbs. No autonomic dysfunction was detected. MRI brain was done which showed no specific changes. Routine Complete blood count, electrolytes including serum sodium, potassium, serum calcium, magnesium and renal function tests were all within normal limits. Antinuclear antibody testing was negative. Neurology consultation was taken and a diagnosis of suspected Guillain-Barre syndrome (GBS) with isolated facial diplegia was made after ruling out other differential diagnoses such as Bell's palsy. At the time of surgery, no treatment was advised by neurology. Neurology ruled the patient fit for surgery and the patient was subsequently posted for elective LSCS.

High risk consent was taken and orders were given for patient to take IV Pantoprazole and IV Metoclopramide half an hour before surgery in addition to standard NPO orders. Due to risks associated with general anaesthesia and succinylcholine in this patient, a decision was made to proceed with a low dose spinal anaesthesia. As the patient had increased risk of aspiration, preparations were also made for a rapid sequence induction using Rocuronium as a backup plan. On the day of the surgery, NPO was confirmed, and the patient was shifted into the operating theatre. Standard ASA monitors were attached, a wide bore 18G IV cannula was secured and IV fluids were started. The patient was positioned in sitting position and her back was cleaned with povidone iodine with spirit under strict aseptic precautions. A 25G Quincke Babcock needle was used to administer 1.5ml of 0.5% Heavy Bupivacaine + 25mcg Fentanyl at the L3-L4 intervertebral space. The patient was made supine and a wedge was placed to allow for left uterine displacement. A spinal level of T6 was achieved. Maternal heart rate, oxygen saturation and non-invasive blood pressure were monitored continuously. The hemodynamics were stable in the intra operative period and there was no requirement of vasopressors. Three crystalloids to a total of 1.5L were administered. IV Oxytocin 15 Units along with IM oxytocin 10 Units was administered during the surgery. The procedure was uneventful and a healthy baby girl weighing 2.67kg was delivered. In the post-operative period, evaluation of patient revealed full recovery of motor blockade with power of 5/5 in both lower limbs after 2 hours. No sensory deficits were noted in the post-operative period.

Discussion

GBS has been seen to occur in the third trimester and first 2 weeks post-partum [3]. In 50% of cases there may be an associated infection, mostly viral. Delay in diagnosing this condition may occur due to initial nonspecific symptoms which may mimic the changes seen in pregnancy [3].

It has been reported that both regional and general anesthesia have been associated with potential risks and neither is superior to the other in patients with GBS [4].

In pregnancy if one is going for general anaesthesia, a rapid sequence induction is usually preferred. However Succinylcholine should be avoided in patients with GBS owing to risk of hyperkalemia due to post synaptic receptor proliferation [4]. An alternative drug for rapid sequence induction is Rocuronium. In our patient we preferred to avoid general anaesthesia due to risk of post-operative mechanical ventilation as the patient would be sensitive to non-depolarizing neuromuscular relaxants. Non-depolarizing muscle relaxants can be associated with prolonged neuromuscular block [4]. It has also been observed that almost one-third of patients require ventilatory support in the post-operative period due to this reason [5].

A study was conducted by Hebl, et al. in which medical records of 139 patients with a history of CNS disorder who received neuraxial anesthesia or analgesia from the years 1988 to 2000 were reviewed [6]. No incident of new or worsening neurologic symptoms was found in those records. They concluded that adverse events after neuraxial anesthesia in patients with CNS disorders are not as common as one would expect and that regional anesthesia should not be considered as an absolute contraindication in these cases [6]. However, these patients are sensitive to local anesthetics and administration of spinal anaesthesia may result in profound hypotension and bradycardia along with cardiovascular collapse due to autonomic nervous system instability [7]. Thus a low dose spinal anaesthesia was considered a good option for this case as pre-operative hemodynamics were within normal limits and there was

no documented autonomic nervous system dysfunction. In addition, there was no motor or sensory deficits noted in bilateral lower limbs in the pre-operative period. Keeping all this in mind, spinal anaesthesia was administered and the procedure was uneventful with no adverse events occurring in the post-operative period.

Conclusion

Providing anaesthesia to patients with Guillain-Barre syndrome can be very challenging. Meticulous pre-anaesthetic planning is needed. A thorough pre-anaesthetic evaluation considering risks and benefits of each modality of anaesthesia is crucial before anaesthetizing these patients.

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