

Case Report

Anesthetic Management of a Patient with Guillain-Barre Syndrome coming for Abdominal Surgery

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ABSTRACT

Guillain-Barre Syndrome (GBS) is a rare disorder presenting as an acute demyelinating polyneuropathy occurring as an autoimmune response following gastrointestinal/ respiratory infection in the body. This report describes a Guillain-Barre Syndrome case and the special approaches required during anaesthesia. Forty five year old male patient with Guillain-Barre Syndrome diagnosed 3 weeks before, submitted to surgery for paraumbilical hernia under uneventful general anaesthesia with isoflurane, without neuromuscular blockers. The case highlights the frequency with which this syndrome so important for anaesthetic practice is diagnosed and the complications to be looked for by the anaesthetic team perioperatively.

Keywords: *Guillain-Barre Syndrome, obstructed hernia, anaesthetic technique*

INTRODUCTION

Guillain Barre Syndrome (GBS) is a rare disorder seen in 1-3 patients/100000 people/annum. It is an acute demyelinating polyneuropathy occurring as an autoimmune response following gastrointestinal/ respiratory infection.^[1] Respiratory failure in Guillain-Barre Syndrome is associated with a poor outcome. Up to 30% of patients require invasive mechanical ventilation, often for several weeks.^[2] Among the sufferers, 10% will die from associated

complications and a further 10% will suffer from long-term neurological sequel and physical dependence.^[2]

Here we report a slightly different approach in anaesthesia required in a patient undergoing surgery for paraumbilical hernia.

CASE REPORT

A 45 year old male patient previously diagnosed three weeks back with GBS presented with obstructed paraumbilical hernia for emergency surgery.

General physical examination revealed weakness in both limbs and foot drop leading to difficulty in walking.^[1] Power was reduced in all four limbs. He did not have any cardiorespiratory difficulty.

Investigations- Complete Blood Count, Serum electrolytes, chest X ray and Renal Function

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Tests (RFT) were within normal limits. Cerebro Spinal Fluid analysis was Normal. Bedside pulmonary function tests (PFT) was done as patient was not compliant for doing PFT and it showed decreased Peak Expiratory Flow Rate.

Patient was premedicated with Tab. Gabapentin -900 milligram (mg) 1hour before surgery. In the operation theatre premedication was done with injection Glycopyrrolate 0.2mg intramuscular, Xylocaine (Preservative free) 80mg intravenous (i.v) and Fentanyl 100 microgram (μg) i.v.

Induction was done with injection Propofol 150 mg i.v and increasing concentrations of isoflurane using Bains circuit. After adequate depth was reached patient was intubated with 8.5 sized Oral endo tracheal tube. Capnography, pulse oximetry (SpO_2), non invasive blood pressure, temperature and continuous Electro Cardiogram (ECG) monitoring was done. Maintenance was done with Isoflurane (1%), Nitrous oxide (2 liters) and Oxygen (2 liters). Injection Fentanyl 50 μg i.v was given for analgesia. Intravenous fluids 1.5 liters (Ringer Lactate) was given. On lightening of anesthesia, patient was deepened with bolus Propofol 50mg i.v along with a β blocker- Esmolol 0.1mg/kg for attenuation of tachycardia. Surgery was uneventful and lasted for 2.5 hours. Patient was shifted to intensive care unit (ICU) for postoperative care and monitoring.

In the ICU patient was regularly monitored for SpO_2 , temperature, pulse and ECG. Chest physiotherapy was given and when he was fully conscious and was generating adequate tidal volume, extubation was done in

the evening after thorough suctioning and nebulisation.

DISCUSSION

We decided for premedication with tablet Gabapentin as it helps attenuating hemodynamic response to laryngoscopy and as well as gives very good post operative analgesia and reduces opioid consumption.^[3] These patients may have autonomic nervous system dysfunction. Inj. Glycopyrrolate was used intramuscularly as subsequent tachycardia associated with i.v route could worsen hemodynamic stability. Post operative pain relief was important as pain would limit his respiratory movements and hence delay recovery.

We avoided neuromuscular blocking agents as they would worsen his poor muscle tone and cause additional harm. Combination of propofol and fentanyl for anesthesia is preferable in GBS as neuromuscular blockers may worsen the situation. Succinylcholine should be avoided due to hyperkalemia, hypertensive crisis, tachycardia and other arrhythmias.^[4] Guillain-Barre patients have increased number of extra-junctional acetylcholine receptors that allow further action



Fig.1
Foot Drop in this Case

and potassium release, which is not prevented with pre-curarisation.^[4,5] Since this is a demyelinating polyradiculoneuritis, these patients are sensitive to non-depolarising muscle relaxant, which should be avoided as their action time can be increased.^[5]

Depending on the phase of this disease sensitivity to non depolarising muscle relaxants may vary from extreme sensitivity to resistance; but short acting muscle relaxants with minimal cardiovascular effects like Cis-atracurium or Rocuronium can be used.^[6]

CONCLUSION

Guillain-Barre patients should be carefully followed-up and, when early diagnosis is confirmed effective treatment should be achieved with IV immunoglobulins. Regional neuraxial blockade is not preferred as it can worsen the neural degeneration and may cause more harm. Extubation should be done after careful assessment of respiratory function adequacy as these patients are very prone to respiratory decompensation. When patient is to be submitted to surgical procedure under anaesthesia, the patient should be evaluated for their respiratory function and presence of other muscle weakness and it should be documented.

Moreover the choice of anaesthetic technique depends on the severity of the disease

and associated complications and therefore should be managed accordingly.

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