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PERIOPERATIVE MANAGEMENT OF MYASTHENIA GRAVIS FOR TOTAL ABDOMINAL HYSTERECTOMY: A CASE REPORT

Anaesthesiology

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ABSTRACT

We report a case of myasthenia gravis with fibroid uterus posted for total abdominal hysterectomy requiring regional anaesthesia. Spinal technique with amide LA and opioid use offer the advantage of small volume and prolonged post- operative pain control and well-planned peri-operative management can contribute to a better recovery and outcome in Myasthenia Gravis.

KEYWORDS:

myasthenia gravis, neuromuscular disorder, spinal anaesthesia, pyridostigmine

INTRODUCTION

Myasthenia Gravis is an autoimmune neuromuscular disorder that causes the destruction and overall decrease in functional acetylcholine receptors at the neuromuscular junction. Because of its involvement of the pulmonary, muscular, and cardiovascular systems as well as the drug interactions, its management has become challenging. Therefore a complete understanding of this disorder is important for the anaesthesiologist.

CASE REPORT

A 46 years old female patient weighed 58 kgs with known case of myasthenia gravis since 2 years was posted for total abdominal hysterectomy for fibroid uterus. She was also a known case of hypertensive since 5 years. She was diagnosed MG 2 years ago, but had poor drug compliance. Now patient presented with ocular muscle involvement like drooping of eye lids, bulbar muscles involvement like increased effort of breathing, slowness in talking, and weakness of both lower limbs since one month. Neurologist's opinion was taken and started on tab.Pyridostigmine 60 mg tid and the patient improved with treatment. Pulmonary function test done on 5th day after starting treatment showed early small airway obstruction and moderate restriction. On examination vitals were stable. All routine laboratory investigations, ECG, echocardiography, chest X ray, thyroid function test, CT chest were normal. Patient was scheduled for proposed surgery on 10th day after treatment. Patient was advised to continue pyridostigmine on previous and on the day of surgery.

In the operating room, Intravenous access was secured and blood pressure cuff, electrocardiograph and pulse-oximeter were attached. Pre-operative BP was 150/84mmHg, pulse rate: 92bpm, Spo2 – 96% at room air.

Spinal anaesthesia was performed with 25G Quincke spinal needle at L4-L5 space. Hyperbaric Bupivacaine 0.5% 3.2 ml with 60µg of buprenorphine was administered. Level of anaesthesia and level of block assessed and was adequate.

Intra operative vitals were stable and surgery lasted for about 60 minutes with minimal blood loss. Post operatively patient was conscious, oriented and vitals were stable. She was transferred to ICU for observation which was uneventful and next dose of pyridostigmine 60 mg was started after spinal regression. Patient was shifted to the ward after 24 hours to be discharged after 7 days.

DISCUSSION

The incidence of myasthenia gravis (MG) is cited as 50 to 142 cases per 1 million or 0.25 to 2.0 per 100,000 population1, 2. Women of age below 40 years are most often affected, followed by men who are often older than 50 years of age when their disease presents1. Myasthenia gravis is the most common progressive autoimmune disorder involving the postsynaptic junction1. Muscular weakness, fatigability, and rapid exhaustion especially after repetitive voluntary muscle use, as with exercise, and improving with rest are the hallmark signs of the disorder 3. With the chronic and progressive destruction of the postsynaptic acetylcholine receptors (AChR) by antibodies, inadequate depolarization occurs at the neuromuscular junction (NMJ) to trigger a muscle action potential, which leads to loss of safety margin in neuromuscular transmission4. MG patients are associated with an IgG antibody against the AChR1, 4, 5. These antibodies reduce the number of functional receptors by several mechanisms[1,4,5,6]. Patients with MG tend to have some abnormality of their thymus gland, which may include thymic hyperplasia or a thymoma1, 5

Patients usually present with weakness involving specific skeletal muscle groups. The distribution of the weakness is generally ocular, bulbar, proximal extremities and neck3. Ocular muscle weakness is by far the most common initial symptom of MG. Bulbar muscle involvement in the form of fatigable chewing, painless dysphagia, dysarthria may be present3. In few patients, it involves the respiratory muscles in isolation and is termed myasthenic crisis when control of the airway is necessary 1. The patient in this case had apparent signs and symptoms of pulmonary and bulbar involvement at the time of evaluation which improved with treatment before surgery.

ANAESTHETIC IMPLICATIONS: Preoperative evaluation and preparation involve review of the severity of the disease, severity classification system (can be useful as an indication for perioperative complications), treatment regimen, voluntary and respiratory muscle strength, any bulbar involvement. Anticholinesterases can be administered one half or full dose depending on severity or withhold on the morning of surgery7, 8. In the presented case, pyridostigmine was continued as patient had respiratory muscle involvement4.

Patients with MG have a higher incidence of heart disease because the antibodies have a high affinity for β1 and β2 adrenergic receptors 3. Consequently, a thorough and complete cardiovascular assessment is crucial in the preoperative phases. The patient described in this case report revealed long-standing hypertension with a normal electrocardiographic finding and otherwise stable hemodynamic.

ANAESTHETIC PLAN: Is individualized according to the severity of disease and nature of surgery. Patients with MG are sensitive to the

effects of non-depolarizing agents and are resistant to the effects of depolarizing agents2, 3. Volatile agents potentiate the effects of non-depolarizing agents in these patients 9. Hence, whenever possible regional or local anaesthesia should be used2 and spinal anaesthesia block was performed in above case.

Spinal technique with amide group has the advantage of smaller overall local anaesthetic dosage than with epidural anaesthetic10, and opioid analgesics addition has added advantage in post-operative pain management as we used in above case with hyperbaric bupivacaine 0.5% 3.2 ml with buprenophine 60μg.

CONCLUSION: We conclude that Spinal technique with amide LA and opioid use offer the advantage of small volume and prolonged post- operative pain control and well-planned peri-operative management can contribute to a better recovery and outcome in MG.

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