



## MANAGEMENT OF FRACTURES IN MYASTHENIA GRAVIS

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### ABSTRACT

Management of a fracture in a patient having myasthenia gravis disease is very complicated. Myasthenia gravis is an autoimmune disorder characterized by muscle weakness. The disease tends to strike women more often than men, usually affecting women between the ages of 20 and 40 . After about age 50, both sexes tend to be equally affected . The prevalence of MG is approximately 100 per 100000 population with incidence of 2-4 per 100 000 per annum .here in we report a case of fracture neck of femur with 25 yrs h/o MG on Rx, which were managed with perioperative precautions in anesthetic and orthopaedics point of view by hemiarthroplasty with bipolar prosthesis.

**KEY WORDS;** Fracture neck of Femur, Myasthenia Gravis, Anaesthetis Drugs, Hemiarthroplasty, Post-Operative Antibiotics



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## INTRODUCTION

Myasthenia Gravis was described for the first time in 1895 by Jolly as a disease that is manifested by weakness of the eyeballs and skeletal muscle. Now it is considered a better studied and understood autoimmune disease. It can be defined as an immune-mediated disease of the neuromuscular junction caused by antibodies (Ab) against the acetylcholine receptors (AChR)(1) In MG, the number of activated postsynaptic receptors may be insufficient to trigger a muscle action potential. Further, with repeated stimulation, the decline in release of acetylcholine correlates with the characteristic fatigability.

Osserman's Classification of MG(2,3)

grade I – only eyes affected,

grade IIa – mild generalised MG responding well to therapy,

grade IIb – moderate generalised MG responding less well,

grade III – severe generalised disease,

grade IV – myasthenic crisis requiring mechanical ventilation

### **Anaesthetic Drugs**

Skeletal muscle relaxants should be avoided only 4-8 times smaller the normal dose should be administered propofol, mivacurium, cisatracurium, sevoflurane, desflurane and remifentanyl, CAN BE USED due to their easy handling and reduced side effects allow for the execution of a balanced anaesthesia. Volatile anaesthetics and curare with longer half-life make the approach even more secure in myasthenia patients. Addition of curare, and for the rapid elimination. Local anaesthetics act as agents for rapid ion channel blockers, suppressing the propagation of nervous transmission, the release of Ach, the sensitivity of the postsynaptic membrane and the exciting of muscle cell. Local anaesthetics also increase neuromuscular blockade of all non-depolarizing

curari and seem able to decrease neuromuscular transmission in myasthenia gravis.

### **Post-operative care**

Sedatives should not be given

Antibiotics not to be given-aminoglycosides, telithromycin, bacitracin and polymyxin

Antibiotics can be given but with caution-quinolone antibiotics, macrolide antibiotics – erythromycin / azithromycin , tetracyclines (e.g. Oral forms doxycycline, minocycline; iv form tigecycline),

Antibiotics can be given with minimal caution-sulfonamides (e.g. Septrin™ bactrim™), ampicillin , primaxin™ (imipenem / cilastatin)(4)

### **Case report**

A 53 yr old patient came with a c/o pain and swelling in the rt hip since 8 days with an alleged h/o fall at her residence 2 weeks back, with tenderness over rt greater trochanter and restriction of movements over rt hip. Pt is k/c/o htn since 2 and half yrs on rx with t.losartan 50mg od and myasthenia gravis since 25yrs on rx with t.pyridostigmine 60mg qid and t.azathioprine 50mg bd and t.deflazocort irregularly basis. routine investigation done and xray of rt hip looks to be normal in ap view so we have taken mri of rt hip where we came to know that it's an undisplaced fracture neck of femur. Pt is in type ii a degree of myasthenia gravis. Pre operative precautions were taken and t. Pyridostigmine 60 mg was taken with sips of water in the early hrs of the operative day. Hemiarthroplasty with bipolar was done with very low dose skeletal muscle relaxant which had caused problem during operation as the muscles were taut. Post operative management was done carefully by avoiding aminoglycosides and sedation.



**Figure 1**  
*shows xray rt hip which looks to be normal at the time of fall*



**Figure 2**  
*shows mri of rt both hips where rt hip shows undisplcd fracture neck of rt femur*



**Figure 3**  
*shows post-op xray showing hemiarthroplasty with bipolar prosthesis in situ*

### **Follow-up**

Management is continued regarding hypertension and myasthenia gravis as per norms then regarding fracture management physiotherapy has been explained.

### **DISCUSSION**

So, in this type of scenario, where an old myasthenia gravis pt will have a fall which leads to a fracture has to be managed in

proper protocol manner with a team work i.e. an orthopaedician, an anaesthetist and a neurophysician. We need to grade the disease and accordingly manage the patient preoperatively, perioperatively and post operatively in both orthopaedics and anaesthetic point of view. Muscle relaxant drugs will be given at a very low dose ad muscles intraoperatively which will be challenging to orthopaedic surgeon as muscles be so taut.

### **REFERENCES**

1. Newton E. Myasthenia gravis. *e-medicine* 2007 Updated July 15<sup>th</sup> 2011 Author: William D Goldenberg, MD; Chief Editor: Rick Kulkarni, MD
2. Ossemermann KE. Myasthenia gravis. New York: Grune and Stratton; 1958 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1493029/pdf/annsurg00207-0066.pdf> Updated on Saturday, 28 January 2012
3. Engel AG. Myasthenic syndromes. In: Engel AG, Franzini Armstrong C, editors. *Myology*. 2nd ed. New York: McGraw Hill; 1994. p. 1798-835
4. Dr Stephen Reddel, Consultant Neurologist  
Advice: Dr Robert H Edis, Consultant Neurologist