Myasthenia Gravis: A Case Study Presentation

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Disclosures
The presenter has no conflicts of interest to disclose.

Objectives
- Upon completion of this presentation, the learner should be able to:
  1. Identify the etiology and epidemiology of myasthenia gravis,
  2. Describe the clinical features of MG,
  3. Compare the differential diagnosis of MG,
  4. Recognize the diagnostic testing that can be used to support and/or confirm a suspected diagnosis, and
  5. Categorize the treatment options for patients with MG.

Case Study
- 71-year-old male complains of intermittent weakness and muscle fatigue progressively worsening over the past month.
- A previous long-distance runner, he now has difficulty getting his mail.
- His symptoms of profound leg weakness and fatigue are attributed to age and his underlying history of CAD atrial fibrillation.
- Over the past few months, he also reports having noted “eye strain” when working at the computer or reading for long periods of time.
- He has developed intermittent double vision that seems to be worse when reading at bedtime.

Etiology and Epidemiology of MG
- IgG antibodies attack AChRs or MuSK
- Antibody-antigen complex and inflammation inhibit neuromuscular transmission
- Breakdown of immune tolerance involves thymus
- Affects 140-200/1,000,000 population
- 36,000-60,000 Americans
- Women > men before age 50
- Peak onset 20-40 years
- Men more commonly diagnosed ages 60-80

Clinical Features of MG
- Painless, striated muscle weakness
- Worse with activity; improved with rest
- Exacerbating factors include emotional stress, rapid changes in body temperature, infection, trauma, and multiple medications
- Ocular manifestations common: diplopia and ptosis
- Ocular MG 10-40% of all cases
- Generalized MG symptoms vary based on muscle groups: oropharyngeal, skeletal, or respiratory
- UE weakness more common than LE weakness
Differential Diagnoses of MG

- Amyotrophic Lateral Sclerosis
- Botulism
- Cranial Nerve Palsies
- Guillain-Barré Syndrome
- Lambert-Eaton Myasthenic Syndrome
- Multiple Sclerosis
- Polymyositis
- Transient Ischemic Attack and Stroke
- Tumors

Case Study

- No changes in weight; no fever, chills, SOB, CP
- Meds: warfarin, atorvastatin, and amiodarone
- Vitals: WNL
- Cognition, sensation, and cerebellar function intact
- Absence of Lhermitte’s sign
- Weakness of right EOM with repetition; positive nystagmus; positive ice test; PERRLA
- Symmetric upper extremity weakness with fasciculation
- Decreased repetitive SLR and rising from seated position
- No muscular atrophy

Diagnostic Testing

- Rely on neuromuscular H&P to establish preliminary diagnosis
- Laboratory studies
- Radiographic studies
- Pharmacologic studies
- Other studies

Case Study

- Neuromuscular consult
- Initial labs
  - CBC, CMP, TSH, Free T4
- Initial radiographic studies
  - Chest CT, CT head, carotid doppler
- Disease specific labs
  - AChR/MuSK Reflexive Antibody Testing

Treatment of MG

- Symptomatic therapy
  - AChE inhibitors
- Immune-directed therapy
  - Corticosteroids
  - Non-steroid immunomodulators
    - Azathioprine
    - Mycophenolate mofetil
    - Cyclosporine
    - Cyclophosphamide
    - Tacrolimus
    - Rituximab
    - Etanercept

Case Study

- Acute management therapies
  - Plasmapheresis
  - IV IG Infusion
- Surgical intervention
Case Study

- Symptomatic therapy
- Immune-directed therapy
- Response to therapy

Questions?

References


References


References