

### MuSK Antibody Positive Myasthenia Gravis in a 38-year old West Indian Female

The Editor,

Sir,

Muscle-specific kinase (MuSK) antibody has been recognized in a subgroup of patients with myasthenia gravis with generalized weakness and can have atypical presentation with negative acetylcholine receptor antibody test. These patients tend to be female with more prominent facial and bulbar involvement and more frequent respiratory crises with a poor edrophonium response as compared to MuSK antibody negative patients. They can be unresponsive to anticholinergics but may respond well to immunosuppressive drugs and plasmapheresis (1, 2). We report the first case from the West Indies and highlight the difficulties in diagnosis.

A 38-year old female of African descent was hospitalized on two occasions for acute shortness of breath precipitated by exercise over a one-month period and was started on anticoagulants for possible recurrent pulmonary embolism. Two months later, the patient returned to the emergency room with acute dyspnoea. On this admission, close questioning revealed intermittent diplopia that led to an ophthalmology consultation but no firm diagnosis.

In hospital, dysphagia, dysphonia and intermittent difficulty in breathing developed with use of the accessory muscles of respiration. The remainder of the physical examination was normal. Full blood count, electrolytes, thyroid function, creatinine phosphokinase, retroviral studies, anti-double stranded DNA, renal function, liver function, abdominal and pelvic ultrasound and computed tomography (CT) imaging of the brain, neck and chest were all normal. Magnetic resonance imaging (MRI) of the brain and spinal cord, cerebrospinal fluid studies and an electromyogram and nerve conduction study were also normal.

A diagnosis of possible myasthenia gravis was made and the patient was transferred to the intensive care unit (ICU) and received respiratory support after developing bilateral ptosis and limb weakness with MRC grade 3/5 in all four limbs proximally and distally. Administration of neostigmine intravenously caused no improvement. Edrophonium was unavailable. In the ICU, administration of pyridostigmine in increasing doses over a week did not cause improvement and led to cholinergic crises. The possibility of MuSK variant myasthenia gravis was then considered because of the predominant bulbar manifestations with anticholinergic unresponsiveness. Immunosuppressants *viz* prednisolone 60 mg daily and azathioprine 100 mg daily were started. The patient improved gradually and was extubated after one week and was discharged after 43 days in hospital with no symptoms.

The acetylcholine receptor antibody was negative but the anti-MuSK antibody was positive so confirming the diagnosis (Athena Diagnostics, Inc., United States of America). The patient has been on prednisolone 30 mg daily and azathioprine 100 mg daily and has been symptom free for eighteen months post hospital discharge.

Recent reports have elucidated the characteristics of this variant of myasthenia gravis further and differences in African Americans as compared to white Americans have been noted in Alabama. More severe disease, earlier onset of disease and a higher percentage of abnormality on repetitive nerve stimulation were noted in African Americans (3).

Whereas early-onset acetylcholine receptor antibody myasthenia gravis has been linked with HLA-B8-DR3, MuSK antibody positive myasthenia gravis has been associated with HLA-DR14-DQ5 (4). Muscle histopathology in these cases has shown predominantly myopathic signs with mitochondrial abnormalities whereas neurogenic features and atrophy were more frequent in acetylcholine receptor positive myasthenia gravis (5). Thymectomy has not shown a clear benefit in these patients (6). Early recognition with appropriate treatment will, however, alleviate morbidity in patients with MuSK antibody positive myasthenia gravis.

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