

Seronegative Myasthenia Gravis in Association with Human T-Lymphotropic Virus Type 1 and Hepatitis C

Sir,

Myasthenia gravis (MG) is an autoimmune disease and the most common disorder of the neuromuscular junction. In this disease, T-cell-mediated antibodies are directed toward acetylcholine receptors (AChR-Ab) in the postsynaptic neuromuscular junction. In addition, ocular, bulbar, limb and respiratory muscle groups are typically involved.^[1] Hepatitis C has been associated with multiple autoimmune conditions and was shown to be associated with MG in 4.8% of the patients.^[2] Human T-lymphotropic virus type 1 (HTLV-1) has also shown to be associated with multiple autoimmune disorders,^[3] including MG.^[4] Here, the authors present a seronegative case of MG with reactive antibodies for hepatitis C and HTLV-1.

A 70-year-old male with a history of intravenous drug abuse, hepatitis C, cervical and lumbar stenosis and diabetic neuropathy presented with diplopia and blurry vision for 4–5 days. He was noted to have dyspnea, dysphagia and worsening fatigue in addition to weakness, which got worse toward the end of the day. He had stable upper and lower limb weakness due to his spinal stenosis. Examination showed fatigable bilateral ptosis and facial lower motor paresis, full muscle strength with fatigability in the upper extremities and no strength in the lower extremities. Computed tomography (CT) and magnetic resonance imaging of the brain were normal. Carotid Doppler did not show stenosis. Chest X-ray showed minimal atelectasis. Negative inspiratory force (NIF) was -40 and vital capacity (VC) was 1.17 litres. Based on the above, a clinical diagnosis of MG was made and the patient was started on pyridostigmine and given a high dose of prednisone for suspected chronic obstructive pulmonary disease exacerbation. Antibody testing was negative for antinuclear, AChR-Ab and muscle-specific kinase (MuSK-Ab) antibodies. CT of the chest was negative for thymoma. The patient's presentation was consistent with myasthenic crisis, but he could not receive intravenous immunoglobulin because of his compromised venous access. He received five treatments of plasmapheresis, which helped improve his symptoms, NIF and VC. The patient was discharged with a prescription of pyridostigmine. At the time of discharge, his hepatitis C Ab was reactive with high RNA titer. In

addition, HTLV I/II antibodies were reactive and HIV was negative. The patient was lost to follow-up.

MG is often diagnosed based on AChR, MuSK and titin and ryanodine receptor (Ryr) antibodies. AChR-Ab is positive in 85%–90% of patients with MG and in 98%–100% of patients with MG and thymoma. MuSK-Ab is positive in approximately 40% of MG patients, titin-Ab in 20%–40% and RyR-Ab in 13%–38%. Around 6%–12% of the patients with MG are seronegative and these patients show involvement of the ocular and bulbar muscles more frequently. In seronegative MG clinical examination, ice pack test, edrophonium test and specifically, electrophysiologic testing can be helpful.^[5]

There is considerable evidence implicating hepatitis C virus (HCV) to be associated with a variety of neuromuscular and multiple autoimmune conditions, including MG.^[2,6] Although for treating HCV-associated autoimmune disorders there are several newer therapies available, for such cases, recombinant interferon-alpha therapy is still the preferred choice.^[6]

To best of the authors' knowledge, coexistence of MG and HCV/HTLV1 is rarely reported in literature and usually manifests later in life. Anti-MuSK antibodies testing is the gold standard for the majority of the cases; however, in the absence of antibodies, a clinical diagnosis is required, as was in the case presented.

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Conflicts of interest

There are no conflicts of interest.

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