

Myasthenia Gravis Exacerbation with Shingrix Vaccine

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Introduction

Shingrix is a non-live recombinant vaccine approved to prevent herpes zoster infection, and its efficacy, and safety are well studied. The risk of vaccine-related complications in myasthenia symptoms is higher with live vaccines. However, Shingrix, a non-live vaccine causing exacerbation of the myasthenia symptoms, has not been reported to date. Herein, we present a case of stable myasthenia gravis that got exacerbated after a single dose of Shingrix vaccination.

Case

Our patient is a 73-year-old man diagnosed with stable seropositive generalized myasthenia gravis (MG) for the last eight years. He was on prednisone 10 mg every other day and Pyridostigmine 60 mg twice daily. He presented to the Neurology clinic with worsening ocular symptoms including horizontal diplopia worse with right lateral gaze, generalized weakness, and fatigue. He also complained about difficulty swallowing and orthopnea. 5 days before the presentation, he received the Shingrix vaccine. There was no change in medications or infections in the interim. On examination, he had fatigable ptosis with Cogan's Sign, fatigable arm weakness, and single breath count test of 38. He was admitted and treated with IVIg (1g/kg body weight) for five days, which improved dysphagia and orthopnea but did not improve the diplopia. His dose of prednisone was increased to 30 mg every other day and Pyridostigmine 60 mg, three times a day, which improved his ocular symptoms 2 months later.

Discussion

Herpes zoster (HZ) is a painful dermatomal, vesicular rash commonly seen in the elderly, also known as Shingles.¹ It is caused by the reactivation of the latent Varicella-zoster virus (VZV),¹ a member of the α -herpes virus family.²

Shingrix is an adjuvanted non-live recombinant vaccine for herpes zoster, which was approved by the Food and Drug Administration (FDA) in October 2017 for adults over 50 years.³

It consists of glycoprotein E (gE) and an adjuvant component called AS01B, which enhances the potency, quality, and immune response's longevity.⁴

Vaccines, although beneficial, have proposed to be implicated in the development of autoimmune disorders. The definite mechanism is unknown, but one probable cause could be the vaccine components eliciting an exaggerated immune response.

However, studies also reported the role of adjuvants in causing autoimmunity by simulating an immune reaction in animal models or humans similar to bacterial or viral infections.^{5,8}

As stated earlier, the Shingrix vaccine consists of the glycoprotein E and adjuvant AS01B. Adjuvants, by definition, are substances that augment antigen-specific immune response.⁶

Our patient had been stable for the past eight years and developed an exacerbation of MG 5 days after the vaccination. Chung et al. described a case that described the possible association between vaccination and myasthenia exacerbation. They reported a case in a young woman who developed myasthenia gravis within three days of the human papillomavirus vaccination.⁷

Another vaccine associated with the onset or exacerbation of myasthenia gravis is the recombinant Hepatitis B vaccination. Stuben described various autoimmune neuromuscular diseases developed after the HBV vaccine.⁸ He described three cases, and the predisposition to autoimmunity is explained by their history of atopic allergy.⁸ Although uncommon, the temporal association of myasthenia is reported in three patients after Hepatitis B vaccination.^{8,9,10}

In our case, we hypothesize that either the gE or AS01B may have led to an alteration in the host immune response, and the release of inflammatory cytokines resulted in an exaggerated T cell response and worsening of the patient's symptoms. However, further studies are required to evaluate Shingrix vaccine safety, especially in Myasthenia Gravis patients.

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