

Risk of Disseminated
Disease in
Immunosuppressed
Patients Receiving Live
Zoster Vaccine



To the Editor: I read with interest the letter by Bubb¹ and the reply by Cheetham et al² in the November 2015 issue of *Mayo Clinic Proceedings* regarding the risk of disseminated disease in immunosuppressed patients receiving live zoster vaccine. Although the vaccine has been found to be highly effective and there is a paucity of cases of vaccine-related infections, the following report serves to highlight the need for caution when immunizing highly immunosuppressed patients.

A 62-year-old man who had granulomatosis with polyangiitis (Wegener granulomatosis) diagnosed 5 years previously was admitted to the Michael E. DeBakey VA Medical Center in February 2015 with a rash that began on his face 2 days before admission and had spread to his trunk, upper arms, and legs. In 2014, he had been admitted to another hospital with pulmonary hemorrhage and was treated with rituximab, methylprednisolone, and azathioprine. The patient had schizophrenia and nonischemic cardiomyopathy with an ejection fraction of 30%. At the time of admission, he was taking prednisone, 40 mg/d orally, plus mycophenolate mofetil, 500 mg orally twice daily. He also was undergoing hemodialysis thrice weekly. He had accidentally received a subcutaneous injection of Zostavax, 0.65 mL (live varicella vaccine), at a VA outpatient clinic 47 days before admission.

In the emergency department of the DeBakey Medical Center, the patient was short of breath and was noted to have cushingoid features (moon facies, lipodystrophy, and central obesity). There were hemorrhagic monotonous vesicles on an

erythematous base covering the trunk, the proximal and distal upper extremities, and the proximal lower extremities. A punch skin biopsy revealed immunohistochemical evidence of human herpesvirus 3. The tissue block was later sent to the Centers for Disease Control and Prevention's Herpesvirus Laboratory, where the virus was confirmed to be the vaccine strain. The patient experienced respiratory distress and required emergent tracheal intubation and mechanical ventilation. Chest radiography revealed bilateral lung infiltrates, and both sputum and blood cultures grew methicillin-resistant *Staphylococcus aureus*. Bronchoscopy revealed purulent secretions but no evidence of pulmonary hemorrhage. Treatment included acyclovir, vancomycin, and cefepime. Although the bacteremia cleared and there was crusting of some of the skin lesions, the patient's condition gradually worsened, and eventually the family requested that treatment be discontinued; the patient died after 2 weeks of hospitalization. The event was investigated, and the guidelines for varicella zoster virus vaccination within the clinics were reviewed with all staff to ensure that such an event does not recur.

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1. Bubb MR. Risk of disseminated varicella zoster in immunosuppressed patients receiving zoster vaccination. *Mayo Clin Proc.* 2015;90(11):1585-1586.
2. Cheetham TC, Sy LS, Jacobsen SJ. In reply—Risk of disseminated varicella zoster in immunosuppressed patients receiving zoster vaccination. *Mayo Clin Proc.* 2015;90(11):1586-1587.

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In Reply I—Risk of
Disseminated Disease in
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The package insert for Zostavax lists “immunosuppression or immunodeficiency” as contraindications for use, so complications resulting from its use in a very highly immunosuppressed patient may be anticipated.¹ However, reports of such complications, such as those described by Dr Young, remain rare. The risks of Zostavax become notable somewhere between moderate and very high levels of immunosuppression, and data, such as results from the ongoing VERVE trial² of vaccination during treatment with anti-tumor necrosis factor therapy, are needed to define risks in specific populations. In the case described by Dr Young, dissemination occurred 45 days after vaccination, whereas current trials of Zostavax vaccination during immunosuppression have a shorter window for evaluation of vaccine safety.

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1. Zostavax [package insert]. Whitehouse Station, NJ: Merck & Co, Inc; 2006, 2014.
2. A Pilot Study of the Safety and Effectiveness of the Live Zoster Vaccine in Anti-TNF Users. ClinicalTrials.gov Identifier NCT01967316.

<http://dx.doi.org/10.1016/j.mayocp.2016.04.016>

In Reply II—Risk of
Disseminated Disease in
Immunocompromised
Patients Receiving Live
Zoster Vaccine



The case reported by Dr Young illustrates the potential for vaccine-related herpes zoster infections in highly immunosuppressed patients. In our original study published in the July 2015 issue of *Mayo Clinic Proceedings*,¹ there were only 500 individuals who were receiving corticosteroid doses similar to the regimen reported in this case, and