

Letter to the Editor

Chickenpox and Pneumonia Following Varicella Vaccine

To the Editor:

Vaccination, although highly effective for preventing disease, may be occasionally associated with adverse side effects.

A 24-year-old resident of a developmental center, who had been previously vaccinated against all childhood diseases, was serosusceptible to varicella. Per official guidelines,¹ she was given 0.5 mL of varicella vaccine subcutaneously (OKA strain; Varivax, Merck, Whitehouse Station, NJ).

After 18 days, she had a fever (temperature, 38°C to 39°C) and a maculopapular rash on her trunk. On day 19, the papules changed to monolocular collapsing vesicles. On day 20, a similar rash appeared on her extremities and face. Successive crops of rash resulted in the presence of several stages of vesicle maturation. The total number of lesions was estimated to be 150 to 200. On day 21, she developed more skin lesions and her temperature rose to 39°C with mild dehydration. A chest radiograph revealed a right basilar pulmonary infiltrate. From day 21 to day 29, she was hospitalized in an isolation room with negative pressure ventilation (to prevent airborne viral transmission) and received 1,260 mg/d of acyclovir intravenously. The patient eventually recovered. The hospital costs, excluding physician fees, totaled \$48,523 and were adjudicated and paid by Medicaid.

The most likely cause of this illness was the vaccination because of its temporal consistency with the incubation period of varicella (14 to 21 days) and the lack of any contemporaneous case of wild varicella among

staff or other residents. Although a mild rash (median, 5 lesions) may appear in 5% of individuals vaccinated against varicella, disseminated eruption is rare and pneumonia has occurred in only 0.0002% of these individuals.² This case was reported to the Vaccine Adverse Event Reporting System. On further review of this case, it was determined that this patient had panhypopituitarism and had been receiving 22.5 mg/d of hydrocortisone.

Live attenuated viral vaccines such as Varivax are contraindicated for individuals receiving immunosuppressive doses of corticosteroids (≥ 100 mg/d of hydrocortisone or equivalent). However, corticosteroid administration in the form of naturally produced hydrocortisone in replacement doses (equivalent to the body's natural daily synthesis, such as 22.5 mg/d)³ is not considered a contraindication for live vaccines.⁴

Serious complications of vaccination, requiring expensive medical care or hospitalization, may discourage vaccine acceptance by the public,⁵ particularly for vaccines such as varicella not covered by the National Childhood Vaccine Injury Act of 1986.⁶ Varicella is a highly contagious infection that, in the prevaccine era, caused nearly 4 million illnesses, 11,000 hospitalizations, and 100 deaths annually in the United States. Since vaccine licensure in 1995, there has been a steady decline in these numbers.⁷ In a recent outbreak among vaccinated children, vaccination had an 85% efficacy in preventing varicella of any severity, and a 98% efficacy in preventing moderate to severe illness.⁸ Such observations underscore the importance of vaccination for varicella control. To maintain high vaccination rates, it is therefore necessary to continue edu-

cational efforts that stress the high benefit-to-risk ratio of vaccination, the low incidence of adverse reactions, and our ability to successfully manage such reactions if they do occur. For example, during 25 years of vaccination experience with approximately 1,000 residents and 2,000 employees (75,000 person-years) at this facility, one of us (GL) has observed only 2 other noteworthy adverse reactions to vaccines, both of which fully resolved.^{9,10}

REFERENCES

- Centers for Disease Control and Prevention. Prevention of varicella: update recommendations of the Advisory Committee on Immunization Practices. *MMWR* 1999;48 (RR-6):1-5.
- Wise R, Salive M, Braun M. Postlicensure safety surveillance for varicella vaccine. *JAMA* 2000;284:1271-1279.
- Loriaux D. Adrenal cortex. In: Goldman L, Ausiello D, eds. *Cecil Textbook of Medicine*, ed. 22. Philadelphia: W. B. Saunders; 2004: 1412-1416.
- Recommendations of the Advisory Committee on Immunization Practices: use of vaccines and immune globulins in persons with altered immunocompetence. *MMWR* 1993; 42(RR-4):1-18.
- Kimmel SR. Vaccine adverse events: separating myth from reality. *Am Fam Physician* 2002;66:2113-2120.
- Vaccine Adverse Event Reporting System: United States. *MMWR* 1990;39:730-733.
- Vasquez M, LaRussa P, Gershon A. Effectiveness over time of varicella vaccine. *JAMA* 2004;291:851-855.
- Centers for Disease Control and Prevention. Outbreak of varicella among vaccinated children: Michigan 2003. *MMWR* 2004;53:389-392.
- Lohiya G. Asthma and urticaria after hepatitis B vaccination. *West J Med* 1987;147:341.
- Lohiya G. Macular rash following influenza vaccine. *Am J Infect Control* 2000;28:386-388.

Ghan-Shyam Lohiya, MD, MS
Lilia Tan-Figueroa, MD
Sailaja Reddy, MD
Sherry Marshall, BSN, PHN, CIC
Fairview Developmental Center
Costa Mesa, CA

Safety

Helping to prevent moments like this.

Solutions...



BD BACTEC™

Blood Culture System

We don't want this to happen to you. That is why we have taken the extra step to design a blood culture bottle with a safety neck that is compatible with standard and readily available adapters. If you are having problems drawing blood cultures safely, let us help.

Safety Solution: A blood culture bottle with a safety neck that works with standard adapters.



BD Diagnostics
7 Loveton Circle
Sparks, MD 21152-0999
800.638.8663
www.bd.com/ds

BD, BD Logo and BACTEC are trademarks of Becton, Dickinson and Company. ©2004 BD.