“Herpes zoster is fascinating because it arrives unpredictably, is readily diagnosed—a rare pleasure for most of us—and is difficult to explain.”
R. Edgar Hope-Simpson, MRCS
Proceedings of the Royal Society of Medicine, 1965

This issue of CD Summary recapitulates the recently published Advisory Committee on Immunization Practices (ACIP) recommendations for preventing herpes zoster (i.e., shingles) with live attenuated varicella zoster virus (VZV) vaccine. On May 25, 2006, the zoster vaccine was approved by FDA for persons ≥ 60 years of age and promises to save a lot of pain and suffering.

The relationship of zoster to varicella was discovered in the 19th century, and the theory that zoster is due to reactivation of dormant virus was advanced in 1965. Dr. Hope-Simpson’s seminal longitudinal zoster studies found attack rates of 3 per 1000 per annum, increasing with age; disease severity increasing with age; non-seasonality; the absence of epidemic waves; and the association of high zoster prevalence with low varicella prevalence. These study results have been reaffirmed in different settings with different study designs, including a 1997–2002 study among Washington and Oregon Kaiser Permanente Northwest Health Plan members.

Dr. Hope-Simpson hypothesized that a critical level of VZV antibody was necessary to “blanket the explosion” of latent VZV which, when unsuppressed, can cause “fierce neuritis and neuralgias” in its victims and varicella in their contacts. Antibody decline could be reversed and the latent period prolonged by contact with varicella cases or by subclinical reactivation of VZV. Progressive age-related decline in VZV cell-mediated immunity is now thought to allow viral reactivation in aging but otherwise healthy individuals.

Before the U.S. introduction of the varicella vaccine in 1995, nearly everyone had had varicella by age 30. Only 10%–30% of VZV-infected persons, however, developed zoster, with those at lowest risk being persons repeatedly exposed to varicella or simply to children. Widespread childhood varicella vaccination in the U.S. has had a big impact on varicella incidence—75%–80% incidence reductions have been reported (figure)—raising concern that zoster incidence might increase as VZV circulation decreases.

This is an unhappy scenario given that the pain and discomfort of zoster can diminish quality of life and ability to work to a degree comparable to conditions such as congestive heart failure and major depression, and that post-zoster “fierce neuritis and neuralgias” may persist for years.

The estimated prevalence of this post-herpetic neuralgia (PHN, pain persisting ≥ 30 days after rash resolves) is 500,000–1,000,000 cases in the United States; estimates of PHN proportions of zoster cases vary from 18%–30% 30 days after rash resolves to 10%–12% 90 days after rash resolves. PHN can permanently damage central and peripheral nerves.

In addition to PHN, 10%–25% of zoster cases get herpes zoster ophthalmicus which has complications of its own (corneal ulceration, retinitis, and glaucoma among others). In addition to ophthalmic zoster, cases may get Ramsy-Hunt Syndrome (peripheral facial nerve palsy), Bell’s Palsy, diaphragmatic paralysis, Guillain-Barré Syndrome, and disfiguring facial scarring. A vaccine to prevent such disabling conditions is most welcome.

THE ZOSTER VACCINE TRIAL

The zoster vaccine trial, a Department of Veterans Affairs cooperative study known as the “Shingles Prevention Study”, tested the hypothesis that immunization of older adults with live, attenuated VZV vaccine would boost their waning VZV cell mediated immunity and protect against zoster and PHN. The study was a randomized, double-blind, placebo-controlled, multi-center trial of a
ACIP RECOMMENDATIONS

ACIP recommends routine 1-dose zoster vaccination for individuals ≥ 60 years of age. Zoster vaccine is as fastidious as its progenitor, varicella vaccine, with respect to storage (freeze at −5°F/−15°C and reconstitution (thaw and store at room temperature no longer than 30 minutes before administration). Administer zoster vaccine as a single 0.65-mL subcutaneous shot in the deltoid using syringes that don’t contain anti-viral agents (preservatives, antiseptics, and detergents). Zoster vaccine can be administered simultaneously (though not from the same syringe or at the same site) with influenza, Td, Tdap, and pneumococcal polysaccharide vaccines.

Zoster vaccine is not licensed for persons aged <60 years and is not recommended for varicella vaccine recipients (the group of varicella vaccinees aged ≥60 years is extremely small and will remain so for at least a decade). Persons with a reported history of zoster may be vaccinated; there is no need to inquire about past varicella (this group is extremely large and will remain so for decades).

Contraindications to vaccination are allergy to vaccine components, primary or acquired immunodeficiency (bone marrow and lymphatic malignancies), AIDS and other manifestations of HIV (CD4+ T-lymphocytes of ≤200 mm² or ≤14% of total), immunosuppressive therapy, hemopoietic stem cell transplantation, immune mediators and modifiers, and pregnancy (though pregnant women are unlikely to be in the target age group for vaccination).

Please refer to the ACIP recommendations for additional and more detailed information.1

REFERENCES