

US Department of Veterans Affairs: Shingles Prevention Study

Shingles causes substantial pain and suffering in older adults. This study showed that a vaccine reduced the incidence of shingles by 51 percent, the pain severity of the illness by 61 percent and the incidence of postherpetic neuralgia by 66 percent.

Lead Agency:

US Department of Veterans Affairs (VA); Veterans Health Administration VA (VHA) Cooperative Trials and Durham VA Geriatric Research, Education and Clinical Center (GRECC)

Agency Mission:

"To care for him who shall have borne the battle and for his widow and his orphan."

Principal Investigator:

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Partner Agency:

National Institute of Allergy and Infectious Diseases; Merck & Co.

General Description:

The Shingles Prevention Study is a VA Cooperative Study, carried out in collaboration with the NIAID and Merck & Co., to determine if the zoster vaccine would decrease the occurrence and/or severity of shingles (scientific name is herpes zoster) and postherpetic neuralgia, the painful condition that may persist afterwards. This disease mainly affects older adults. It is caused by the varicella-zoster virus (VZV) which also causes chickenpox. After a person has had the childhood infection, the virus persists in a dormant state in nerve cells. As resistance to VZV weakens with age, the virus can reactivate, causing a blistering rash. There is acute pain due to shingles but many older individuals experience pain for months or years, a condition called postherpetic neuralgia. The acute and chronic pain of shingles markedly interferes with quality of life and daily living. All older adults are at risk for shingles. Half of people who live to age 85 will get shingles, and it is estimated that more than a million new cases of shingles occur in the United States each year.

The Shingles Prevention Study was a randomized, double-blind, placebo-controlled study of the zoster vaccine in 38,546 adults ≥ 60 years of age enrolled at 16 VA and 6 University sites across the US. Over the 5 years of the study, there were a total of 957 confirmed cases of herpes zoster (315 among vaccine recipients and 642 among placebo recipients) and 107 cases of postherpetic neuralgia (27 among vaccine recipients and 80 among placebo recipients). The zoster vaccine reduced the incidence of herpes zoster by 51 percent, the pain severity of the illness by 61 percent and the incidence of postherpetic

neuralgia by 66 percent. Of individuals who developed herpes zoster, the severity of illness was less in persons who received the vaccine. The vaccine was safe and well tolerated. This landmark study showed that the zoster vaccine markedly reduced the suffering from herpes zoster and postherpetic neuralgia among older adults. Studies are ongoing to determine the durability of the response to the vaccine.

Excellence: What makes this project exceptional?

The scientific basis, the methodology, and the results of the Shingles Prevention Study make it truly exceptional. Shingles (herpes zoster) is caused by the reactivation of varicella-zoster virus (VZV) from a dormant or latent infection of sensory nerve cells. This reactivation occurs when the immune system is too weak to contain the virus. Almost all adults in the US are latently infected with VZV and therefore at risk for shingles. The Shingles Prevention Study is unique in that it was the first study to determine that a vaccine can successfully prevent a reactivated infection. All other vaccines (e.g. measles, mumps, rubella, influenza, pneumococcal, etc.) prevent primary infections. The Shingles Prevention Study was the largest vaccine study ever conducted in older adults with over 38,000 participants. The follow-up in the study was outstanding with only 0.7 percent of persons lost to follow-up and it used an innovative computerized telephone response system to stay in touch with participants. The diagnosis of shingles was done using state-of-the-art DNA detection methods whereas all prior shingles clinical drug trials relied on clinical diagnosis which may not be fully accurate.

Significance: How is this research relevant to older persons, populations and/or an aging society?

The occurrence of shingles increases dramatically with aging particularly after the age of 60 years. The increase in incidence with aging is due to a progressive decline in immunity to VZV with aging. The main problem with shingles is pain. The persistent pain that may follow shingles, known as postherpetic neuralgia, is much more common and severe in older adults. Shingles pain diminishes the quality of life and functional capacity of older adults, and markedly reduces their enjoyment of life. The zoster vaccine is relevant to older adults in that it can reduce the pain and suffering from shingles and improve quality of life.

Effectiveness: What is the impact and/or application of this research to older persons?

The zoster vaccine reduced the incidence of herpes zoster by 51 percent, the pain severity of the illness by 61 percent and the incidence of postherpetic neuralgia by 66 percent, demonstrating that the vaccine markedly reduced suffering from shingles and postherpetic neuralgia among older adults. Even among individuals who developed shingles, the severity of illness was less in persons who received the vaccine. If the zoster vaccine was used in all older adults in whom it was recommended, approximately 283,000 cases of shingles and 46,000 cases of postherpetic neuralgia would be eliminated by vaccination each year in the United States.

Innovativeness: Why is this research exciting or newsworthy?

The zoster vaccine research adds a powerful new weapon in our armamentarium against shingles and the suffering that it causes in older adults. The science and methodology of the study as conducted by VA investigators was world-class. On the basis of the results of this one study, the US Food and Drug Administration (FDA) approved the zoster vaccine for use in persons 60 years of age and older for the prevention of herpes zoster. The Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC) recommends that individuals ≥ 60 years of age receive the zoster vaccine to prevent herpes zoster and postherpetic neuralgia. In October 2007, the zoster vaccine was added to the CDC's Schedule of Recommended Adult Immunizations. Their final recommendations for the use of the zoster vaccine was published in the CDC's Morbidity and Mortality Weekly Report June 6, 2008 (MMWR Volume 57, No. RR-5 "Prevention of Herpes Zoster").