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## Brief Report

### Epidemiology of Herpes Zoster

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#### Introduction

Herpes zoster which can also be known as shingles is a reactivation of varicella zoster virus also known as chickenpox in our childhood years, giving us that contagious itchy rash that majority of the population will develop throughout their lifetime. “Varicella zoster virus is one of the eight herpes viruses that are pathogenic only for humans. It causes a primary infection called varicella/chicken pox, most commonly in children that is highly contagious. It is most commonly transmitted by the airborne route from person to person or by direct contact with the lesion. During the primary infection, the virus disseminates through the blood stream to the skin, oral mucosa, and lymph nodes, causing the generalized rash of varicella” [1].

#### Descriptive Epidemiology

Herpes zoster is another form of chickenpox but usually occurring during older adult years, however it was noted that it can affect any age, especially if the patient is immunocompromised. “Adults above 50 years are at an increased risk for developing herpes zoster, probably due to the immunosenescence associated with advancing age, but it can affect individuals of any age, especially those with a suppressed cell-mediated immunity due to any disease or drug. Complications due to the involvement of ophthalmic, splanchnic, cerebral, and motor nerves are reported in herpes zoster. However, the most commonly seen complication is post-herpetic neuralgia. Vaccination against herpes zoster virus is the mainstay of prevention of herpes zoster infection” [1].

#### Rates

“A systematic review published in 2014 reported an incidence of 3-5/1000- Person Years (PY) for herpes zoster in North America, Europe. and Asia- Pacific, with an increased incidence of 6-8/1000-person year at 60 years of age and 8-12/1000- person year at 80 years of age. Three studies performed in Italy in the

year 1999, 2004, 2010 showed an incidence rate of 4.14/1000-person year, 1.59/1000- person year, and 6.31/1000-person year, respectively showing that the incidence of herpes zoster varies from year to year. The incidence of herpes zoster increases with age, 21.8/1000- person year in those aged 70-79 years. Peak incidence of herpes zoster is documented in the 60-69 age group and a low incidence is noted in those age above 80 years. Increase incidence of hospitalization for herpes zoster among patients aged >72 years (0.46/1000- person year) compared to those aged 15-44 years (0.03/1000-person year), suggesting that advancing age is a risk factor.

It was also seen higher for women when compared with men (12.6/1000- person year vs. 8.3/1000- person year). There is a higher incidence of herpes zoster among bone marrow or stem cell transplant recipients (43.03/1000- person year) than among solid organ transplant recipients (17.04/1000- person year) HIV, cancers, inflammatory bowel disease (IBD), multiple sclerosis, and psoriasis place a patient at higher risk for herpes zoster” [1].

#### Causes and Risk Factors

“Infection with Varicella Zoster Virus (VZV) causes two distinct clinical conditions. Primary VZV infection causes varicella or chickenpox, a contagious rash illness that typically occurs among children. Localized zoster is only contagious after the rash erupts and until the lesions crust. Zoster is less contagious than varicella. VZV can reactivate clinically decades after initial infection to cause herpes zoster or shingles, a localized and generally painful cutaneous eruption that occurs most frequently among older adults. Approximately 1 million new cases of zoster occur in the United States annually. Approximately one in three persons in the general population will develop zoster during their lifetime. A common complication of zoster is Post Herpetic Neuralgia (PHN), a chronic pain condition that can last months or even years.

The primary risk factor and a necessary precondition for zoster is previous varicella zoster virus infection, this is called wild-type VZV. Approximately 99.5% of the U.S. population aged >40 years has serologic evidence of previous infection. Therefore, older adults are at risk for zoster. Oka/Merck strain of VZV included in varicella vaccine also can establish a latent infection and clinically reactivate as zoster. Age is also an important risk factor for development of zoster. Zoster increased with age by a factor of >10, from 0.74 per 1000 person years in persons aged 80-89 years, with much of increase beginning at age 50-60 years. Approximately 50% of persons who live to age 85 years will have experienced zoster.

Persons age >60 years was 11% higher among the women. A prospective cohort study in the Netherlands documented 38% more cases among women than men. Certain studies have suggested racial difference in the risk for zoster. In North Carolina, reported lifetime zoster occurrences and reported incidence were lower in blacks by 65% and 75% compared with whites. The incidence of zoster is increased in persons with hematologic malignancies and solid tumors. Zoster is common following hematopoietic stem cell transplantation; rates are 13%-55% during the first year. Rates are increased following solid organ transplants (renal, cardiac, liver, and lung). Incidence is highest during the months immediately following the procedure, and majority of zoster cases occur within a year of transplantation” [2] (Figure 1).

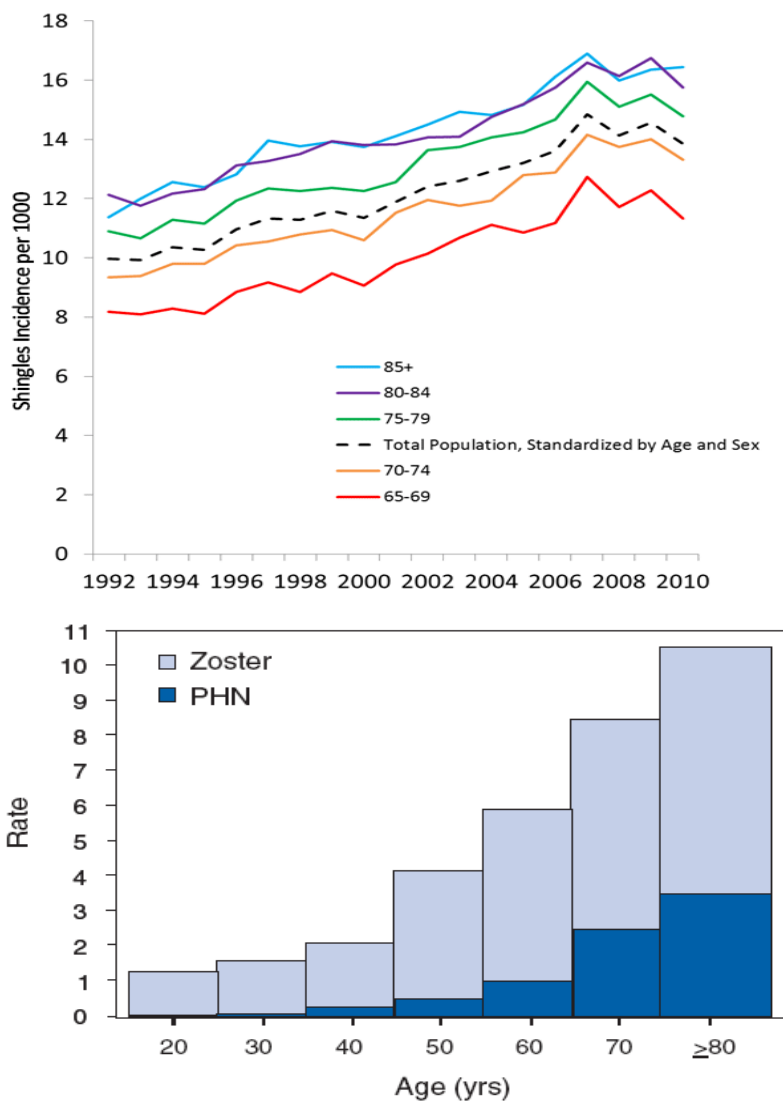


Figure 1: Incidence is highest during the months immediately following the procedure, and majority of zoster cases occur within a year of transplantation.

## Conclusion

Herpes Zoster can affect a person's activity of daily living due to the chronic pains of the rash that can last for weeks, months or even years called post neuralgic pains since the rash can remain dormant in the sensory dorsal root ganglion cells. "Severe post-herpetic neuralgia can lead to sleep disturbances, depression, weight loss, and chronic fatigue. Secondary bacterial infections such as cellulitis, septicemia, zoster gangrenosum, and necrotizing fasciitis caused by *Staphylococcus aureus* and *Streptococcus pyogenes* are the most common complications seen after post-herpetic neuralgia.

The main goals of treatment for herpes zoster are to decrease pain, induce quick healing, and avoid complications. Antiviral therapy is used as soon as the diagnosis is made and it reduced the risk of post-herpetic neuralgia. Corticosteroids can help to control pain and eruptions. Other components include isolation of patient and local management of skin lesions if necessary, to prevent nosocomial infections. Treatment with antivirals should be started within 72 hours of rash onset. Famciclovir is shown to be superior to valacyclovir in reducing acute herpes zoster pain" [1].

Prevention and education are a key factor for this virus, it is important to educate our patients that this virus is contagious, stay away from pregnant women, children, those who are immunocompromised, or those who even had chickenpox in their lifetime because they too can also be a risk for developing herpes zoster. Advised patients to stay at home until the rash is dry and

crusted, the fluid in the lesions are usually the most contagious part. Do not share clothing, towels, etc. "If a person susceptible to varicella infection has close exposure to a person with zoster, post exposure prophylaxis with varicella vaccine or VARIZIG should be considered" [2].

"Herpes zoster vaccination for individuals aged >60 years reduces the incidence, burden of illness, and morbidity associated with herpes zoster and post herpetic neuralgia. Zostavax, a live attenuated varicella zoster- virus based zoster vaccine, has shown to reduce the incidence of herpes zoster and post - herpetic neuralgia among immunocompetent individuals of >60 years, worldwide. The vaccine boosts the varicella zoster virus- specific cell- mediated immunity, thereby controlling the reactivations or replication of the latent varicella zoster virus and prevents herpes zoster infection or reduce its severity. Post- exposure prophylaxis of zoster immune globulin for herpes zoster is unclear. Despite several therapeutic modalities for herpes zoster and its complications, the treatment remains a challenge" [1].

## References

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