

Varicella-zoster Virus

Key Points

Chicken pox (primary infection) and shingles (reactivation infection, especially of the trigeminal nerve) are highly infectious and present a risk to older, pregnant and immunosuppressed individuals

Staff must know their immune status

Introduction

Chicken pox and shingles are caused by the same herpes virus (varicella-zoster virus).

Primary Infection: Chicken Pox

Virus is present in respiratory secretions as well as in the vesicle fluid. Respiratory tract secretions are a potent source of airborne infection making patients highly infectious from approximately 48 hours before the rash occurs until all the vesicles have dried and crusted (usually about 6 days).

Secondary Infection: Herpes Zoster (Shingles)

Shingles only occurs in patients who have previously had chickenpox. The virus reactivates in sensory nerve cells and erupts in the cutaneous distribution of the nerve. Systemic dissemination may occur in immunosuppressed patients.

Contacts of shingles that have not had chickenpox are at risk but they will develop symptoms of chickenpox not shingles. Virus is present in the vesicle fluid until the vesicles have dried. However, the respiratory secretions are not usually a source of infection in shingles except in those with oro-facial (trigeminal) disease. Immunosuppressed patients (e.g. Hodgkin Disease) may have prolonged illness with viable virus excretion and may require isolation for a longer period.

Patient Management

General

- Patients with chicken pox should be transferred to a negative pressure ventilation isolation room. If not available, Source Isolate in a side room with the door shut.
- Patients with shingles, especially of the trigeminal distribution should be nursed in Source Isolation.

If a case of chickenpox or shingles has been cared for on the open ward prior to diagnosis of the infection then the following actions should be undertaken:

Patients

- Patients with chicken pox should be transferred to a negative pressure ventilation isolation room. If not available, Source Isolate in a side room with the door shut.
- Ward/ facility staff should draw up a list of patient contacts and inform the Infection Prevention Control Team
- Patients on the contact list should be checked for immunity, firstly by taking a history from the patient or relatives and secondly by testing for antibody
- Patients with a convincing history of having had chickenpox can be considered immune without antibody testing
- The consultant caring for patients found to be non-immune, will discuss with a consultant virologist or microbiologist and agree ongoing management and treatment
- The following groups are considered to be at increased risk from varicella and may require passive immunisation with Varicella Zoster Immunoglobulin (VZIG):
 - pregnant women
 - neonates
 - immunocompromised individuals including those on steroids, chemotherapy
 - HIV positive
 - haematological malignancy

Staff

- Ward/ facility manager should draw up a list of staff contacts and inform the Occupational Health Department (OHD)
- OHD should follow up staff contacts not known to be immune by arranging for an antibody test
- If susceptible, staff may be excluded from working in wards where there are vulnerable patients between day 8 after first contact and day 21 after last contact
- If a non-immune contact becomes ill within the incubation period of the disease (i.e. up to 21 days after last exposure) with even a trivial cold or fever, they should report to the OHD. Non-immune staff in contact with these diseases must not transfer to other wards or nurse immunosuppressed patients during the incubation period.
- The decision to dispense VZIG and/or live vaccine must be taken in discussion with the consultant virologist in the Royal hospitals, Belfast.
- Serologically negative staff may be offered vaccination
- Staff must know their immune status. Non immune staff who have been exposed to varicella outside of work should inform their line manager and immediately consult with occupational health regarding their fitness to practice

Varicella-zoster Immune Globulin (VZIG) is available for high risk individuals who have been exposed to chickenpox or shingles. It will attenuate, not prevent, infection. It is only effective when given soon after exposure and is usually reserved for those not immune to varicella-zoster in whom the disease may be life threatening. Decisions as to whether to administer VZIG is the responsibility of a Virology/Microbiology Consultant.

References

1. Immunisation Against Infectious Disease 2006 'The Green book' chapter 34. Available from: <http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/GreenBook/> Scroll down and Click on Chapter 34: Varicella. (Background information, detailed information on vaccination and the use of VZIG)
2. PHLS Joint working party of the Advisory committees of Virology and Vaccines and Immunisation. Guidelines on the management of, and exposure to, rash illness in pregnancy. Communicable disease and public health 2002; 5(1): 59-71 Available from: http://www.hpa.org.uk/cdph/issues/CDPHVol5/No1/rash_illness_guidelines.pdf