

4.4 Treatment of Varicella-Zoster Infections

The immunocompromised patient with either primary (varicella) or recurrent (zoster) infection is at increased risk of severe disease. Zoster can occur in any dermatome in the immunocompromised host, but can also disseminate into multiple dermatomes and cause organ involvement.

Period of Contagion

Varicella is contagious usually for 1 to 2 days before the rash develops and for as long as it takes for all lesions to crust over.

Incubation Period

The incubation period is usually 14–16 days, occasionally as early as Day 10 and as late as Day 21 after contact. Use of Varicella-Zoster Immune Globulin (VariZIG) can prolong the incubation period to 28 days. Immunocompromised patients may experience a shorter incubation period.

Exposure Assessment

Persons with varicella (chickenpox) are contagious from 1 to 2 days before the rash onset and up until the crusting of all lesions. The skin lesions of zoster (shingles) are considered infectious from their onset until they have crusted and dried.

The following situations are considered significant exposures to varicella-zoster virus:

1. Continuous household contact (living in the same dwelling with a person with varicella).
2. Being indoors for >1 hour with a case of varicella.
3. Being in the same hospital room for >1 hour, or >15 minutes of face-to-face contact, with a patient with varicella.
4. Touching the lesions of a person with active varicella or zoster (shingles).

Determine Immunity/Susceptibility

Patients are considered immune if they have varicella IgG present at, or before, cancer diagnosis **or documented age-appropriate doses of varicella vaccine**. Recent publications have suggested, however, that children on therapy may in fact lose their immunity. Immune status of on-treatment patients should be discussed with the treating specialized childhood cancer program. Stem cell transplant recipients should be considered non-immune until an age-appropriate varicella vaccine has been administered post-transplant.

Dosing

Susceptible cancer patients should be considered immunocompromised and receive VariZIG based on body weight. The recommended dose is 125 IU for each 10 kg of body weight up to a maximum of 625 IU. The minimum dose is 125 IU. As with other blood products, informed consent from patients or their parents/guardians must be obtained before administration of VariZIG.



VariZIG is of maximal benefit if administered within 96 hours after first exposure. However, since the exact timing of transmission is unknown it can be used within 96 hours of the most recent exposure. Protection is believed to last for approximately 3 weeks.

Subsequent exposures >3 weeks after a dose of VariZIG would require additional doses if the criteria for VariZIG use outlined in the **Exposure Assessment** section still exist.

Varicella and Zoster Infections in the Immunocompromised Host

The immunocompromised child is particularly vulnerable to varicella. Varicella can result in pneumonitis, hepatitis, encephalitis and disseminated intravascular coagulation (DIC), resulting in rapid deterioration and death.

Acyclovir should be instituted by the intravenous route at the first indication of varicella in the immunocompromised child.

Oral acyclovir is not used in the initial management of varicella. Before oral acyclovir therapy is instituted, discussion should take place with the patient's primary oncologist at the specialized childhood cancer program.

Varicella-zoster may remain limited, but it may also disseminate and lead to the same life-threatening complications of a primary varicella infection. It is recommended that an immunocompromised child diagnosed with zoster at a POGO Satellite Clinic receive initial acyclovir by the intravenous route and the child be admitted to hospital for observation. Contact should occur with the patient's primary oncologist who will assist the satellite physician in determining subsequent therapy.

There is never a role for topical acyclovir or antivirals.

Dose of Acyclovir for Varicella

Acyclovir 500 mg/m²/dose IV q8h for 7–10 days

OR

Acyclovir 10 mg/kg/dose IV q8h

NOTE: Ensure patient is well-hydrated with good urine output while on acyclovir.

Varicella and Susceptible Patients Who Have Completed Chemotherapy

Susceptible patients who have completed chemotherapy and been exposed to chickenpox should be considered for VariZIG. In general, it takes 3–6 months following completion of chemotherapy for the immune system to recover sufficiently to contain a varicella infection. Most physicians would provide VariZIG for up to 6 months post-chemotherapy in a patient who had been treated for leukemia. Thereafter, the patient should be immunized.

Zoster is treated with the following doses of acyclovir:

Aged <12 years: 20 mg/kg/dose IV q8h for 7 days

OR



Aged >12 years: 10 mg/kg/dose IV q8h for 7 days

Please contact the patient’s specialized childhood cancer program at the time of diagnosis.

This guidance was developed by Dr. Marina Salvadori, Children’s Hospital, London Health Sciences Centre, London and Dr. Nisha Thampi, Children’s Hospital, London Health Sciences Centre, London based on the sources below. Reviewed by Dr. Paul Gibson, POGO/McMaster Children’s Hospital, Hamilton Health Sciences.

References

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Record of Updates

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