

Shingles: Prevention and treatment

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Abstract

Varicella, a childhood disease, is caused by the varicella-zoster virus (VZV). Primary infection occurs when the virus comes into contact with the mucosa of the respiratory tract or conjunctiva. At these sites, viral multiplication occurs with subsequent haematogenous spread. VZV persists predominantly in the sensory ganglia of the cranial and spinal nerves. Shingles is the result of a reactivation of this residual latent virus. A number of triggers may cause a reactivation of this infection and this manifests as a painful vesicular eruption in a dermatomal distribution.

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Introduction

The word "zoster" is derived from the Greek word meaning "girdle". Shingles typically manifests as a vesicular rash in a unilateral dermatomal distribution associated with pain. Without treatment, symptoms usually resolve over several weeks to a month. However, up to 20% of patients may experience prolonged and sometimes debilitating sequelae.¹

Pathogenesis/aetiology

The varicella-zoster virus (VZV) is one of eight herpes viruses constituting the Herpesviridae family. Primary infection occurs when the virus comes into contact with the mucosa of the respiratory tract or conjunctiva. From these sites, viral multiplication occurs and haematogenous spread follows. VZV persists in the sensory ganglia of the cranial and spinal dorsal root ganglia after varicella resolves and presents as shingles many years later.

Prevalence and incidence

The incidence of shingles in South Africa is unknown. It is suggested that up to 20% of those with varicella may eventually develop shingles.¹

What burden is carried due to this disease?

Shingles in patients younger than 50 years may be an indicator of immunosuppression. These patients should consequently be investigated for immunosuppression, including HIV infection. It is found that both the incidence and the severity of zoster are increased in the immunocompromised patient. In these cases, shingles may be complicated by disseminated cutaneous disease, systemic involvement, a protracted course and the development of verrucous,

crusted or even haemorrhagic lesions. In more than 50% of older patients, other systems can be involved, including the eye, the nervous system, the musculoskeletal system and the vasculature. It must be noted that severe myelitis with weakness, incontinence, vasculopathy with seizures and motor deficits can lead to mortality in almost one third of affected patients.²

Vaccination

Varicella can be prevented by vaccination. This is about 80 to 85% effective against all disease and more than 95% effective in prevention of severe disease.³ Two vaccines are available: a single antigen vaccine (live, attenuated varicella vaccine) and a combination vaccine against measles, mumps, rubella and varicella (MMRV). The single antigen vaccine is available worldwide as Varilrix®, Varivax® and Okavax®. Varilrix® is licensed in South Africa for use in healthy children older than nine months. The suggested vaccination schedule is one dose for children up to twelve years and two doses, four to eight weeks apart, for those older than twelve years. In healthy children, the seroconversion rate after one dose of live, attenuated varicella vaccine is 97 to 99%.³

The MMRV vaccine (Proquad® and Priovix-tetra®), neither available in South Africa, can be given to children older than twelve months. The vaccine contains a higher quantity of VZV than the single antigen vaccine but the same quantity of measles, mumps and rubella vaccines.³ The duration of zoster vaccine efficacy remains to be determined and the effect of widespread childhood immunisation against VZV on the incidence of shingles in older patients is unknown.

Passive immunisation with varicella-zoster immunoglobulin (Vazigam®) can prevent or lessen varicella in high-risk patients. It may be used in exposed patients for whom the varicella vaccine is contraindicated, including immunocompromised children and neonates whose mothers acquire varicella from five days before to two days after birth.

Treatment

Acute management of herpes zoster

The management of shingles is dependent upon the age, the location of the eruption, the immune competence and the presence of coexistent diseases.⁴

General measures

Rest and analgesics are sufficient for mild attacks of shingles. Soothing anti-septic applications may help and secondary bacterial infections will require antibiotic therapy. Confirmed ophthalmic zoster lesions around the eye and the nose tip (Hutchinson's sign) need an urgent ophthalmological assessment.⁵ A good clinical examination is indicated to detect an underlying immunodeficiency and HIV testing should be done if considered clinically relevant.

Specific treatment

An antiviral drug is indicated for varicella in adults and for severe varicella or shingles infections at any age in the immunocompromised patient. Treatment should be started as early as possible, preferably within the first one or two days. In general practice, shingles is often treated with acyclovir (Zovirax®, 800 mg five times a day for seven to ten days) or with valacyclovir (Zelitrex®) (1 g) or famciclovir (Famvir®) (250 or 500 mg three times a day for seven days).

Immunocompromised patients given

intravenous acyclovir should be evaluated after three to four days of therapy. Intravenous treatment is then changed to oral therapy when the patient has developed no new lesions over the preceding 24 to 48 hours. Oral therapy in full doses should continue for a total of ten days. For those with visceral dissemination, a total of seven days of intravenous therapy is indicated.

Antiviral therapy prevents the progression of the eruption, reduces systemic complications of shingles, lessens shingles pain during treatment and can reduce the risk of the development of post-herpetic neuralgia.⁵

Steroid therapy in shingles is controversial. Without antiviral cover, serious dissemination of infection due to systemic steroids is a risk.⁵

Management of acute herpes zoster pain

Topical therapy with drying soaks followed by the application of anaesthetic cream may be of mild benefit. Salicylates and nonsteroidal anti-inflammatory drugs are sometimes adequate and may be tried initially. The above-mentioned drugs may induce haemorrhage into the blisters. Codeine may be added to the analgesic regime. Acyclovir may reduce acute pain, if given intravenously. Amitriptyline at a dose of 25 mg nocte and increasing by 25 mg per night to a maximum of 75 mg per night is beneficial. This may be the best oral therapy for acute and chronic zoster neuralgia. Gabapentin in doses from 300 mg to 600 mg tds may be added to tricyclic therapy for additional pain relief. Intra-

dermal injections in the involved area with a long-acting anaesthetic (bupivacaine 0,25%) may reduce acute pain. Certain patients with severe pain may even be referred to an anaesthesiologist for a nerve block, ganglion block or epidural block^{4,5}.

Treatment of post-herpetic neuralgia

A tricyclic antidepressant such as amitriptyline is useful, especially for hyperaesthesia and constant burning pain, an effect independent of its antidepressant activity. For best results, it should be given early in a dose of 25 mg daily and continued for three to six months. These adrenergically active antidepressants may be most effective if antiviral treatment is given during an acute attack of shingles. For stabbing pain, sodium valproate or carbamazepine may be used. In the elderly, doses should initially be low and increased every few days, as required. Gabapentin is a useful analgesic for pain. Topical capsaicin 0,025%, a substance P-depletor, may relieve pain in some patients, although its usefulness is limited by a burning sensation following application in some patients⁵.

Pitfalls

Zosteriform herpes simplex may be difficult to differentiate from shingles. Special investigations should be done to differentiate shingles from herpes simplex. In shingles, aggressive treatment, that includes antiviral and pain-control therapy, should always be started as soon as possible. Intravenous acyclovir needs to be administered correctly: the dosage for the patient's renal

function should be corrected (one litre of fluid per dose of acyclovir), the acyclovir should be infused over one to two hours, renal function should be monitored during therapy and doses for changes in renal function should be corrected (a dilution of acyclovir to 6 mg per ml or less is preferable). Oral acyclovir has poor bioavailability and this has not been reported to alter renal function. Neither does it reach the tissue levels that guarantee treatment of all strains of the VZV. Valacyclovir and famciclovir do reach adequate serum levels and are, in general, preferred for the treatment of herpes zoster in immunosuppressed patients. For those with dissemination or those at high risk for dissemination, intravenous acyclovir is indicated.⁴

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 This article has been peer reviewed

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Press Release

LANCET LABORATORIES in support of "Surgikids"

LANCET LABORATORIES and "Surgikids" hosted a party for the children of the Chris Hani Baragwanath Hospital paediatric, surgical and oncology wards on 13 February 2007.

The event was part of ongoing support from LANCET LABORATORIES for "Surgikids" - the Johannesburg Children's Surgical Fund. "Surgikids" is an initiative to extend and upgrade the surgical service to the paediatric patients at Chris Hani Baragwanath and Johannesburg Hospitals. The Wits University Division of Paediatric Surgery work within severe budget

constraints while delivering service to a huge turnover of patients without much charitable funding. "Surgikids" is planning to include extending the current busy kidney transplant service to children requiring liver transplants currently not financed by the Department of Health.

The Paediatric Surgery Division at Wits delivers a wide spectrum of paediatric surgical services including neonatal surgery of birth defects, oncology surgery for paediatric solid-tissue malignancies, trauma and burn management, paediatric urological surgery and

transplantation, these are but a few of the highly specialised fields.

The "Surgikids" fund will improve facilities and supply essential equipment.

Staff at LANCET LABORATORIES have joined in this initiative with fervour and have collected hampers of clothes, toys and educational games for the young patients. The party was a celebration of life and offered the children a chance to forget about their illness. There were many delicious treats, balloons and a clown's antics brought some smiles.