Prevention and management of shingles and associated complications

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On primary infection, the varicella zoster virus is responsible for the development of chickenpox, after which the virus becomes dormant. Upon reactivation of the latent virus, shingles results. The incidence and severity of shingles increases with age, and is associated with significant morbidity and mortality. Early intervention with antiviral medications is crucial to help resolve the rash and reduce any potential complications induced by the virus.

KEYWORDS:
- Management
- Prevention
- Postherpetic neuralgia (PHN)
- Ophthalmic shingles
- Ramsay Hunt syndrome
- Antiviral therapy

Shingles (herpes zoster) is caused by the reactivation of latent varicella zoster virus following chickenpox. Its incidence is greater in older people and the immunosuppressed (van Hoek, 2009; Ogunjimi and Beutels, 2018). Shingles is painful, and associated with substantial morbidity, including the long-term neuropathic pain syndrome known as post-herpetic neuralgia (PHN) (Ogunjimi and Beutels, 2018).

A vaccination programme was introduced in 2013 for older patients at risk of developing shingles and associated complications. The vaccine has been shown to reduce cases of shingles by 35% and post-herpetic neuralgia by 50% (Amirthalingham et al, 2017; Ogunjimi and Beutels, 2018). However, despite this, uptake of the vaccine has fallen year on year since its introduction. It is important to recognise the importance of the immunisation programme in preventing shingles in at-risk older patients. Furthermore, when managing patients with shingles, early intervention is crucial to help speed resolution of the rash and reduce the risk of possible complications.

INCIDENCE OF SHINGLES IN UK

Shingles can occur at any age in people who have had chickenpox — there are more than 200,000 cases in the UK per year with a mortality rate of one in 1,000 cases (van Hoek et al, 2009). However, the incidence and severity increases with age as a result of immunosenescence (van Hoek et al, 2009).

One study highlighted that in 2007, there were 88,000 cases of shingles in the UK population aged over 60 years, 18,210 cases of post-herpetic neuralgia, 1,746 hospital admissions and 55 deaths (van Hoek et al, 2009).

Shingles is often more common and more complicated in patients who are immunocompromised as a result of comorbidities, medication or stress (Ahmed et al, 2007).

PATHOPHYSIOLOGY OF SHINGLES

The surface of the skin is divided into a number of areas (dermatomes), which are supplied by nerves from a single spinal nerve root. The varicella zoster virus commonly infects the spinal nerve, presenting with signs and symptoms in the area of skin supplied by the infected nerve.

Primary infection with varicella zoster virus presents as chickenpox, usually in childhood. Once chickenpox has run its course, the virus becomes latent in the ganglionic neurones of the entire neuroaxis (Nagel and Gilden, 2013; Public Health England, 2013). It is thought that the virus is kept in check by the immune response provoked by initial infection and that this is boosted over time by exposure to people infected with chickenpox (MacDonald, 2018).

The reason for reactivation of the virus is unknown, however, there is a strong link between advancing age and a weakened immune response (Nagel and Gilden, 2013). When the virus becomes reactivated, shingles presents within the dermatome supplied by the infected nerve, and can occur anywhere on the body.

CLINICAL FEATURES AND DIAGNOSIS

Patients may initially present with prodromal symptoms commonly associated with viral infection, including headache, general malaise, fever, myalgia, burning sensations and sharp pain in the affected area (MacDonald, 2018). These can occur up to three days before presentation of the shingles rash. The rash consists of fluid-filled vesicles that develop over several days, commonly occurring on the skin of the head, neck and trunk.
on one side of the body, and commonly across the face and trunk.

The fluid within the vesicles is highly contagious for those who have never contracted the virus, however, it is only infectious as a result of direct contact with the fluid from open vesicles (Harding, 2016). Shingles cannot be caught, however, chickenpox can be contracted by previously uninfected individuals from exposure to the vesicular fluid from a shingles lesion.

In patients who are immunosuppressed, rash may occur in more than one dermatome, leading to a misdiagnosis of chickenpox (Mueller et al, 2008). The vesicles will be active for a period of seven to ten days after which they will dry out and scab over, with the rash resolving over a two to four-week period when the healing process results in crusting, post inflammatory hyperpigmentation and scarring (Roxas, 2006).

Although it is rare, shingles may also occur without a rash. This is known as zoster sine hepate (ZSH). The chronic radicular pain as well as neurological disorders associated with shingles may present without the rash (Gilden et al, 2010).

**COMPLICATIONS ARISING FROM SHINGLES**

For the majority of patients, shingles causes a painful rash that resolves in a few weeks without incidence. In older adults, shingles can have debilitating and occasionally severe symptoms. The most common complications are secondary bacterial skin infections and PHN (Public Health England, 2013).

**Secondary bacterial infections**

Following eruption of the vesicular rash, the patient may scratch the itchy lesions, an action that may cause excoriation and increase the risk of secondary bacterial infection. If an infection develops, a bacterial swab should be taken to confirm the type of bacteria present and its sensitivity. In some cases, a course of topical antibiotic or other antimicrobial can be prescribed.

**Postherpetic neuralgia (PHN)**

PHN is a frequent complication of shingles; the Oxford Vaccine Group (2018) reported that PHN affects one in 10 people with shingles (Ogunjimi and Beutels, 2018). PHN is characterised by unrelenting pain from the acute phase of shingles that persists beyond resolution of the rash (Johnson, 2003). The nerve pain can persist for several weeks or even months after the rash subsides (DermNet, 2015). Pain that persists or appears more than 90 days after the onset of rash is a commonly accepted definition of PHN (Oxman and Levin, 2008). The symptoms of PHN are often constant or intermediate pain, stinging, stabbing and a burning sensation that can be triggered by stimulation of the affected area, e.g. wind on the face, or contact with clothing, leading to sleep disturbances (Gupta and Smith, 2012). PHN can be extremely debilitating, with some patients reporting reduced quality of life, and interference with activities of daily living (Mallick-Searle et al, 2016).

**Ophthalmic shingles**

It is estimated that approximately 10–20% of patients infected with shingles will develop ophthalmic herpes zoster (ophthalmic shingles). It can be associated with sight-threatening eye problems and severe and lasting pain, particularly in elderly patients (Opstelten and Zaal, 2005). Conjunctivitis is seen in nearly all patients with ophthalmic shingles. Severe cases can include optic neuritis and ulceration. These patients should be referred to an eye specialist, as failure to diagnose and treat promptly can lead to permanent sight damage (Opstelten and Zaal, 2005).

**Ramsay Hunt syndrome**

Ramsay Hunt syndrome is a rare neurological disorder that is characterised by peripheral facial nerve palsy accompanied by an erythematous vesicular rash on the ear or in the mouth. It can be accompanied with tinnitus, hearing loss, nausea, vomiting and vertigo (Sweeney and Gilden, 2001).

**Further complications**

Shingles has been linked with an increased risk of stroke, transient ischaemic attack (TIA), and myocardial infarction (MI) (Sreenivasan et al, 2013; Langana et al, 2014). This risk can be increased by up to 50% in patients affected with shingles under the age of 40 years (Breuer et al, 2014).

**MANAGEMENT**

In most people, shingles usually resolves on its own within a few weeks. However, oral antiviral treatment can make the rash clear sooner and reduce its impact.

**Antivirals**

While there are no specific guidelines for the treatment of shingles, the Royal College of Physicians (RCP) suggests that this disease is treated with antiviral drugs within 72 hours of the onset of symptoms to maximise the effectiveness of the therapy and reduce its complications. Antivirals work by stopping the multiplication of the rash, the pruritis and the intensive pain, and reducing the period where the virus is still contagious. Medication should be administered within 72 hours of the first signs of the virus, particularly in patients with ophthalmic involvement and who are immunosuppressed or immunocompromised.

The three most common antiviral medications prescribed are:

- Aciclovir (800mg, five times daily for one week)
- Valaciclovir (100mg three times a day for one week)
- Famciclovir (500mg three times a day for one week or 750mg once or twice a day for one week) (Harding, 2016).

According to the National Institute for Health and Care Excellence (NICE, 2013), use of antivirals should be limited to people over the age of 50 years, with the exception of those with ophthalmic involvement, the immunocompromised and those experiencing severe pain.

As said, in the case of ophthalmic shingles, early intervention is crucial to avoid damage to the eye, which
can potentially cause blepharitis, conjunctivitis, keratitis, uveitis, scleritis, episcleritis and acute retinal necrosis (Opstelten and Zaal, 2005).

In more complex cases, a course of oral or topical corticosteroids can be used in combination. However, evidence suggests that oral corticosteroids in the management of shingles should only be used as an adjunctive therapy with oral antivirals, due to their immunosuppressive mode of action.

**Analgesics**

Analgesics are first-line for the management of pain in shingles. Paracetamol or non-steroidal anti-inflammatory drugs (NSAIDs) can be prescribed and should be taken on a regular basis (NICE, 2013). If the pain persists and is not responding to first-line analgesics, strong opiates such as tramadol or morphine can be considered, in addition to other options such as antidepressants.

**Antidepressants**

Antidepressants, such as amitriptyline, can be prescribed to treat postherpetic neuralgia and block the pain. It is frequently prescribed with a very low dose of 10mg and gradually increased to 30mg or 75mg (Herpes Viruses Association, 2018). Additionally, the pruritus induced by the virus can be treated with antihistamines, such as chlorpheniramine.

**Topical therapy**

Topical emollients, steroids and/or antibiotics can be prescribed. The emollient regimen involves using a soap substitute, a bath additive and then a moisturiser, either cream or ointment-based. Calamine lotion can also help to reduce excoriations and pain. If a bacterial infection is present, it can be treated with topical antibiotics.

**Prevention**

There is a body of evidence that demonstrates the incidence of varicella zoster virus and associated complications among the elderly population and the negative impact this disease can have on their lives. As a result, Public Health England and the Department of Health implemented an immunisation programme in 2013. The programme aims to protect against the development of herpes zoster by boosting varicella zoster virus immunity (Dworkin et al, 2007).

In the UK, Zostavax® is the vaccine licensed for the shingles immunisation programme. The vaccine is administered as a single subcutaneous injection. The Centre for Disease Control and Prevention recommends that shingles immunisation is offered in combination with pneumococcal and influenza vaccine (Public Health England, 2014). However, this can be a contraindication for patients who are taking immunosuppressive medication or with immunodeficiency, as the vaccine may be ineffective.

A Cochrane review found that the vaccine is effective in preventing herpes zoster disease and this can last for three years. The vaccine is generally well tolerated and produces few systemic adverse effects (Gagliardi et al, 2012).

The government also implemented the ‘catch-up immunisation programme’, in which people aged 78 or 79 years old on 1 September 2014 were offered a single dose of shingles vaccine to reduce the incidence of shingles in this age group (NHS Choices, 2014). General practice and community nurses are the main link between the public and health services, having the opportunity to speak directly with patients and explain one of the key points about prevention, which is the patient’s eligibility for the vaccination programme. The programme is now available for people aged 78 years on 1 September each year.

Public Health England has made available a variety of online resources encouraging vaccination and prevention of shingles. These services also play a key role in raising awareness of shingles, its possible complications, treatment options and prevention. NICE (2013) suggested the provision of leaflets containing important information about the disease. This pack should advise patients to avoid direct skin contact with infected people, as well as the different aspects of the condition, such as prevention, causes, diagnosis and treatment, with clear guidelines.
on what to do if the person suspects they may have contracted the disease.

**CONCLUSION**

Although there are severe complications that can arise as a consequence of shingles, in most cases it lasts up to four weeks and resolves. However, for at-risk groups, complications can result in permanent damage and, in some cases, death. It is extremely important that patients are aware of the immunisation programme, especially those who are more susceptible to the disease. Maintaining a healthy lifestyle, a good diet and exercising contribute to a strong immune system, which may help to prevent the reactivation of the varicella zoster virus for which a cure is yet to be found.

**REFERENCES**


Oxford Vaccine Group (2018) *Shingles vaccine*. Available online: vk.ovg.ox.ac.uk


**Key Points**

- Patient education about the shingles vaccination programme for individuals aged 70 to 79 years old can help to reduce incidence and prevent further complications derived from shingles.

- Early intervention with oral antivirals is crucial and can help to control the virus and prevent complications from arising.

- In more complex shingles cases, oral corticosteroids should be considered in combination with oral antiviral medication.

- Antidepressants are often prescribed for the management of postherpetic neuralgia.

- Zostavax® is the live vaccine licensed in the UK.