Herpes Zoster: Medical and Nursing Management

Mary C. Sandy, MS, APRN-BC, OCN®

Herpes zoster (HZ), or shingles, is the reactivation of the latent varicella zoster virus (VZV), also known as chicken pox, in the dorsal root ganglia (Snoeck, Andrei, & De Clerq, 1999). An acute viral inflammation arising from multiple dorsal root ganglion in the peripheral nervous system, HZ can occur in patients of all ages and persists for the lifetime of the infected individual (Kleinschmidt-DeMasters & Gilden, 2001), but its incidence is increased in immunocompromised individuals and older adults. The incidence of reactivation with VZV is increased in patients aged 50 years or older, individuals infected with HIV, patients undergoing immunosuppressive therapy (e.g., bone marrow transplant, cytotoxic chemotherapy, prolonged intake of steroid therapy), and others in chronic disease states, including cancer. The likelihood of VZV reactivation is doubled every 10 years after age 50 and in individuals who are immunocompromised (Stankus, Dlugopolski, & Packer, 2000). According to Kleinschmidt-DeMasters and Gilden, the annual incidence of HZ is more than 300,000 individuals, and the infection is 8–10 times more likely to occur in older adults and those who are immunocompromised. Although immunization shows promise for decreasing VZV infection outbreaks, it increases the likelihood of future reactivation in individuals who are aged 50 years or older or in immunocompromised states (Brody & Moyer, 1997).

Early recognition of clinical symptoms of HZ and prompt treatment with antiviral therapy shortens viral shedding, accelerates lesion healing, and may prevent chronic complications (Goh & Khoo, 1998). Complications of HZ may include postherpetic neuralgia (PHN) (i.e., the sensitization of nerve endings resulting in pain) and zoster ophthalmicus (ZO) (i.e., intraocular involvement of the fifth cranial nerve, trigeminal region, which can lead to blindness). Wood, Shukla, Fiddian, and Crooks (1998) reported that PHN is more likely to develop in older adult patients. The pain associated with PHN persists longer than one month after the onset of HZ, and its incidence is correlated to patients’ ages. Other possible complications of HZ include encephalitis and peripheral nerve palsies (Gnann & Whitley, 2002).

Presentation

Healthcare providers must recognize and initiate treatment of HZ immediately in patients. Classic symptoms include itching or burning pain and paresthesias or pruritis lasting from one to two days to three weeks, followed by a maculopapular, vesicular rash on an erythematous base (Kleinschmidt-DeMasters & Gilden, 2001; Stankus et al., 2000). The rash most commonly is confined to the thoracic region at the fifth and sixth dermatome levels in a belt-like fashion (see Figure 1) and distributed in irregular groupings of vesicles that vary in size (see Figure 2) and do not cross the midline of the body. In addition to the thoracic dermatome regions, other frequently affected dermatomes are the cervical and sacral nerve roots. The rash usually heals in two to four weeks and may cause scarring. Prodromal symptoms may mimic other conditions, such as cardiac disease, pleurisy, and gastrointestinal or gynecologic disorders (Stankus et al., 2000), making the recognition of HZ difficult. Some individuals may present with complaints of viral exanthema-type symptoms, such as fever, malaise, and headache (Baldwin, 2002). Rarely, the viral episode can present as dermatomal pain without a rash, known as herpes sine herpete (Kleinschmidt-DeMasters & Gilden, 2001; Stankus et al.). Other rare presentations include duplex unilateral or bilateral, which are vesicular eruptions in two contiguous dermatomes (Vu, Radonich, & Heald, 1999). A rash eruption affecting bilateral dermatomes is considered to be disseminated disease and may progress to
the development of pneumonia, extensive skin lesions, a staph infection, or other visceral manifestations, such as encephalitis or hepatitis. Vesicle distribution involving the ear, with or without tympanic membrane involvement, is referred to as Ramsay Hunt Syndrome, which can result in facial palsy, vertigo, tinnitus, and deafness (Vu et al.). Immunocompromised individuals are at greatest risk for developing these rare eruption patterns and, if development is suspected, should be referred to the appropriate specialist, such as an ophthalmologist or neurologist.

**Diagnosis**

HZ generally is diagnosed clinically by physical examination after patients complain of a burning, itching sensation in a localized region that is followed by the eruption of a rash (Dwyer & Cunningham, 2002). On visual inspection, the rash appearance and distribution usually are unilateral and vesicular on an erythematous base and confined to the thoracic region.

Patients with atypical or questionable rash patterns should receive additional testing (Cohen, Brunell, Straus, & Krause, 1999; Dwyer & Cunningham, 2002). Available options for testing include the Tzanck viral culture smear to differentiate VZV from herpes simplex virus, fluid culture for VZV DNA by polymerase chain reaction to differentiate wild type from vaccine virus, or VZV immunohistochemistry by immunoglobulin M and immunoglobulin G antibody testing to differentiate the presence of acute or previous infection.

**Treatment and Management**

The goal of treatment for HZ viral infections is to facilitate the reduction of acute pain, speed the resolution of lesion healing, and prevent possible complications of PHN or ZO. Antiviral medication shortens viral shedding, decreases the time to lesion crusting and healing of the rash, and lessens the severity of pain and time to acute pain cessation (Lin et al., 2001; Ormrod & Goa, 2000). Antiviral therapy also has been shown to aid in the avoidance of complications from PHN and ZO (Lin et al.). Patients who initiate antiviral therapy within 48 hours of the viral episode are likely to receive the most benefits from therapy (Dwyer & Cunningham, 2002). The initiation of antiviral treatment still may be beneficial when begun 48–72 hours after the rash appears, especially if new lesions are continuing to form (Gnann & Whitley, 2002; Ormrod & Goa). Oral acyclovir has been the treatment of choice for HZ viral infections. The IV route has been reserved for patients who are severely immunocompromised or unable to take oral medication (Stankus et al., 2000). Decreased bioavailability, or the amount of the drug available for absorption into the cells, is a potential problem when acyclovir is taken orally. A comparative efficacy study of acyclovir and valacyclovir (a prodrug of acyclovir) showed a slight improvement in the efficacy of valacyclovir over acyclovir for the treatment of HZ viral infections (Goh & Khoo, 1998). Valacyclovir converts to acyclovir in the system, enhancing bioavailability and requiring a less-daunting dosing regimen (see Table 1). Furthermore, valacyclovir use resulted in decreased development of PHN when compared with acyclovir. Penciclovir (a prodrug of foscarnet) is another antiviral treatment option. Some clinicians prescribe steroids along with antiviral therapies because some evidence suggests that they enhance pain management, thereby improving quality of life (Gnann & Whiteley).

Prophylactic treatment guidelines for the prevention of opportunistic infections in hematopoietic stem cell transplant (HSCT) recipients are listed in Table 2. Some incidents of acyclovir-resistant strains of HZ have emerged in practice. Although rare, acyclovir-resistant strains of HZ occur more frequently in HSCT recipients and individuals who are HIV positive. Snoeck et al. (1999) discussed current pharmacologic approaches to therapy for VZV. They reported, from their study on acyclovir-resistant strains of HZ, that foscarnet given by IV is the appropriate option for treatment. During the treatment regimen, assessment of serum creatinine, calcium, phosphorus, hemoglobin, and hematocrit is recommended.

**Patient Management and Education**

Patients with HZ should be assessed frequently throughout their illness. Nursing...
interventions required for patients with HZ include pain management, evaluation for complications, and psychosocial support. Nurses are integral to the successful treatment of HZ because they often have the most frequent contact with patients. Patient education should include reassurance that HZ usually develops only once (Cohen et al., 1999). HZ can recur; however, stimulation of the immune response is thought to prevent recurrence. Patients should be included in the pain management plan, which seeks to avoid persistent pain and the development of PHN. Patients also should be educated about wound care for the rash, which is important for preventing bacterial infections and decreasing transmission of the virus to susceptible individuals (Gnann & Whitley, 2002). Treatment for PHN, overall, is aimed at pain control while the condition has time to resolve. Patients who do not have a history of VZV or who are immunocompromised should be considered as potentially susceptible to contracting HZ (Brody & Moyer, 1997). Healthcare providers have discretion regarding whether these individuals receive VZV immune globulin immunizations. Nurses should reinforce to patients that follow-up care should occur in 7–10 days to allow for assessment of lesion stage, pain, and pain management strategies.

Frequent assessment of quality-of-life concerns is important for patients with HZ infections. Quality of life is affected by pain and the development of PHN, as well as their effects on activities of daily living (Schmader, 2002). Approved options for the treatment of residual pain post lesion-healing and for PHN are listed along with specific dosing recommendations in Table 3.

### Conclusion

The best prediction for a favorable outcome of HZ infection is its prompt recognition and diagnosis. In addition, the initiation of treatment with antiviral therapy is essential to decrease viral shedding, accelerate lesion healing, and prevent PHN. Individuals who are immunocompromised or aged 50 years or older are at increased risk for developing PHN. Recent studies indicate that treatment with antiviral therapy should be initiated within 72 hours of lesion outbreak. Although the standard of treatment for HZ has been acyclovir, studies have shown that valacyclovir or famciclovir are as effective or even slightly superior to acyclovir and offer a more convenient dosing schedule (Cohen et al., 1999). The antiviral dosing schedule regimen offered by valacyclovir and famciclovir also may contribute to improved quality of life by lessening pain associated with HZ and PHN.

### Author Contact:
Mary C. Sandy, MS, APRN-BC, OCN®, can be reached at msandy@kumc.edu, with copy to editor at CJONeditor@jsobel.com.

### Table 2. Hematopoietic Stem Cell Transplant and Opportunistic Infection Prevention Guidelines

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Indication</th>
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<tbody>
<tr>
<td>Acyclovir</td>
<td>200 mg orally three times per day or 250 mg/m² per dose by IV over one hour every 12 hours</td>
<td>Prevention of herpes simplex virus (first choice)</td>
</tr>
<tr>
<td>Valacyclovir</td>
<td>500 mg orally daily</td>
<td>Prevention of herpes simplex virus (second choice)</td>
</tr>
<tr>
<td>Varicella zoster immunoglobulin</td>
<td>625 units intramuscularly</td>
<td>Prevention of varicella zoster virus</td>
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Note. Based on information from the Centers for Disease Control and Prevention et al., 2000.

### Table 3. Herpes Zoster Pain and Postherpetic Neuralgia Treatment Options

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Medication</th>
<th>Dosage</th>
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</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Capsaicin cream</td>
<td>Thin film topicaly four times daily</td>
</tr>
<tr>
<td>Postherpetic neuralgia</td>
<td>Amitriptyline</td>
<td>25–100 mg daily</td>
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<tr>
<td></td>
<td>Gabapentin</td>
<td>600–1,800 mg divided dose daily</td>
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<tr>
<td></td>
<td>Lidocaine patch</td>
<td>5% topicaly every four to eight hours</td>
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Note. Based on information from Gnann & Whitley, 2002.

### References

Rapid Recap

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- Herpes zoster (HZ) is the reactivation of the latent varicella zoster virus.
- Individuals at risk for HZ infection are those who are in an immunocompromised state or aged 50 years or older.
- Patients with HZ infection benefit from antiviral treatment.
- The benefits of antiviral treatment include accelerated resolution of pain and the prevention of complications with postherpetic neuralgia.