INESSS
LE SAVOIR PREND FORME

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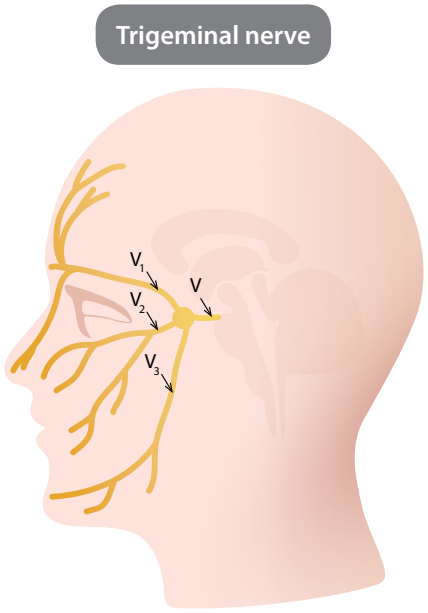
DRUG

ANTIVIRALS

HERPES ZOSTER OPHTHALMICUS

GENERAL INFORMATION

- Herpes zoster ophthalmicus (HZO), commonly known as ophthalmic shingles, is a reactivation of the chickenpox virus characterized by an acute, painful unilateral skin rash along the dermatome of the ophthalmic branch (V_1) of the fifth cranial nerve (trigeminal).
- 10 to 20% of cases of shingles are herpes zoster ophthalmicus.
- Ocular involvement, which can affect all the layers of the eye and its adnexa, occurs in 20 to 70% of cases of herpes zoster ophthalmicus.
- The presence of vesicular lesions on the side of the nose (nasociliary dermatome of V_1) is associated with ocular involvement (Hutchinson's sign).
- Shingles can occur at any age, although the incidence increases with aging.
- Shingles is uncommon in children. Ocular involvement is therefore rare, but it does not necessarily imply an immune deficiency.
- Postherpetic neuralgia is the most common complication of shingles, occurring in about 20% of patients. This figure increases with age.
- **Vaccination:** Vaccination in at-risk populations should be encouraged. Two types of vaccine are now available. To make an informed choice, consult the Québec Immunization Protocol (PIQ).



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CLINICAL PRESENTATION

- Herpes zoster ophthalmicus is usually characterized by pain and vesicles distributed over the dermatome of the ophthalmic branch of the trigeminal nerve. The clinician should check that there are no manifestations that could orient the diagnosis towards another clinical condition.
- Pain may occur a few days before the vesicles appear.
- All the structures of the eye, as well as the cranial nerves, can be affected.
- Usually, no **microbiological test** is necessary.

SYMPTOMS AND SIGNS		Photo available
BEFORE RASH	**Prodromes** (1 to 7 days)	• Nerve pain (sometimes a tingling, burning type in the territory of the ophthalmic branch of the trigeminal nerve) • Eye pain • A feeling of general malaise • Headache • Fever
ACTIVE PHASE OF HERPES ZOSTER OPHTHALMICUS	**Main symptoms and signs**	• Unilateral rash on the dermatome of the ophthalmic branch of the trigeminal nerve - Erythematous papules on which vesicles develop that subsequently progress to pustules and then crusts: - In clusters, 2 to 3 mm in size - Of different ages[1] - Usually do not cross the median line - On the upper eyelid - Complete healing takes several weeks • Nerve pain (can persist after the resolution of herpes zoster)
	WARNING SYMPTOMS AND SIGNS	• Red (conjunctival or ciliary redness) or painful eye • Photophobia • Decreased visual acuity • Diplopia or limitation, abnormal extraocular movements caused by paralysis of the 3rd, 4th or 6th cranial nerve. **If present, these symptoms suggest ocular involvement, which requires a slit lamp examination[2]**
		• Significantly impaired overall health • Disseminated cutaneous involvement on other dermatomes **If these symptoms are present, an emergency department evaluation is required**

1. Lesions of different ages refers to the simultaneous presence of lesions at different stages (papules, pustules and crusts).
2. The slit lamp examination is performed by a qualified professional, usually an optometrist or an ophthalmologist.

OTHER SKIN LESIONS TO CONSIDER	Photos available
Atopic dermatitis (acute eczema): Is characterized by often edematous erythema interspersed with very tight formations of superficial micropapules and/or microvesicles.	
Contact dermatitis: Is characterized by often pruriginous and nonpainful edema. Presence of scaling or microvesicles that can merge to form bullae. The shape of the affected area is very well defined and matches that of the point of contact.	
Herpes simplex: Is characterized by clusters of vesicles, papules and pustules a few millimetres in size on an erythematous base that are identical to those of an individual herpes zoster lesion and usually preceded by tingling instead of pain. The clustering of vesicles, papules and pustules that do not follow a dermatome and that can cross the median line, and the recurring nature favour the diagnosis.	
Impetigo: Is usually characterized by honey-coloured crusts. The bullous form is characterized by flaccid vesicles and/or bullae that quickly become purulent and rupture almost immediately, leaving a collarette around the periphery of the lesion.	
Infectious periorbital cellulitis: Is characterized by edema and erythema, the absence of vesicles and the presence of periorbital pain.	

EYE EXAMINATION

- Evaluate visual acuity, the eyelid, the conjunctiva, the extraocular movements and corneal integrity.
  - **Corneal involvement** can be checked using **fluorescein** (slit lamp, if available).
    - The epithelial pseudodendrites in herpes zoster ophthalmicus are characterized by the absence of end bulbs, unlike herpes simplex dendrites.
- The slit lamp examination of the eye should include an evaluation of the anterior chamber and is accompanied by an examination of the retina and optic nerve, when necessary.

IMPORTANT CONSIDERATIONS REGARDING CORNEAL INVOLVEMENT

- **Caution:** The non-uptake of fluorescein does not rule out corneal involvement, especially without a slit lamp.
- If in doubt, if there are **warning symptoms and signs**, a slit lamp examination is required.

SLIT LAMP EXAMINATION	
Symptoms and signs suggesting HZO	**Acceptable amount of time before patient is seen on referral by a qualified professional[1]**
In adults	
• Unilateral rash along the dermatome of the ophthalmic branch of the trigeminal nerve. • Nerve pain **WITH NO warning symptoms or signs**	1 to 3 days To assess the involvement and the severity
WITH warning symptoms and signs	As soon as possible; < 24 hrs
In immunocompromised patients	
As soon as symptoms and signs appear	< 24 hrs: discussion with **ophthalmologist**
In children	
As soon as symptoms and signs appear	To an emergency department at once and < 24 hrs: discussion with **ophthalmologist**

1. The slit lamp examination is performed by a qualified professional, usually an optometrist or an ophthalmologist.

TREATMENT PRINCIPLES

- The role of antiviral therapy is to reduce the severity, the duration and viral replication, to control inflammation and to prevent complications.

IMPORTANT CONSIDERATIONS WHEN SYMPTOMS AND SIGNS SUGGEST HZO

- Initiate antiviral therapy as soon as possible after the appearance of symptoms and signs suggesting HZO.
- **Even if a specialist consultation has been made, oral antiviral therapy should be initiated by the treating clinician.**

- Prescribing a topical corticosteroid for HZO requires a thorough eye examination with a slit lamp and a discussion with the ophthalmologist who will be doing the follow-up.
- Do not prescribe oral corticosteroids, as they do not alleviate postherpetic neuralgia.
- Suggest artificial tears or eye lubricants to ease the eye discomfort.
- The patient should be:
  - Told that warning symptoms and signs can occur after a certain amount of time and that they can indicate complications, and that he/she should therefore seek medical attention immediately if such symptoms and signs are present;
  - Advised to avoid contact of the lesions with pregnant women, infants and immunocompromised patients, since they would be at risk for contracting chickenpox;
  - Told about the possibility of pain, which can persist as postherpetic pain, and to see his/her health professional again if the pain is not relieved with over-the-counter analgesics.

TREATMENTS

ANTIVIRALS IN ADULTS		
Antiviral	**Daily Dosage**	**Duration**
Valacyclovir[1], 500 and 1 000[2] mg tablets	1 000 mg PO TID	7 days
Famciclovir[1], 125, 250 and 500 mg tablets	500 mg PO TID	
Acyclovir[1], 200, 400 and 800 mg tablets	800 mg PO 5 times per day	

1. Adjust according to renal function.
2. The 1 000 mg tablets are not covered by the public prescription drug insurance plan (RPAM).

IMPORTANT PEDIATRIC CONSIDERATIONS

- Request immediately an ophthalmology consultation for a child suspected of having HZO.
- **While awaiting the ophthalmologist's opinion, give serious consideration to administering an IV antiviral, which would be initiated immediately after a discussion with the infectious disease specialist.**
- Children should be monitored closely for complications, and their treatment may differ from the recommendations indicated below.

ANTIVIRALS IN CHILDREN			
Antiviral	**Daily Dosage**	**Maximum Dosage**	**Duration**
Intravenous			
Acyclovir IV, solution for infusion, 25 mg/ml and 50 mg/ml	10 mg/kg per dose IV TID ❗ Aim for hyperhydration	20 mg/kg per dose IV TID	Switch to an oral antiviral when there is clear and significant clinical improvement and continue the oral treatment for 14 days.
Oral			
Valacyclovir[1], compounded 50 mg/ml, 500 and 1 000 mg tablets[2]	**≥ 3 months:** 20 mg/kg per dose PO TID[3] as a magistral preparation up to10 kg or tablets according to weight:	1 000 mg PO TID	Varies according to the duration of IV treatment
	10 to 13.9 kg: 250 mg (half of a 500 mg tablet) PO TID		
	14 to 19.9 kg: 375 mg (3/4 of a 500 mg tablet) PO TID		
	20 to 27.9 kg: 500 mg (one 500 mg tablet) PO TID		
	28 to 39.9 kg: 750 mg (1½ 500 mg tablets) PO TID		
	> 40 kg: 1000 mg (two 500 mg tablets) PO TID		
Acyclovir[1], 200 mg/5 ml suspension	20 mg/kg per dose PO QID	800 mg QID	

1. Adjust according to renal function.
2. The 1 000 mg tablets are not covered by the RPAM.
3. The 500 mg tablets can be cut and then crushed according to the calculated dose, or a 50 mg/ml suspension of valacyclovir can be compounded, in particular, for infants weighing less than 10 kg.

ANTIVIRALS		
Most Common Adverse Effects	**Main Drug Interactions**	**Contraindications and Special Precautions**
Headache, dizziness, nausea, vomiting, diarrhea and abdominal pain.	**Famciclovir:** probenecid, raloxifene **Valacyclovir and acyclovir** do not have any interactions with a clinically significant impact.	**Adjust according to renal function.** Recommend to the patient that he/she maintain good hydration. Acyclovir and valacyclovir are compatible with breastfeeding. Acyclovir is the first-line treatment during pregnancy.

FOLLOW-UP

- An adult patient with HZO with no ocular involvement should be seen within 7 to 10 days (ocular involvement can occur within a week) or earlier, if need be, if there is deterioration.
- Provide adequate pain management.
- If ocular involvement is already present when the patient is first evaluated, the follow-up will be done by an ophthalmologist according to the severity of the involvement.
- The follow-up of a child or an immunocompromised patient will be done in accordance with the **ophthalmologist's** or **infectious disease specialist's** opinion.

COMPLICATIONS	
Management, as required	• Post-HZO neuralgia (> 30 days)
Monitoring patient for delayed complications	• Ocular hypertension • Cataract • Corneal inflammation or scarring • Uveitis • Decreased vision

MAIN REFERENCES

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It should be noted that other references were consulted as well.

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