

대상포진 후 신경통

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Definition

Pain that persists 1 to 3 months following
the rash of herpes zoster (HZ)

Natural History

- The pain of acute HZ usually subsides within 3 weeks.
- When the pain lasts for more than 6 to 8 weeks after the onset of rash, PHN is suspected.
- The pain following the acute HZ infection persists as chronic pain in 10% to 15% of patients.

Epidemiology (I)

The incidence of HZ ranges from 1.3 to 4.8 per 1,000 and may depend on several predisposing factors.

- Age: most important (50- to 70-year old group)
also a predisposing factor of PHN
- Cancer and immunosuppressed patients
- DM have a higher incidence of PHN.

Epidemiology (II)

- PHN is more frequent after ophthalmic herpes than after the spinal segment type.
- The prevalence of PHN shows no seasonal variation and no predilection for a particular sex or race.

Description of PHN (I)

- PHN is defined as the onset of persistent pain following an outbreak of HZ.
- pain lasting at least 120 days from rash onset
- Well-established risk factors
 - ✓ older age
 - ✓ greater severity of acute pain during zoster
 - ✓ more severe rash
 - ✓ a dermatomal pain before onset of the rash.

Description of PHN (II)

- The pain of PHN is generally described as burning and continuous in nature.
- There may be both lancinating pain and dysethesias.
- Typically, the pain characteristically spreads along a single dermatome with the dermatomal rash.

Description of PHN (III)

- The pain often remains confined to a single dermatome.
- Hyperpathia may develop later.
- Dysesthesia
- Light touch may be intolerable to these patients.
- Chronic skin changes in the form of pigmentation and scarring often remain after the vesicles have healed.

Pathology (I)

- Necrosis and scarring of neurons in the dorsal root ganglion (DRG) leads to degeneration and destruction of the emerging motor and sensory projections.
- Inflammatory processes can involve both the anterior and posterior horns of the spinal cord.
- Mononeuritis extends peripherally from the DRG
- The number of nerve endings in the skin decreases.

Pathology (II)

- Pathological changes in the DRG of patients with PHN include the presence of "ghost cells".
- Despite the descriptive pathological changes noted in PHN, the precise mechanism of pain generation remains unclear.

Management Hx.

- No definitive treatment for PHN is available.
- Before 1960
 - ✓ cobra venom
 - ✓ injections of posterior pituitary extract
 - ✓ diphtheria antitoxin
- Recently, tricyclic antidepressant drugs, anticonvulsant drugs, topical agents, opioid analgesics, and tramadol were introduced and used.

Management Goal

- Treatment goals include
 - ✓ alleviating the pain associated with PHN
 - ✓ improving quality of life
 - ✓ allowing the patients to maintain sleep, physical activity, and nutrition

Tricyclic Antidepressants

- most effective psychotropic drugs
- Amitriptyline
- begin at low doses
- Tricyclic Antidepressants (TCA) alone or combination

Gabapentin

- Efficacy in PHN with 43% of patients
- Fewer adverse effects than antidepressants
- A first-line treatment for this condition
- Gabapentin 3,600 mg/day was the target dosage.
- Further determination should be needed.
- ✓ optimal dose with combination medicine
- ✓ effects after 2 months medication

Pregabalin

- Safe and effective in relieving PHN pain and sleep interference
- Fewer side-effects and a better toxicity-to-efficacy ratio

Topical treatments

- Capsaicin
- Mixture of local anesthetics (EMLA) cream
- Lidocaine patch (5%)
- Aspirin/diethyl ether mixture

Opioids

- Methadone or long-acting oral forms of oxycodone, morphine, and hydromorphone
- Fentanyl skin patch
- Second analgesic agent when anticonvulsant drug gabapentin is incomplete
- Combination with gabapentin is effective for diabetic neuropathy and PHN.

Tramadol

- Centrally acting μ -opioid agonist and a reuptake blocker of norepinephrine and serotonin

Benzodiazepines

Vitamin therapies

Local/Regional Anesthesia

- Temporarily alleviates PHN.

Intradermal & subcutaneous injection

TENS

Ablative Procedures

- DREZ Lesioning
- Pulsed radiofrequency (PRF) for DRG

Kim, Acta Anaesthesiol Scand 2008

- ✓ excellent pain relief (about 55%) at 4 weeks after PRF lesioning adjacent to the DRG
- ✓ the effectiveness was maintained at the subsequent 12-week

Stimulation Procedures (I)

- Peripheral nerve stimulation

Kouroukli, *Pain Practice*, 2009

- ✓ Two old age patients with intractable PHN
- ✓ Successful long-term outcome (2 & 10 years)

Table 1. Baseline Patient Characteristics, Underlying Disease, and Peripheral Nerve Stimulator Specific Information of Cases of Postherpetic Neuralgia Treated with Peripheral Nerve Stimulation*

Case	Age (years)	Gender	Area Affected	Symptom Duration	Trial Duration	Follow-Up	Outcome	Concomitant Medications
Duntelman ⁹	86	Male	Left ophthalmic region	9 years	5 days	3 years	Improvement	Reduced dose
	76	Female	Left ophthalmic region	4 years	5 days	3 years	Improvement	Reduced dose
Rodrigo-Royo et al. ²⁵	80	Female	Left occipital region	10 months	9 days	6 months	Improvement	None
Yakovlev and Peterson ²⁶	81	Male	Right thoracic paraspinal region	7 months	2 weeks	6 months	Pain free	None

Stimulation Procedures (II)

- Deep brain stimulation (trigeminal PHN)

Green, *J Clin Neurosci*, 2003

- ✓ The pain was mainly in the V1 distribution
(the site of the original infection)
- ✓ VPL nucleus
- ✓ last follow up: six months with pain free status

Stimulation Procedures (III)

- Spinal cord stimulation (SCS)

Harke, Anesth Analg 2002

- ✓ 23 (82%) PHN patients (median, 70 yr) during SCS treatment confirmed by a median decrease from 9 to 1 on VAS. ($p < 0.001$)
- ✓ 4 acute HZ patients were also improved.
- ✓ SCS seems to offer a therapeutic option for pharmacological nonresponders.

Prevention of PHN

- Appropriate Tx in the acute HZ might circumvent the development of the chronic pain state.
 - ✓ Antiviral agent
 - ✓ Steroid therapy
 - ✓ Sympathetic blocks restoration of intraneural blood flow
- Central sensitization from acute HZ may leads to the development of PHN.

Conclusion

- To prevent or reduce PHN, prevention could be important.
- As there is no single best treatment for PHN, combination therapy is recommended.
- If medically intractable, surgical intervention should be considered. However, the morbidity should be kept in mind considering that most PHN patients are old.