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Post-herpetic neuralgia in zoster ophthalmic patients: A mini-review

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Abstract

An outbreak of herpes zoster (shingles) can cause chronic pain, known as Post-Herpetic Neuralgia (PHN), mainly involving the trigeminal nerve's ophthalmic branch. This review aims to provide a thorough overview of PHN in zoster ophthalmic patients, including clinical presentation, diagnosis, treatment, and preventive measures. It compiles and analyzes recent research to improve patient outcomes through evidence-based approaches.

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Introduction

Herpes Zoster (HZ), brought on by the Varicella-Zoster Virus (VZV) reactivating, is associated with considerable morbidity. This is particularly true when it affects the trigeminal nerve's ophthalmic branch, known as Herpes Zoster Ophthalmicus (HZO) [1]. One of the most common complications of HZO is Post-Herpetic Neuralgia (PHN), which is defined as persistent neuropathic pain that persists after the acute phase of HZ. PHN can result in severe pain, a lower quality of life, and a financial burden [2]. This narrative mini-review examines the complexities of PHN in patients with zoster ophthalmic disease, offering insights into its pathophysiology, clinical manifestations, diagnostic norms, and available treatment options.

Epidemiology

PHN is one of the most common consequences of HZ, especially in older adults [2]. Studies have indicated that the incidence of PHN in Patients With Zoster Ophthalmic disease (HZO) ranges from 10 to 20 percent [3,4]. The risk of PHN increases with age, with those over 50 having a significantly higher incidence. Gender also appears to be a factor, with females being more susceptible than males [3-5].

Pathophysiology

Multiple processes, including altered pain processing, viral-induced damage, and neuronal inflammation, are involved in the pathophysiology of PHN [6]. Neuronal damage results from inflammation brought on by VZV reactivation in the impacted nerves. Unusual spontaneous activity and heightened pain pathway sensitivity are the outcomes of this damage. Furthermore, persistent neuropathic pain and chronic inflammation may be caused by an ongoing presence of viral antigens [6-8].

Risk factors

The chance of getting PHN after HZO is influenced by several factors, including:

Age: An important risk factor is advanced age, as PHN is more common in older persons [6].

Severity of Acute Pain: A greater risk of PHN is associated with severe pain during the acute phase of HZ [4-6].

Rash Extent: Higher dermatomal involvement and a more extensive rash are linked to a higher incidence of pressure ulcers [3-8].

Immune Status: PHN is more common among immunocompromised people, such as those with HIV or receiving immunosuppressive medication [3-8].

Gender: Compared to male patients, female patients have a higher risk of developing PHN [3-8].

Clinical presentation

Persistent discomfort, which may remain for months or even years after the original rash has subsided, is a characteristic of PHN. Most people describe the pain as throbbing, scorching, or stabbing. In addition, patients may develop hyperalgesia (increased sensitivity to painful stimuli) and allodynia (pain from non-painful stimuli) [7].

Diagnosis

The diagnosis of PHN is primarily clinical, based on the patient's history and characteristic pain following HZ [9]. Diagnostic criteria include [5-9].

History of HZ: Previous HZ episodes affecting the trigeminal nerve's ophthalmic branch were confirmed.

Pain duration: Pain that lasts for ninety days or longer following the start of the rash.

Pain characteristics: Features of neuropathic pain include electric shock-like, burning, or stabbing feelings.

Management

Pharmacologic and non-pharmacologic therapy are used to reduce pain and enhance the quality of life to manage postherpetic neural headaches in zoster ophthalmic patients [10-12].

Pharmacologic therapies

Anticonvulsants: By modifying calcium channel activity, medications like gabapentin and pregabalin, which are first-line therapy, effectively reduce neuropathic pain [12].

Antidepressants: By altering neurotransmitter pathways, tricyclic antidepressants (like amitriptyline) and serotonin-norepinephrine reuptake inhibitors (like duloxetine) might reduce pain [10-12].

Topical agents: Capsaicin cream and lidocaine patches reduce localized pain with few adverse effects on the body [13,14].

Opioids: Despite their effectiveness, opioids are often saved for very severe pain because of their potential for addiction and unfavorable side effects [15].

Non-pharmacologic therapies

Nerve Blocks: When treatment is recalcitrant, local anesthetic injections may offer momentary pain relief [16,17].

Physical Therapy: Using physical modalities, exercises, and treatments are used to enhance function and lessen discomfort [16,17].

Psychological interventions: Other psychological techniques, such as Cognitive-Behavioral Therapy (CBT), assist in reducing the emotional effects of chronic pain [18].

Complementary therapies: For many individuals, acupuncture, Transcutaneous Electrical Nerve Stimulation (TENS), and other non-traditional therapies may provide more alleviation [19-20].

Prevention

It is essential to prevent PHN, especially in high-risk groups [21]. Among the strategies are:

Vaccination: The incidence and severity of HZ and PHN are considerably decreased by the herpes zoster vaccination. For older persons, vaccines like Shingrix and Zostavax are advised [22]. Early Antiviral Therapy: Early antiviral medication (e.g., acyclovir, valacyclovir) can lower viral load and the risk of PHN during the acute phase of HZ [21].

Pain management: To stop the development of chronic pain, aggressively treat acute HZ pain with analgesics and antiviral medication [21].

Future directions

Prospective studies on the pathogenesis of PHN and novel treatment strategies may enhance the prognosis of patients with ocular zoster. There is ongoing research on innovations in targeted medicines, personalized medicine, and vaccine development. The burden of PHN may also be lessened by placing more focus on early intervention and all-encompassing pain management techniques.

Conclusion

Because post-herpetic neuralgia is extremely painful and persistent, it poses a significant clinical problem for individuals with zoster. Comprehending the etiology, risk factors, and clinical manifestations is crucial for efficient therapy and prevention. A mix of pharmaceutical and non-pharmacologic therapy is the mainstay of current treatment techniques, and continuing research holds promise for more focused and successful interventions. The impact of PHN can be lessened, increasing the quality of life for those who are impacted, with ongoing improvements in medical research and public health initiatives.

Declarations

Competing interests: The authors declare that they have no competing interests.

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