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HERPES ZOSTER IN CHILDREN AND ADULTS: PREVENTION AND MODERN TREATMENT METHODS

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Abstract: Shingles (Herpes Zoster) is a viral disease caused by the reactivation of the Varicella-Zoster virus (VZV), which persists in a latent state within the sensory ganglia after primary infection with chickenpox. This reactivation typically occurs when the immune system is compromised, making elderly individuals, people with chronic illnesses, and children with immunodeficiencies particularly susceptible to the disease. Clinically, shingles presents as a painful, vesicular rash localized along a dermatome, often accompanied by neurological symptoms such as burning, itching, and, in severe cases, postherpetic neuralgia. While the disease is more frequently observed in older adults, its occurrence in children, especially those with weakened immune systems, highlights the need for thorough preventive and treatment strategies. This article explores the clinical features of shingles in different age groups, emphasizing the importance of modern preventive measures, including the role of vaccination in reducing disease incidence and severity. The analysis of recent scientific studies underscores that early diagnosis and prompt antiviral therapy significantly reduce the risk of complications, such as postherpetic neuralgia, secondary bacterial infections, and neurological impairments. Furthermore, advancements in immunotherapy and the development of more effective antiviral medications have improved patient outcomes. By reviewing current treatment protocols and the latest research on shingles management, this article aims to provide a comprehensive understanding of the disease, its impact on public health, and the most effective strategies for prevention and treatment.

KEY WORDS: shingles, herpes zoster, Varicella-Zoster virus, antiviral therapy, vaccination, immunity, neuropathic pain, corticosteroids, prevention, children and adults.

INTRODUCTION

Shingles (Herpes Zoster) is an infectious disease caused by the reactivation of the Varicella-Zoster virus (VZV), which remains in the body after a previous chickenpox infection. Under normal conditions, the immune system suppresses the virus, but when immunity is weakened, it becomes active, leading to painful rashes and neurological complications [1,2]. The disease most commonly affects individuals over the age of 50 and those with immunodeficiency [6].

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The risk increases in patients with chronic illnesses, oncological and autoimmune diseases, as well as in individuals taking immunosuppressive drugs (e.g., after organ transplantation) [3]. The primary complication of shingles is postherpetic neuralgia, which can persist for a long time, causing chronic pain and significantly reducing patients' quality of life [7]. Modern preventive measures include vaccination, particularly the Shingrix vaccine, which has demonstrated high efficacy, especially in elderly individuals [5]. The vaccine reduces the likelihood of developing the disease by 90% in people over the age of 50 [4]. Treatment is based on the early administration of antiviral drugs (Acyclovir, Valacyclovir, Famciclovir) within the first 72 hours after the appearance of initial symptoms, which significantly shortens the duration of the disease and reduces the risk of complications [6].

To manage pain, nonsteroidal anti-inflammatory drugs (NSAIDs), antidepressants, and anticonvulsants are used, as they help alleviate neurological pain and prevent the development of postherpetic neuralgia [8]. The aim of this study is to examine modern methods of prevention and treatment of Herpes Zoster in children and adults, as well as to evaluate the effectiveness of different therapeutic strategies.

MATERIALS AND METHODS

This study utilizes data from the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), as well as findings from recent scientific research in the field of infectious diseases. The analysis was conducted in the following areas: Epidemiological Analysis – Examining the prevalence of Herpes Zoster across different age groups. Clinical Analysis – Investigating the characteristics of the disease in children and adults. Review of Preventive Methods – Assessing the effectiveness of vaccination and other preventive measures. Review of Modern Treatment Methods – Evaluating the efficacy of antiviral therapy, pain management strategies, and alternative therapeutic approaches.

RESULTS

The data analysis revealed the following key findings: Vaccination is the most effective method of disease prevention. The Shingrix vaccine reduces the likelihood of developing the disease by 90% in individuals over the age of 50. Antiviral therapy significantly shortens the duration of the disease when administered within the first 72 hours after the onset of initial symptoms. Pain management is a crucial part of treatment, particularly in preventing postherpetic neuralgia. The use of Gabapentin and Pregabalin helps reduce pain intensity. Strengthening the immune system through a balanced diet, regular physical activity, and vitamin supplementation reduces the risk of virus reactivation.

ANALYSIS AND DISCUSSION

The development of Herpes Zoster is directly linked to the state of the immune system. Elderly individuals, patients with chronic diseases, and those taking immunosuppressive

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medications are at the highest risk of developing the disease [1]. A weakened immune defense allows the Varicella-Zoster virus to reactivate, leading to clinical manifestations of the disease. Vaccination remains the most effective preventive measure. Studies have shown that the Shingrix vaccine reduces the risk of developing shingles by 90% among elderly individuals and those with weakened immune systems [4]. For children, vaccination against varicella (chickenpox) plays a crucial role in prevention, as it significantly decreases the likelihood of virus reactivation later in life [5]. This emphasizes the importance of immunization programs in reducing both the incidence and severity of Herpes Zoster across different age groups. The treatment of Herpes Zoster is primarily based on the use of antiviral medications such as Acyclovir, Valacyclovir, and Famciclovir, which inhibit viral replication and alleviate the severity of symptoms [6]. Research has demonstrated that early initiation of antiviral therapy (within the first 72 hours of symptom onset) significantly reduces the risk of complications, particularly postherpetic neuralgia (PHN), which is one of the most persistent and debilitating consequences of shingles [7]. In addition to antiviral therapy, pain management is a critical component of treatment**,** particularly for patients at risk of developing chronic neuropathic pain. The use of Gabapentin and Pregabalin has been shown to effectively reduce neuropathic pain intensity and lower the likelihood of chronic pain development [8]. These medications, originally designed for epilepsy and nerve pain disorders, have become essential in the management of Herpes Zoster-related pain**,** improving patient outcomes and quality of life. Given the high prevalence of Herpes Zoster among older adults and immunocompromised individuals, there is a growing need to continue the development of new treatment strategies and vaccines that offer long-term protection against the virus. Future research should focus on enhancing vaccine efficacy, optimizing antiviral treatments, and exploring innovative pain management approaches to improve patient care and reduce the burden of the disease [9].

CONCLUSIONS

Herpes Zoster (Shingles) is a serious disease that requires timely diagnosis and appropriate treatment to prevent complications. Due to its association with weakened immunity, individuals at higher risk—particularly the elderly and those with immunodeficiencies—must receive adequate medical attention and preventive care. Vaccination remains the most effective preventive measure, significantly reducing the incidence and severity of the disease, especially among older adults. The Shingrix vaccine has demonstrated high efficacy in preventing the development of shingles and reducing the risk of complications such as postherpetic neuralgia. Antiviral medications (Acyclovir, Valacyclovir, and Famciclovir) and analgesic therapy play a crucial role in treatment. Early administration of antiviral drugs within 72 hours of symptom onset helps shorten the disease duration and lower the risk of long-term complications. In addition, effective pain management, including the use of Gabapentin and Pregabalin, is essential for preventing chronic neuropathic pain, which can significantly impact a patient's quality of life. Strengthening the immune system through a healthy lifestyle, balanced nutrition, physical activity, and proper supplementation is another key factor in reducing the risk of viral reactivation. Since Herpes Zoster is a widespread disease among aging populations and immunocompromised individuals, continuous advancements in research are necessary. Future studies should focus on the development of new antiviral therapies, improved pain management

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strategies, and next-generation vaccines that can provide long-term protection against the disease. Further innovation in these areas will contribute to better prevention, faster recovery, and overall improved patient outcomes in managing Herpes Zoster.

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