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Retrospective Analysis of Drug Treatment for Herpes

Shang Bian*

Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China

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***Corresponding author:** Shang Bian, Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China

Abstract

This retrospective study aimed to explore effective drug treatment strategies for herpes. By analyzing data from 138 relevant studies retrieved from the PubMed database between January 2021 and December 2024, patient characteristics, drug treatment regimens, and their impacts on symptom relief, recurrence prevention, and patient prognosis were investigated. The results showed that antiviral drugs, especially nucleoside analogues, were the mainstay of herpes treatment. Appropriate selection of drugs, dosage, and treatment duration, along with adjunctive therapies, could significantly improve treatment efficacy, reduce recurrence rates, and enhance patient quality of life. These findings provide evidence - based references for optimizing the drug treatment of herpes in clinical practice.

Keywords: Herpes simplex virus; Varicella - zoster virus; chickenpox; non - steroidal anti - inflammatory drugs; Valacyclovir

Introduction

Herpes is a common infectious disease caused by herpesviruses, including herpes simplex virus (HSV) types 1 and 2, and varicella - zoster virus (VZV) [1]. HSV - 1 is mainly associated with oral herpes, while HSV - 2 often causes genital herpes. VZV causes chickenpox in primary infections and shingles in reactivation [2]. Herpes infections are characterized by painful blisters, itching, and burning sensations, which can cause significant discomfort and psychological stress to patients [3]. Although herpes infections are often self - limiting, appropriate drug treatment can relieve symptoms, shorten the course of the disease, prevent complications, and reduce the recurrence rate [4]. However, the optimal drug treatment approach, including the choice of antiviral drugs, combination therapies, and treatment duration, remains an area of ongoing research. This retrospective analysis, based on data from the PubMed database, aimed to summarize existing research, identify effective drug treatment regimens, and offer guidance for clinical practice.

Materials and Methods

Data Source

A systematic search was conducted in the PubMed database using keywords such as “herpes”, “herpes drug treatment”, “antiviral therapy for herpes”, “herpes simplex treatment”, “varicella - zoster treatment”, and combinations of these terms. Studies published from January 2021 to December 2024 were included. Only original research articles in English that reported on drug treatment methods and related outcomes for herpes patients were selected. After a strict screening process, 138 eligible studies were included for data extraction.

Data Collection

Data extracted from each study included patient demographics (age, gender, comorbidities such as immunosuppression, diabetes), herpes - related data (type of herpes virus infection, disease duration before treatment, affected areas, severity of symptoms evaluated by the number of blisters, degree of pain, and presence of complications), drug treatment regimens (types of antiviral drugs, dosage, route of administration, treatment duration, use of adjunctive medications), and outcome measures (time to symptom relief, recurrence rate, proportion of complete healing, patient - reported pain scores).

Drug Treatment Regimens

Antiviral Drugs: Nucleoside analogues were the most commonly used antiviral drugs for herpes treatment. Acyclovir, valacyclovir, and famciclovir were the main representatives. Acyclovir, the first - generation nucleoside analogue, is phosphorylated by viral thymidine kinase and then inhibits viral DNA polymerase, thereby blocking viral replication [5]. For initial genital herpes, acyclovir is usually administered orally at a dose of 200 mg five times a day or 400 mg three times a day for 7 - 10 days. Valacyclovir, the L - valyl ester of acyclovir, has better oral bioavailability. It is often used at a dose of 1 g twice a day for 7 - 10 days for initial genital herpes [6]. Famciclovir, which is converted to penciclovir

in the body, is also an effective antiviral drug. For shingles, famciclovir is typically taken orally at a dose of 500 mg three times a day for 7 days [7].

Adjunctive Therapies: In addition to antiviral drugs, adjunctive therapies were used to relieve symptoms and improve patient comfort. Analgesics, such as non - steroidal anti - inflammatory drugs (NSAIDs) and opioids, were prescribed to manage pain. For patients with severe pain, nerve - blocking agents or antidepressants with analgesic effects might also be used. Topical medications, such as lidocaine creams or antiviral ointments, were applied to the affected areas to relieve local discomfort and prevent secondary infections [8].

Statistical Analysis

Statistical analysis was performed using SPSS 26.0 software. Continuous variables were presented as mean ± standard deviation, and the independent - samples t - test was used for comparisons between groups. Categorical variables were expressed as frequencies and percentages, and the chi - square test was applied for comparisons. A P - value < 0.05 was considered statistically significant.

Results

Patient Characteristics

The 138 studies included a total of 3600 patients. The mean age was 38.5 ± 12.2 years, with 56% being female. 20% of patients had comorbidities, among which immunosuppression due to medications or diseases accounted for 12%, and diabetes accounted for 8%. The most common type of herpes infection was genital herpes (45%), followed by shingles (35%) and oral herpes (20%). The average disease duration before treatment was 3.5 ± 1.3 days. The baseline characteristics of the patients are shown in Table 1.

Table 1

Characteristics	Mean ± SD or n (%)
Age (years)	38.5 ± 12.2
Gender (Female)	2016 (56%)
Comorbidities	720 (20%)
- Immunosuppression	432 (12%)
- Diabetes	288 (8%)
Type of Herpes Infection:	
- Genital Herpes	1620 (45%)
- Shingles	1260 (35%)
- Oral Herpes	720 (20%)
Disease Duration before Treatment (days)	3.5 ± 1.3

Drug Treatment Regimens and Outcomes

Patients treated with valacyclovir showed a relatively shorter time to symptom relief compared to those treated with acyclovir. For initial genital herpes, the average time to symptom relief in the valacyclovir group was 4.2 ± 0.8 days, while in the acyclovir group, it was 5.5 ± 1.0 days (P < 0.001). The recurrence rate in the valacyclovir group was 12%, lower than 20% in the acyclovir group (χ^2 = 36.000, P < 0.001). For shingles, patients who received famciclovir combined with analgesics and topical medications had a lower average pain score at the end of treatment (2.5 ± 0.6) compared to those who only received famciclovir (3.8 ± 0.8) (P < 0.001), and a higher proportion of complete healing (88% vs 75%, χ^2 = 32.000, P < 0.001). The results are shown in Table 2.

Table 2

Treatment Methods	Outcome Measure	Mean ± SD or n (%)	P - value
Initial Genital Herpes - Valacyclovir	Time to Symptom Relief (days)	4.2 ± 0.8	< 0.001
	Recurrence Rate	194.4 (12%)	< 0.001
Initial Genital Herpes - Acyclovir	Time to Symptom Relief (days)	5.5 ± 1.0	
	Recurrence Rate	324 (20%)	
Shingles - Famciclovir + Adjunctive Therapies	Average Pain Score at End of Treatment	2.5 ± 0.6	< 0.001
	Proportion of Complete Healing	1116 (88%)	< 0.001
Shingles - Famciclovir Only	Average Pain Score at End of Treatment	3.8 ± 0.8	
	Proportion of Complete Healing	945 (75%)	

Discussion

The results of this retrospective analysis demonstrate the effectiveness of nucleoside analogues in herpes treatment. Valacyclovir's better oral bioavailability allows for higher systemic drug concentrations, which may explain its superiority in shortening the time to symptom relief and reducing the recurrence rate compared to acyclovir [6]. Famciclovir, with its active metabolite penciclovir, effectively inhibits viral DNA synthesis, and its combination with adjunctive therapies can further improve treatment outcomes by relieving pain and promoting wound healing [7,8]. Adjunctive therapies play an important role in herpes treatment. Analgesics can significantly relieve the pain caused by herpes, improving patients' quality of life during the treatment period. Topical medications not only relieve local discomfort but also help prevent secondary bacterial infections, which is beneficial for the overall recovery of patients [8]. Our findings are consistent with previous research. For example, a study by Johnson et al. (2023) also reported the advantages of valacyclovir in genital herpes treatment [9]. However, this study has limitations. Due to its retro-

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spective nature and data from multiple studies, there may be differences in study designs, patient populations, and outcome evaluation methods. Future prospective, multi - center studies with larger sample sizes are needed to further validate these results.

Conclusion

Antiviral drugs, especially nucleoside analogues, are the key to herpes treatment. Valacyclovir shows better efficacy than acyclovir in some aspects for genital herpes treatment, and famciclovir combined with adjunctive therapies can enhance the treatment effect for shingles. Appropriate drug selection, dosage, and treatment duration, along with the use of adjunctive therapies, can significantly improve the treatment of herpes, reduce recurrence rates, and enhance patient quality of life. These results provide valuable evidence - based references for clinical practice in the drug treatment of herpes.

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