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ТИББИЁТДА ЯНГИ КУН НОВЫЙ ДЕНЬ В МЕДИЦИНЕ NEW DAY IN MEDICINE

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www.bsmi.uz

<https://newdaymedicine.com> E:

ndmuz@mail.ru

Тел: +99890 8061882

INTERACTION BETWEEN HIV AND HERPETIC INFECTIONS: CLINICAL AND IMMUNOLOGICAL PERSPECTIVES

Gubaydulina Gulmira Rifkatovna E-mail: gulmira.gubaydulina@bsmi.uz

Bukhara State Medical Institute named after Abu Ali ibn Sina, Uzbekistan, Bukhara, st. A. Navoi. 1
Tel: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ **Resume**

Herpetic infections, particularly those caused by Herpes Simplex Virus type 1 and 2 (HSV-1, HSV-2), are common among individuals with Human Immunodeficiency Virus (HIV). Co-infection can significantly impact disease progression, clinical management, and patient outcomes. This article explores the pathophysiological interactions between HIV and herpetic viruses, highlights clinical implications, and discusses therapeutic approaches to managing co-infected patients.

Keywords: HIV (Human Immunodeficiency Virus), Herpes Simplex Virus (HSV), Co-infection, Immunosuppression, HSV-2, Antiretroviral Therapy (ART), Acyclovir, Genital herpes

Relevance

Human Immunodeficiency Virus (HIV) remains a major global health challenge, affecting over 38 million people worldwide [1]. Due to its progressive weakening of the immune system, individuals living with HIV are particularly vulnerable to a wide range of opportunistic infections [2]. Among the most common and clinically significant of these are infections caused by Herpes Simplex Virus (HSV), especially HSV type 2 (HSV-2) [3].

Herpetic infections not only occur more frequently in people with HIV, but they also tend to be more severe, recurrent, and resistant to treatment. Furthermore, HSV-2 has been identified as a key co-factor in both the acquisition and transmission of HIV, as the mucosal lesions caused by herpes facilitate viral entry and replication. The presence of HSV also triggers immune activation and inflammation, which can enhance HIV replication and contribute to faster disease progression [4-6].

Understanding the interplay between HIV and HSV is critical for improving the management of co-infected patients [7-9]. This article explores the epidemiology, immunopathogenesis, clinical manifestations, and therapeutic strategies related to HIV and herpetic co-infection, with a focus on how each virus influences the course of the other [10].

The aim of this study is to investigate the clinical and immunological relationship between Human Immunodeficiency Virus (HIV) and Herpes Simplex Virus (HSV) infections, particularly focusing on the impact of HSV-2 in HIV-positive individuals. The study seeks to explore how herpetic co-infections influence HIV progression, increase susceptibility to HIV transmission, and complicate clinical management. Additionally, this research aims to evaluate current treatment strategies and highlight the importance of integrated therapeutic approaches for patients with HIV-HSV co-infection.

Materials and Methods

In this study, a descriptive literature review method was used to analyze the relationship between HIV and herpetic infections, particularly HSV-2. The selection of literature was based on relevance to the topic, with preference given to studies focusing on co-infection, immune response, and treatment outcomes in HIV-positive individuals. Only peer-reviewed articles written in English and involving human subjects were included, while studies based solely on animal models or isolated case reports were excluded. The gathered data were then analyzed to identify common clinical patterns, effects of antiviral and antiretroviral therapies, and the overall impact of HSV co-infection on HIV progression.

Result and discussions

The analysis of the reviewed literature showed that individuals living with HIV have a significantly higher prevalence of Herpes Simplex Virus infections, especially HSV-2, compared to the general population. Studies consistently reported that HSV-2 co-infection not only increases the risk of acquiring HIV but also accelerates HIV disease progression due to increased immune activation and viral replication. It was observed that recurrent HSV outbreaks are more frequent and severe in HIV-positive patients, often presenting with

atypical symptoms and prolonged healing. Additionally, the use of suppressive antiviral therapy, such as acyclovir and valacyclovir, was found to reduce the frequency of HSV reactivation and, in some cases, slightly decrease HIV viral load. Antiretroviral therapy (ART) also played a key role in improving immune response and reducing HSV-related complications. Overall, the results highlight a strong bidirectional relationship between HIV and HSV, where each virus facilitates the persistence and activity of the other, complicating clinical management and patient outcomes.

Discussion: The findings of this study confirm that the co-infection of HIV and Herpes Simplex Virus, particularly HSV-2, creates a complex interaction that worsens the clinical outcomes of both infections. The increased prevalence and severity of HSV infections in HIV-positive individuals are largely due to the compromised immune system caused by HIV. This immunosuppression facilitates frequent reactivation of HSV, leading to chronic and atypical lesions that are more difficult to treat. Moreover, HSV-induced mucosal ulcerations provide an entry point for HIV, increasing the risk of transmission and accelerating HIV replication. The bidirectional nature of this relationship means that controlling one infection can positively influence the course of the other. Suppressive antiviral therapy has been shown to reduce HSV outbreaks and may contribute to lowering HIV viral load, but it is not sufficient without effective antiretroviral therapy. The role of ART is crucial as it restores immune function, helping to reduce both HIV progression and HSV reactivation. These findings emphasize the need for integrated treatment strategies that address both infections simultaneously. Future research should focus on improving therapeutic options and developing vaccines to prevent HSV infection, which could potentially reduce HIV transmission rates.

Conclusion

In conclusion, HIV and Herpes Simplex Virus co-infection poses significant challenges due to their synergistic effects on the immune system and disease progression. HSV infections are more frequent and severe in HIV-positive individuals, which complicates treatment and increases the risk of HIV transmission. Effective management requires a combination of suppressive antiviral therapy and consistent antiretroviral treatment to control both infections. Continued research and integrated clinical approaches are essential to improve patient outcomes and reduce the global burden of these co-infections.

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