

Herpes Virus, Causes of Infections and Preventive Methods

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Abstract

Herpes simplex virus (HSV) usually has two groups, including HSV1 and HSV2. HSV1 often causes skin and mucous membranes in the upper part of the body like the nose and mouth. HSV2 group causes skin disease in the genital mucosa. This type of virus is quite common in our life today, has a great influence on human health and needs certain attention. The paper was based on previous research as well as conducted with the collected data from surveys of 40 patients infected with herpes simplex virus among 250 people who were asked at two dermatology hospitals in southern Vietnam between March and April 2019. Thanks to the analysis method developed by Hancock, this research aims to verify some causes of infecting herpes simplex viruses, effective treatment methods as well as ways to prevent this kind of disease in order to enhance common knowledge for the prosperity of human beings. Accordingly, some solutions have been recommended with the purpose of making our world a better place to live.

Keywords: *Health, Herpes Viruses, Infections, Prevention.*

Introduction

The proceedings are the records of the conference. ACM hopes to give these conference by-products a single, high-quality appearance. Herpes virus is thought to be a very wise and stubborn. Once they reside in the body, they will never leave the host. During the initial exposure, herpes virus quickly invades neurons in place and occupies there. They may not work immediately but are always ready to start at any time. Researchers always believe that there will be a way to completely remove them from the body. The CRISPR / Cas9 gene modification technology is being used to target specific DNA sections of herpes virus, applying techniques to eliminate the ability of the virus to cross-copy with the goal of completely removing the virus from the body. Researchers are working on animal models to be able to apply this technology to practice in the most effective ways¹.

Content

Definition of herpes virus and its types

Herpes simplex virus includes types 1 and 2 which can infect both skin and nerves of human beings. These viruses are rather common and infect both children and adults. In fact, herpes simplex virus consists of more

than 80 types that are found in not only humans but also animals ranging from domestic ones such as cats, dogs or birds to other bigger ones such as monkeys, cows or horses^{7,9}.

Of the 80 types, types 1 and 2 are the most concerned ones due to their harms. After infecting the immune system of the patient, they will intrude neurons of the dorsal root ganglia and stay there as their lifelong location⁹. Herpes simplex virus type 1 is often the cause of sores around the mouth and lips (sometimes called vesicles or cold sores). Moreover, HSV-1 can cause genital herpes although most cases of genital herpes are caused by type 2 herpes. People infected with HSV-2 may have ulcers around the genitals or rectum. For the diseases and symptoms induced by HSV-2, sores may be present in other locations but are often detected under the waist⁵.

The signs and symptoms of herpes disease

Oral herpes is often asymptomatic, and most people infected with HSV-1 do not know they are sick. Symptoms of oral herpes include sore or blisters appearing in or around the mouth. Sores on the lips are often called cold sores. Infected people often have tingling, itching or burning sensations around the mouth before the appearance of sores. After infecting, blisters

or ulcers can recur at a different time of the year. The frequency of relapse in each person is very different [Fig 1].



Fig 1. The image of herpes

Genital herpes usually has no signs, light symptoms or unnoticeable symptoms. Most patients do not know they have an infection. Normally, about 10-20% of people with HSV-2 have previously had genital herpes.

When symptoms appear, people with genital herpes will definitely have a lot of genital, anal or ulcerative ulcers. In addition to ulcers, symptoms of new genital herpes infection usually include fever, body aches and swollen lymph nodes [Fig 2].



Fig 2. The image of swollen lymph nodes

Humans are commonly infected with chronically genital herpes through sexual transmission and there is no cure for it⁹. Most of the patients hardly ever know that they suffer from genital herpes. The viruses can also be passed from parents to their children during birth. Moreover, if there is no appropriate treatment, most infants may not be alive or at least they will suffer from brain damaging.

The cause to the illness

Herpes simplex virus is a direct, infectious virus. Children will often be infected with HSV-1 when they are exposed to an infected adult and will always become infected if they are left untreated. Adults can also be infected with HSV-1 via sharing eating utensils or kissing lips. The virus will spread very fast when a person is infected with it. In addition, there will be genital herpes caused by HSV-1 if there is a cold sore and sexual activity during that time. We should also note that HSV-2 is likely to infect the reproductive organs, so we need to be careful to avoid the infection^{4, 6}.

Risks of getting herpes

According to WHO, an estimated 3.7 billion people under 50 years old (67%) are infected with HSV1 and about 417 million people aged 15-49 (11%) are infected with HSV2. People will be at high risk of having unprotected measures such as condoms. In addition, a number of other factors increase the risk of disease HVS-2, for instance, contacting with many sexual partners, especially for female; having a sexually transmitted infection (STI) and the weak immune system.

Modern treatments and traditional therapies

Although there is no absolute cure for herpes, some treatments can relieve its symptoms. Drugs can reduce pain, shorten the healing time and reduce the number of subsequent outbreaks. Doctors can use some medicines like Famvir®, Zovirax® and Valtrex® to relieve the symptoms⁸.

However, using purple echinacea daisies to treat herpes is also a rather effective way. Purple chrysanthemum tea is believed to help boost the immune system since it supports the body’s natural immune response while fighting the viruses

We can also take supplements up to 4 times a day with 300mg each to boost our immune system. Children are not allowed to use purple daisies without consulting a doctor. People with autoimmune disease, diabetes, tuberculosis, connective tissue disorders, multiple sclerosis, liver dysfunction, HIV or AIDS should not use purple daisies. Besides, people who are allergic to chrysanthemum may also be allergic to purple daisies because their its side effects⁷.

Using lemon balm or aloe vera is considered to be another choice. Studies assume that these plants help reduce redness and inflammation in herpes and decrease the risk of re-infection as well. Lemon balm and aloe vera is available in most nutritional and herbal stores as a form of a supplement, topical cream, tincture and herbal tea^{2, 4}.

Methodology

Thanks to the framework compiled from previous studies. The study was conducted under surveys of interviews with 40 patients who have been suffered from herpes simplex virus at two big hospitals in Vietnam, the HCMC Hospitals of Dermato Venereology and Can Tho Hospital of Dermato Venereology in Vietnam. Only patients who have diagnosed to be infected with typical symptoms were asked to join our interviews. After aspects of the problem under information had been collected, an analysis method developed by Hancock was applied to analyse the statistics.

RESULTS AND RECOMMENDATIONS

In 250 patients at the hospitals who were asked, various types of dermatological diseases were recognised. They are illustrated in Figure 3.

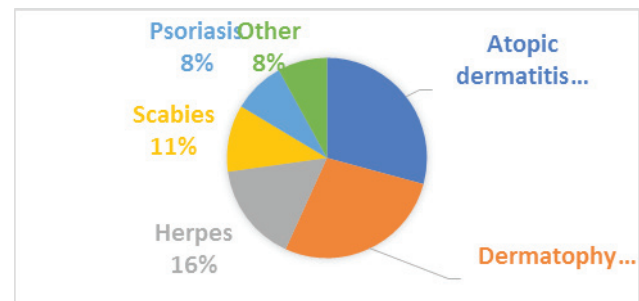


Fig 3. The frequency of dermatophytosis diseases between March and April 2019.

According to the graph, atopic dermatitis and dermatophytosis are the most two common

dermatological diseases, occupying 29 percent and 28 percent respectively. Meanwhile, 16 percent of patients were infected with herpes virus. The least common were Scabies (11 percent) and Psoriasis (8 percent). The other diseases such as tinea capitis, hives larticaria, juvenile plantar dermatosis, etc. shared 8 percent.

Causes of herpes virus infection found out from the 40 interviews are not surprising. To limit the progression of herpes, our living habits should be carefully concerned. First, avoiding direct contact with people who are sick is important. Besides, we must not share any items that may transmit viruses around such as glasses, towels, jewelry, clothing, makeup, lipsticks and personal belongings. However, most people recognize that avoiding any kinds of sexual activity with an infected person is a vital thing to prevent infection. If the person has no signs and symptoms but was previously diagnosed with the virus, they should use a condom when having sex. A lot of patients said they had seen the similar signs of herpes on their sexual partners before they recognised them on their body parts. However, eye touching is another thing they should take into consideration as they do not realize the harmful effects of this action whether they will be infected or not [Fig 4]. In order to avoid being infected with the virus, each reason for herpes infection should be strictly kept away.

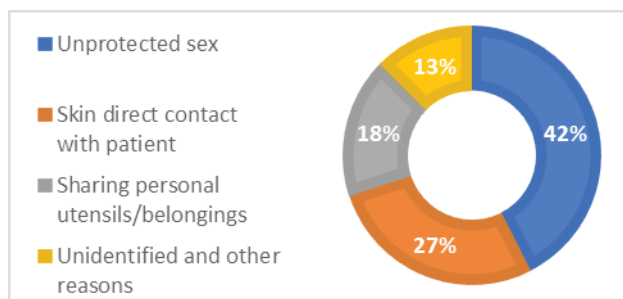


Fig 4. Reasons for genital herpes infection.

The pie chart shows the means of infection with herpes simplex virus. Having unsecure sexual activities was the most popular one, at 42 percent, followed by skin direct contact with infected people (27 percent) and sharing personal utensils between the healthy people and the patients (18 percent). 13 percent of people were infected with other reasons and some had no idea why they were infected because not only did they have unprotected sexual activities but they also lived and used the same utensils with the patients.

Some people have bad habits such as using saliva to wet contact lenses. They are not careful when applying makeup and removing makeup. Meanwhile, other people believe that they use cream or makeup powder can help cover herpes or sores or they will be prone to bacterial infections in the surrounding environment. In fact, the sores will no longer cause infection once they have healed completely and the affected skin has returned to normal.

A breakthrough in modern medicine about future treatments for herpes

Acyclovir was developed and used in 1982. It has been shown to be effective and inhibit viral growth. Next, nucleoside antiviral and its derivatives are the first drugs that can fight this disease⁸.

It is reported that the drug is only effective in reducing symptoms, there is no inhibitory effect on viral replication because the drug is not strong enough. Using this drug for a long time only reduces the transmission by about 50% and it is not effective for severe herpes infections, high risk of death such as encephalitis, neonatal herpes infection. In fact, most patients were advised to use acyclovir to treat their disease [Fig 5].

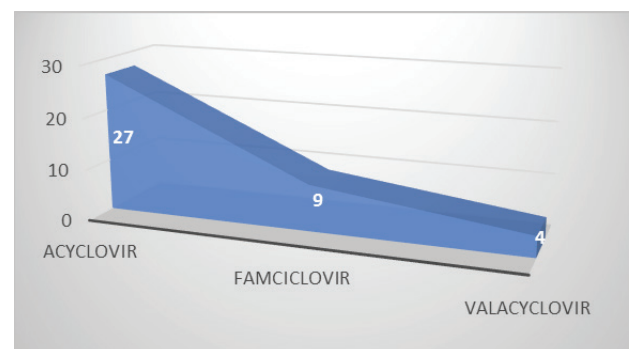


Fig 5. The frequency of suggested three different types of medicine in prescriptions.

Therefore, a new generation called the helicasse inhibitor group was born that has helped contribute to the improvement of herpes treatment. The first experiment of the helicase inhibitor group, pritelivir with a daily dose of 75 mg, showed that the decrease in viral transmission in the drug group was only 2.1% compared to 16.6% of the placebo group.

Vaccines to treat Herpes

Most of the body’s immune systems are able to

fight the herpes virus and make it exist in a hidden state, which is not dangerous to the body. Therefore, the researchers based on that to develop a kind of genital herpes treatment vaccine called GEN-003. This vaccine reduced the ability to spread across the skin by about 50% for at least 12 months. This result is equivalent to taking nucleoside daily. Patients do not need to take medicine daily, but only use three divided doses for each 21 days apart, which is effective in preventing and is suitable for those who have difficulty in taking drugs. In fact, the vaccine is planned to be submitted to the US Food and Drug Administration and is expected to be available by 2020³.

Using 10 natural methods for treating herpes ulcers

Chinese have used traditional ways to treat herpes virus. Such methods with their positive effects are not groundless. If we are patient and apply herbs or other trivial things, the effect will be sometimes relatively good. More significantly, it is convenient in case we have no time to go to the hospital, have no good conditions, or are psychologically afraid to see a doctor^{4, 10}.

Among the traditional methods, ice is approachable. Cold sores often have a little pain and swelling. Patients just need to rub ice directly onto the pain. This simple measure will temporarily reduce the discomfort by the disease.

The next method is milk since it may be resistant to cold virus-like viruses. In addition, milk containing lysine which can fight ulcers. Milk should be drunk in order to fortify the body.

Aloe vera also has its great impact on treating herpes ulcers. Cold ulcers can be very painful and the aloe vera's gentle anti-inflammatory effect is good for relieving pain while direct gels do not produce much results⁷.

Peppermint oil is considered as a smart choice if we want to kill the virus causing herpes. Patients should try using some peppermint oil every day, applying it directly to the wound and the oil will help heal the disease faster⁴.

Corn flour is normally seen as a food but grafting cornstarch can neutralize the acidity of the ulcer, making the virus unable to thrive.

Then, melissa officinalis, known as lemon balm, is often used for food or juice in some Asian countries. In fact, it can promote rapid healing of ulcers, make the wound tighten and this process becomes more quickly [Fig.6].



Fig 6. The image of melissa officinalis

Glycyrrhiza uralens (Chinese liquorice) can be used to make dough or made into a paste. By applying it on the ulcers, the patient can soothe ulcers, fight inflammation, reduce swelling as well as redness.

Honey works very well with cold sores due to its powerful anti-inflammatory effect. We only need to use a cotton cloth to apply honey to acne and wash it after 30 minutes.

Finally, a peeled garlic clove can be one of the good methods. It can be applied onto the location of the acne and hold for 10 minutes. After that, the patient has to rinse the location with warm water. It requires the patient to conduct it once every two hours for several days.

Conclusion

All patients diagnosed with herpes virus should receive medication as soon as possible and get advice on the risk of relapse as well as how to reduce recurrence. The purpose of antiviral therapies including Western medicine and Oriental remedies is to reduce symptoms by the disease. However, to determine exactly whether or not we are sick with the herpes virus, we should seek medical advice for specific treatments and prevention of sequelae.

Limitations of the Research

Research scope is among limitations in the current

study and we hope that the future research should expand the number of respondents as well as diversify research questions in order to find out different aspects of better medications.

Ethical Clearance: I am ensuring the quality and integrity of our research. The ideas and opinions expressed in this paper are our effort. By writing this paper, we surely respect the confidentiality and anonymity of our research respondents since they participated in our study voluntarily.

Conflicts of Interest: No conflicts of interest noted in the paper.

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