

Outcome of shared decision-making in a patient with primary herpes gingivostomatitis during pregnancy: a case report

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Summary

Purpose: The authors present the case of a woman in the 20th week of pregnancy with herpes simplex virus (HSV)-related gingivostomatitis. They also provide information regarding the benefits and risks of acyclovir, valacyclovir, famciclovir, and shared decision-making (SDM) through which valacyclovir was selected. **Case Report:** A 26-year-old primigravida woman who denied having a history of systemic diseases presented with fever, general malaise, and abdominal pain at 20 weeks of gestation. As no strong evidence supports any current treatment for primary maternal HSV-1 gingivostomatitis during pregnancy, the authors used three key steps of SDM, namely choice talk, option talk, and decision talk, to help the patient make a decision based on the benefits and ill-effects of treatment with acyclovir, valacyclovir, and famciclovir. Valacyclovir was administered for one week. Her general condition improved gradually, and the symptoms abated without recurrence of fever. **Conclusions:** Thus, SDM-based treatment was effective in this patient.

Key words: Antiviral therapy; Herpes gingivostomatitis; Shared decision-making; Pregnancy.

Introduction

Herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2) are DNA viruses that are contagious in the latent state across the epithelial mucosal cells and migrate to nerve tissues through skin interruptions [1]. Herpetic gingivostomatitis is caused by primary HSV-1 infection. Ulceration on the gingiva and oral mucous membranes are characteristic features of the disease. In addition, its nonspecific symptoms include fever (> 38 °C), anorexia, irritability, malaise, sleeplessness, and headache [2].

Herpetic gingivostomatitis, usually transmitted by direct contact, is often observed in childhood. However, it can also present in immunocompromised patients, such as in pregnant women. Thus, intrauterine HSV infection is possible and must be prevented.

Shared decision-making (SDM) is a new concept that has gained attention recently, particularly regarding autonomy of the patients' decision. SDM ensures that patients are supported and provided with all relevant information to make suitable decisions [3].

Case Report

The patient was a 26-year-old primigravida woman who denied having a history of systemic diseases. She had fever, general malaise, and abdominal pain at 20 weeks of gestation. She visited the emergency department on September

13, 2017, and the complete blood count revealed no significant abnormalities. The result of the rapid influenza diagnostic test was negative. An antipyretic agent was prescribed when she was discharged. However, the fever was waxing and waning in the following days, and her body temperature increased to 39 °C. Consequently, she visited the emergency department again. Laboratory data showed elevation of serum C-reactive protein (CRP) level. As influenza virus infection or other infectious diseases could not be ruled out, she was admitted for further evaluation and management.

Influenza-like illness and tonsillitis were suspected at first because she complained of fever and general malaise; however, the laboratory data only demonstrated mild elevation of serum CRP levels. Conservative treatment comprising fluid supplement and symptomatic relief was administered. The authors also prescribed oseltamivir 75 mg orally twice a day and cefazolin 1,000 mg intravenously every eight hours, but these treatments did not improve her symptoms. She had recurrent bouts of fever every night. In addition, oral aphthous formation (Figures 1A and 1B) and neck lymphadenopathy were found after admission.

The patient was a nurse at the present internal medicine ward; hence, the less common causes of infection were considered. Noninfectious inflammatory diseases, such as autoimmune disorders seen during pregnancy were also considered. The authors consulted an infectious disease

Table 1. — Treatment options in shared decision-making for herpes simplex virus type-1 gingivostomatitis during pregnancy.

| Treatment | FDA Pregnancy Category | Intravenous administration | Suggested dosage | Cost | Existing literature |
|-----------------|------------------------|----------------------------|---------------------------|------------|--|
| Acyclovir | B | Support | 200 mg 5 times a day | Affordable | Several large observational studies have shown its safety during pregnancy |
| Valacyclovir | B | No support | 500 mg orally twice daily | High | Lack of controlled studies documenting safety |
| Famciclovir | B | No support | 2 g twice daily for 1 day | High | Lack of controlled studies documenting safety |
| Supportive care | | | | Free | Suspected to be related to abortion or stillbirth |

specialist and rheumatologist for further evaluation of the patient's present illness, and conducted several laboratory tests, including the virus antibody test, polymerase chain reaction assays for viruses, rheumatology test, hematology test, antiphospholipid syndrome profile, disseminated intravascular coagulation profile, thyroid function test, and sepsis markers. Abdominal ultrasonography was arranged for examination of the gastrointestinal and genitourinary systems, and echocardiography was arranged for evaluation of the heart function and to rule out infective endocarditis. The authors also consulted an otolaryngologist and a stomatologist for examination of the oral aphthae.

The HSV antibody test result demonstrated equivocal IgM and negative IgG, which is indicative of a recent HSV infection. The results of the other examinations were unremarkable. HSV-related gingivostomatitis was the most likely diagnosis, and the patient showed clinical features compatible with it. However, the patient was worried about the side effects of pharmacotherapy during pregnancy. Thus, the authors searched UpToDate, DynaMed, Medscape, PubMed, Cochrane Central Register of Controlled Trials, and the website for registration of controlled trials for treatments with evidence-based medicine. They used SDM, a patient-centered medical treatment method, and provided her with information about acyclovir, valacyclovir, famciclovir, and supportive care (Table 1). The Food and Drug Administration indicated three category B agents, although the drugs had some of the most common side effects, such as nausea, vomiting, and diarrhea, and severe ones, such as neutropenia [4].

In accordance with her preference, the patient received valacyclovir for herpes gingivostomatitis. During the one-week treatment, her general condition improved gradually. The symptoms abated without recurrence of fever. She was discharged from the hospital in a relatively stable condition and underwent outpatient follow-up.

At 39 5/7 weeks of pregnancy, by normal spontaneous delivery, the patient gave birth to a male infant weighing 3,420 grams with Apgar scores of 8 and 9 at one and five minutes post-delivery, respectively. The mother and baby had no nosocomial infections or other complications. The patient's jaw and tongue showed smooth and normal color

on physical examination (Figures 1C and 1D).

Discussion

HSV is considered a cause of neonatal infection, which is often acquired in the birth canal during delivery and can lead to fetal death or adverse fetal effects [5]. Although rarely transmitted across the placenta, abortion or stillbirth caused by intrauterine HSV infection has been reported. [6, 7].

In spite of the lack of strong evidence to support the beneficial effect of antiviral therapy for the infant with primary maternal HSV-1 gingivostomatitis during pregnancy, antiviral therapy is still recommended [6]. As no strong evidence supports any current treatment for primary maternal HSV-1 gingivostomatitis during pregnancy, SDM was developed as a good tool to share information about the benefits and ill-effects of treatment between the physicians and patients. In this case, the authors used three key steps, namely choice talk, option talk, and decision talk, to help the patient make a decision [3].

Acyclovir is a nucleoside analog viral DNA polymerase that acts as a deoxyguanosine triphosphate, which inhibits the replication of varicella-zoster virus, HSV-1, and HSV-2 [8]. Incorporation of acyclovir triphosphate into DNA results in chain termination. Valacyclovir is a prodrug of acyclovir. Famciclovir, which is converted by the antiviral drug penciclovir, is similar to acyclovir and has lower affinity for viral DNA polymerase but longer intracellular half-life [9]. According to a recent Danish population-based retrospective cohort study (1996-2008), these two antiviral drugs, acyclovir and valacyclovir, have no significant differences [10]. However, the patient chose to undergo treatment with valacyclovir based on SDM and improvement in her symptoms was noted.

Altogether, in this report, the authors present a case where antiviral therapy was beneficial to a patient with primary HSV-1 gingivostomatitis during pregnancy. Moreover, the report demonstrates the use of SDM for choosing suitable medication in a pregnant patient with herpes gingivostomatitis.



Figure 1. — (A) Extraoral: angular cheilitis, blister located on the lip and commissure. (B) Intraoral: erythematous change in the gingivae and entire mouth and white plaque on her tongue, bilateral buccal mucosa, and hard palate. (C) and (D) Post-treatment: smooth and normal color of the palate and tongue.

Ethics Approval and Consent to Participate

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Institutional Review Boards (approval number: 35690).

Acknowledgments

This work was supported by the Ministry of Science and Technology, Taiwan, ROC (MOST 106-2314-B-016-004, MOST 107-2314-B-016-065-MY2), Tri-Service General Hospital (TSGH-C106-081, TSGH-C107-082, TSGH-C108-116), Tri-Service General Hospital, Penghu Branch (TSGH-PH-105-4).

Conflict of Interest

The authors declare no conflict of interest.

Submitted: June 20, 2019

Accepted: September 24, 2019

Published: August 15, 2020

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