

Clinical and Immunological Aspects of Treatment of Acute Herpetic Stomatitis with Plaferon-Containing Adhesive Films

Nato Korsantia, Alexander Katsitadze,** Vladimir
Bakhtashvili,* Nino Korsantia****

* Institute of Medical Biotechnology of the Georgian Academy of Sciences;

** Department of Dermatology and Venereology, Tbilisi State Medical University, Georgia;

*** Department of Pediatric Stomatology, Tbilisi State Medical University, Georgia

Abstract

The plaferon-containing adhesive films were attached to mucous lesion of patients with acute herpetic stomatitis (plaferon - preparation received from human placenta, which possesses immunomodulating, antihypoxic and desintoxicative effects). Analysis revealed the improvement of clinical indices on 3-5 days earlier than in control group of patients. It is very important, that films do not evoke local irritate and allergic influence on hard tissues of tooth, periodontal and mucous membrane of oral cavity. Initial quantity of lyzocyme and SIgA in saliva was decreased and was depended on severe and form of pathology. After plaferontherapy rapidly activation of these parameters occurred and the normalization was achieved on 7-10 days of treatment. We consider the expedient of wide using of plaferon-containing adhesive films in dermatology because of a great therapeutic and local immunomodulating effect and prolonged action.

Keywords: *plaferon, adhesive films, herpetic stomatitis, immune homeostase*

Acute herpetic stomatitis is a contagious viral infection, caused by herpes simplex virus type-1 and is seen more often in young children. This condition probably represents their first exposure to herpes virus and can result in a systemic illness. Sore throat and fever may precede the onset of painful vesicles occurring anywhere in the oral cavity. The vesicles rapidly coalesce and erode with a white, then yellow, superficial, purulent exudate. Pain interferes with eating, and tender cervical lymphadenopathy develops. Fever subsides in 3 to 5 days and oral pain and erosions are usually gone in 2 weeks; in severe cases, they may last for 3 weeks. Like most virus infections, the severity of disease increases with age. The virus may be spread from respiratory droplets, direct contact with an active lesion, or virus-containing fluid such as saliva in patients with no evidence of active disease. Herpetic stomatitis is normally diagnosed based on its very

typical appearance. The viral culture, antigen and antibody detection tests are commonly done to confirm a herpes infection [1,8].

A number of treatment modalities have been for herpes on the vermilion border. There is as yet no oral or topical medication that will prevent the recurrent disease. Measures can be taken to delay recurrence and promote rapid healing.

The main purpose of our investigation was to evaluate a potential protective effect of plaferon-LB. In Georgia and other countries for treatment of different diseases plaferon is used with a great success. Plaferon is received from an amniotic membrane of human placenta. Preparation contains some physiologically active substances (interferon, endorphins, enkephalins, cytokines), causing different pharmacological effects:

antiviral, antihypoxic, immunomodulating, desintoxicative [2]. Plaferon is applied as an injection, an ointment and as lingual drops.

Our attention was attracted by the soluble biopolymer drug-films, which are used as an application for a local treatment of herpetic keratitis, aphthosis stomatitis, trophic ulcer [5,6,7]. This method improved the quality and reduced the period of treatment. We prepared such film, containing plaferon and examined effectiveness of this medicinal form during the treatment of patients with herpetic stomatitis and genital herpes.

40 patients with herpetic stomatitis (20 - traditional therapy group; 20 - plaferon group) and 20 - healthy volunteers were under our investigation. Plaferontherapy was conducted simultaneously with standard antiherpetic treatment, without use of other anti-inflammatory preparations. The films were attached to mucous of gingival lesion (twice a day, during five days). The medicinal film easily sticks to the mucous surface and slowly dissolves during 50-60 minutes (controlled release). After the contact with water solution (mucous membrane or saliva) polymer carrier ensures more even and prolonged secretion of plaferon, i.e. depot effect occurs, besides directly in pathological focus. This medicinal form maximally allows avoiding the loss of active substance, which usually occurs when introducing by parenteral or oral route [3,4].

First of all we studied harmless of preparation (absence of local irritative and allergic influence), immunocorrective and therapeutic action of drug.

Depression of immune homeostasis parameters, with correlation to hardness of process, was observed in all of patients (*Tab.1*).

Analysis revealed the improvement of clinical indices on 3-5 days earlier than in control group of patients. It is very important, that films do not evoke local irritate and allergic influence on hard tissues of tooth, periodontal and mucous membrane of oral cavity.

Also the influence of plaferon-films on local immunity in saliva (lyzocyme and SIgA) was studied. Initial quantity of these parameters was decreased and was depended on severe and form of pathology. After plaferontherapy rapidly activation of lyzocyme and more intensive secretion of SIgA occurred and the normalization was achieved on 7-10 days of treatment (Immunogram).

We suppose that improvement of treatment results of herpetic stomatitis (when using the plaferon-containing medicinal films) is realized by well-known effects of plaferon: activation of local and systemic factors of immunity (interferon, IL-2, phagocytosis, lyzocyme, macrophage reaction, etc), antihypoxic and desintoxicative action. Immunosuppression, hypoxia and intoxication are present during herpetic stomatitis. Significant increase of remedy concentration in focus of herpetic lesion indicates on preference of drug-films to other medicinal forms (injection, ointments, drops).

Thus, we consider the expedient of wide using of plaferon-containing adhesive films in dermatology because of a great therapeutic and local immunomodulating effect and prolonged action, on simultaneous decrease (2-4 fold) of expenditure of remedy.

<i>T</i>	<i>T-a</i>	<i>T-h</i>	<i>T-s</i>	<i>Ii</i>	<i>B</i>	<i>IgG</i>	<i>IgA</i>	<i>SIgA</i>	<i>IgM</i>	<i>PhN</i>	<i>PhI</i>	<i>PhC</i>	<i>αIF</i>	<i>γIF</i>	<i>Lyz</i>
48.3	21.6	29.1	19.2	1.51	22.8	10.3	1.41	0.11	0.91	61.6	3.4	46.2	24.2	13.2	31.6
50.9	25.7	34.4	16.5	2.08	25.6	11.0	1.69	0.31	1.18	74.7	5.8	68.3	39.2	26.7	40.9
51.4	29.5	36.1	15.3	2.36	26.3	11.2	1.73	0.39	1.21	75.6	6.3	71.4	41.3	28.6	42.1

Tab.1 Influence of plaferontherapy on immunological indices of patients with herpetic stomatitis.

1 - herpetic stomatitis, before treatment; 2 - after treatment; 3 - healthy control groups

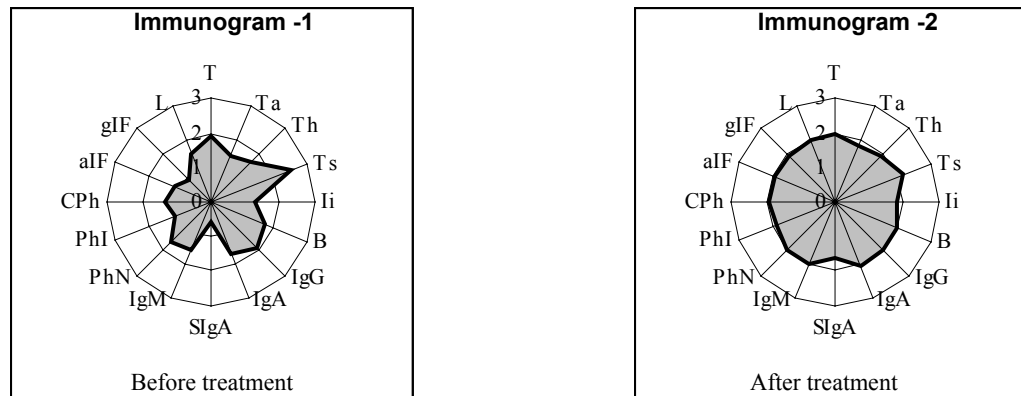


Fig.1 Immune homeostasis parameters of patients with herpetic stomatitis before and after treatment (comparison with healthy control group - second line).

References

1. Habif T. - Clinical Dermatology, St.Louis, 1985, p.252-254.
2. Bakhutashvili V., Chikovani T. - Plaferon - a new immunomodulator// Intern. J. on Immuno-rehabilitation, 1995, 1, 29-35.
3. Donbrow M., Friedman M. - Time release from polymeric films containing drugs and kinetics of drug release// J.Pharm.Sci., 1974, 64, 2, 76-79.
4. Egakey A., Speiser P. - Drug release from films of polycyanacrylates// Acta Pharm.Technol., 1982, 28, 2, 103-109.
5. Khromov G. et al. - Basis for eye medicinal forms// Patent of USSR, 1973, N 387559.
6. Terekhova N. et al. - Method of treatment of aphthosis stomatitis// Patent of USSR, 1986, N1287879.
7. Winsor T., Berger H. - Oral nitroglycerin as a prophylactic antianginal drug// Amer.Heart.J., 1985, 5, 611-626.
8. Yamanishi K. - Herpes// J. of the IHMF 1995; 2(3); 68-75

Клинические и иммунологические аспекты лечения острого герпетического стоматита плаферонсодержащей адгезивной пленкой

Нато Корсантия, Александр Кацитадзе,** Владимир Бахутаивили,*
Нино Корсантия****

* Институт медицинской биотехнологии АН Грузии;

** Кафедра дерматологии и венерологии Тбилисского государственного медицинского университета, Грузия;

*** Кафедра детской стоматологии Тбилисского государственного медицинского университета, Грузия

Р Е З Ю М Е

Исследована клиническая эффективность плафероновых пленок, использованных в качестве адъювантной терапии герпетического стоматита у 40 пациентов (пленки приклеивали к пораженным участкам слизистой оболочки - ежедневные двукратные аппликации в течение 5 дней; рассасывание пленок длилось в течение одного часа). Наблюдения показали полное отсутствие местного раздражающего и аллергизирующего действия пленок. На фоне плаферонотерапии происходило более быстрое (на 3-5 дней), чем при традиционном лечении, исчезновение местных клинических проявлений герпеса. Иммунологический анализ выявил также достоверную активацию эндогенного интерферона в лейкоцитах *in vitro*, а также поглотительной и переваривающей способности нейтрофилов крови, усиление продукции лизоцима и SIgA в слюне. Таким образом, исследования выявили достаточно высокую лечебную эффективность и иммуностропность плафероновых адгезивных пленок при герпетическом стоматите.

Ключевые слова: *плаферон, адгезивные пленки, герпетический стоматит, иммунный гомеостаз*