Recurrent herpetic stomatitis and its treatment in industrial workers with cardiovascular diseases

Estomatitis herpética recurrente y su tratamiento en trabajadores industriales con enfermedades cardiovasculares

O.Yu. Kuznetsova
Ph.D. Medicine, Institute of Fundamental Medicine and Biology, Kazan Federal University, Tel. +79179323977
ID Scopus 57193639462 Email: kniga 7555@mail.ru

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Abstract

The article identifies workers of industrial enterprises with recurrent herpetic stomatitis, aggravated with cardiovascular pathology. As a result of a study of recurrent herpetic stomatitis in workers of industrial enterprises with cardiovascular pathology, 124 patients aged 28 to 49 years received treatment. Before and after therapy with an immunomodulator, the immune status of workers was assessed. Local immunity of the oral cavity (SIgA), indicators of cell-mediated immunity (blast-transformation reaction with phytohemagglutinin), indicators of humoral immunity (IgA, IgG, IgE), and the C_3 component of the compliment were assessed. The results proved the clinical efficacy of the immunomodulatory drug, extending the remission period ($p < 0,001$) of recurrent herpetic stomatitis, improving the immunological status indicators, and increasing the efficiency of industrial workers.

Keywords: treatment, recurrent herpetic stomatitis, cardiovascular diseases, workers.

Resumen

El artículo identifica a los trabajadores de empresas industriales con estomatitis herpética recurrente, agravada con patología cardiovascular. Como resultado de un estudio de estomatitis herpética recurrente en trabajadores de empresas industriales con patología cardiovascular, 124 pacientes de 28 a 49 años recibieron tratamiento. Antes y después de la terapia con un inmunomodulador, se evaluó el estado inmunológico de los trabajadores. Se evaluaron la inmunidad local de la cavidad oral (SIgA), los indicadores de inmunidad mediada por células (reacción de transformación blástica con fitohemaglutinina), los indicadores de inmunidad humoral (IgA, IgG, IgE) y el componente C3 del complemento. Los resultados demostraron la eficacia clínica del fármaco inmunomodulador, extendiendo el período de remisión ($p < 0,001$) de la estomatitis herpética recurrente, mejorando los indicadores del estado inmunológico y aumentando la eficiencia de los trabajadores industriales.

Palabras clave: tratamiento, estomatitis herpética recurrente, enfermedades cardiovasculares, trabajadores.

Introduction

A healthy industrial worker is an urgent issue of our time. People working at the enterprise must be healthy and safe. Every individual must be employed and healthy. After analyzing at industrial enterprises, we identified workers with recurrent herpetic stomatitis (RHS), aggravated by cardiovascular diseases. Cardiovascular diseases (CVD) are one of the most common diseases in the world and have a negative impact on work and human health[1]. CVD is the leading cause of death among other diseases[2]. Human health is a leading component in the modern world[3]. Nowadays, the number of industrial workers with cardiovascular diseases is growing. Only a healthy person can effectively perform his/her work[4]. The immune system plays a significant role in the health of workers in industrial plants[5]. One of the causes of recurrent herpetic stomatitis (RHS) is a deficiency of secretory IgA and its decrease[6]. We decided to look at the immune status in this group of patients, as well as to carry out a comparative analysis of immunological parameters before and after treatment with an immunomodulatory agent in workers with Coronary heart disease (CHD), aggravated by cardiovascular diseases[7].

The objective of the study is to assess the treatment of CHD in industrial workers with cardiovascular diseases.

Methods

To study the role of the immunological status in industrial workers, we identified 124 workers with contiguous gene syndrome (CGS), aggravated by cardiovascular diseases. These patients aged 28-49 years made up the examination group; of them - 51 women and 73 men. All workers were under the supervision of a dentist, immunologist, and cardiologist. Healthy people represented a control group. After examining the workers, we conducted traditional therapy for the underlying disease. In traditional therapy of CGS, antiseptic treatment of the teeth was carried out locally, then oxolinic ointment was applied and oral mucosa was anesthetized with 3% anesthetic ointment. The patients were prescribed hyposensitizing drugs by mouth. They recommended rational nutrition and oral care at home[8]. But the course of the disease remained the same, and the relapses of CGS did not decrease. Therefore, we prescribed a drug that has immunomodulatory and antiviral effects - glucosaminyl muramyl depop tide, which is an activator of innate and acquired immunity, enhances the body's defense against viral and bacterial infections. The drug does not cause pathological changes in the internal organs and shows good clinical efficacy[9].

All patients with CGS, aggravated by cardiovascular diseases, we carried out 4 courses of therapy during periods of exacerbations (autumn, spring). The workers were divided depending on the severity of the Cat-scratch disease (CSD) (see Table 1). The immunomodulator was prescribed in tablets on an empty stomach 30 minutes before meals, 5 mg once a day for the first six days, and then on an empty stomach 30 minutes before meals, 10 mg once a day for four days. The course lasted 10 days.

Table 1. The course of CGS treatment with the immunomodulatory and antiviral agent in industrial workers with cardiovascular diseases.

Days	INSTRUCTION
Day 1	5 mg once a day on an empty stomach
Day 2	5 mg once a day on an empty stomach
Day 3	5 mg once a day on an empty stomach
Day 4	5 mg once a day on an empty stomach
Day 5	5 mg once a day on an empty stomach
Day 6	5 mg once a day on an empty stomach
Day 7	10 mg once a day on an empty stomach
Day 8	10 mg once a day on an empty stomach
Day 9	10 mg once a day on an empty stomach
Day 10	10 mg once a day on an empty stomach

Before and after immunomodulator therapy, all workers of industrial enterprises were examined. Their immunological status, which included local immunity of the oral cavity, humoral immunity, cell-mediated immunity, and also the phagocytosis system and the complement system were assessed. All workers were under the strict supervision of an immunologist. When studying the indices of local immunity, the content of secretory immunoglobulin (SIgA) in saliva, which was determined by radial immunodiffusion according to G. Mancini, was examined. The indicators of the cell component of immunity were studied - the blast transformation reaction with phytohemagglutin according to N. Ling's method[9].

The parameters of humoral immunity (IgA, IgG) were assessed using simple radial immunodiffusion[10]. The concentration of total (IgE) was assessed using (radioimmunosorbent test) using reagents from Pharmaeia, and the compliment system (C_3 component of the compliment) was determined by immunodiffusion[10].

We evaluated the effectiveness of the clinical pattern of CGS in industrial workers with cardiovascular diseases by immunological parameters before treatment, and then after treatment with an immunomodulatory drug.

Before treatment, local oral immunity (SIgA) was 0,39±0,024 g/l in mild severity, 0,36±0,039 g/l in moderate severity, and 0,21±0,055 g/l in severe disease (see Table 2).

Table 2. Local immunity of the oral cavity in industrial workers with recurrent herpetic stomatitis with cardiovascular diseases before and after immunomodulator therapy

Severity of recurrent herpetic stomatitis	Local oral immunity
	SIgA, g/l
Mild before treatment after treatment	 0,39±0,024* 0,77±0,028**
Moderate before treatment after treatment	 0,36± 0,039* 0,75±0,025**
Severe before treatment after treatment	 0,21±0,055* 0,76±0,065**
Healthy workers	0,76±0,054

Note: differences are significant at p <0,001: * - differences with healthy workers; ** - differences in indicators before and after therapy

Humoral immunity (IgA) in mild severity was 1,19±0,4 g/l, in moderate severity – 1,06±0,7 g/l, in severe disease – 1,06±0,6 g/l. IgG was 10,59±0,8 g/l in mild severity, 8,75±0,7 g/l in moderate severity, and 8,43±0,8 g/l in severe disease. IgE was 287±1,61 IU/ml in mild severity, 339±1,43 IU/ml in moderate severity, and 387±1,76 IU/ml in severe disease (see Table 3).

Table 3. Humoral immunity in industrial workers with recurrent herpetic stomatitis with cardiovascular diseases before and after immunomodulator therapy

Severity of recurrent herpetic stomatitis	Humoral immunity		
	immunoglobulins:		
	A, g/l	G, g/l	E, IU/ml
Mild before treatment after treatment	 1,19±0,4* 1,10±0,6**	 10,59±0,8* 12,61±0,7**	 287±1,61* 117±1,62**
Moderate before treatment after treatment	 1,06±0,7* 1,09±0,6**	 8,75±0,7* 12,12±0,4**	 339±1,43* 113±1,65**
Severe before treatment after treatment	 1,06±0,6* 1,25±0,9**	 8,43±0,8* 12,34±0,9**	 387±1,76* 118±1,41**
Healthy workers	1,27±0,8	14,24±0,7	107±1,54

Note: differences are significant at p <0.001: * - differences with healthy workers; ** - differences in indicators before and after therapy

Cellular immunity was assessed by PBTL with PHA. In mild disease it was 74,5 ± 0,5%, moderate – 35,6±0,2%, severe – 19,5±0,03%. T-lymphocytes in mild disease were 43,2±0.4%, moderate – 32,4±0,6%, severe – 36,5±0,8%. The C_3 component of the compliment in mild disease was 0,78 ± 2,4, moderate – 0,85 ± 36, severe – 0,92±2,2.

After treatment of RHS with an immunomodulator, the indices of local oral immunity (SIgA) were 0,77±0,028 g/l in mild disease, 0,75±0,025 g/l - moderate, 0,76±0,065 g/l - severe. Indicators of humoral immunity (IgA) were 1,10±0,6 g/l in mild disease, 1,09±0,6 g/l - moderate, 1,25±0,9 g/l - severe. IgG was 12,61±0,7 g/l in mild disease, 12,12±0,4 g/l - moderate, 12,34±0,9 g/l - severe. IgE indices were 117±1,62 IU/ml in mild disease, 113±1,65 IU/ml - moderate, 118±1,41 IU/ml - severe (see Table 3 - Cellular immunity (BTR with PH) was 52,6 ± 0,3% in mild disease, 53,6±0,3% - moderate, 54,5±0,4% - severe. T-lymphocytes after treatment with an immunomodulator amounted to 53,3 ± 0,2% in mild CGS, 52,5 ± 0,5% - moderate, 45,2 ± 1,09% - severe (see Table 4). The C_3 indices of the compliment components were 1,17 ± 2,3 in mild disease, 0,79±1,4 - moderate, 0,69 ± 2,2 - severe (see Table 5).

Table 4. Cell-mediated immunity in industrial workers with recurrent herpetic stomatitis with cardiovascular diseases before and after immunomodulator therapy

Severity of recurrent herpetic stomatitis	Cell-mediated immunity	
	BTR with PHA, %	T-lymphocytes, %
Mild before treatment after treatment	74,5±0,5* 52,6±0,3**	43,2±0,4* 53,3±0,2**
Moderate before treatment after treatment	35,6±0,2* 53,6±0,3**	32,4±0,6* 52,5±0,5**
Severe before treatment after treatment	19,5±0,3* 54,5±0,4**	36,5±0,8* 45,2±0,9**
Healthy workers	55,3±0,4	54,6±0,5

Note: differences are significant at p <0,001: * - differences with healthy workers; ** - differences in indicators before and after therapy

Table 5. The compliment system in industrial workers with recurrent herpetic stomatitis with cardiovascular diseases before and after immunomodulator therapy

Severity of recurrent herpetic stomatitis	Compliment system
	C_3 component
Mild before treatment after treatment	 0,78± 2,4* 1,17±2,3**
Moderate before treatment after treatment	 0,85±3,6* 0,79±1,4**
Severe before treatment after treatment	 0,92± 2,2* 0,69±2,2**
Healthy workers	0,79±1,7

Note: differences are significant at p <0,001: * - differences with healthy workers; ** - differences in indicators before and after therapy

Treatment with the CGS immunomodulator in industrial workers with cardiovascular diseases showed that the immunological parameters of local immunity increased, that is, they approached the group of healthy people. In the link of humoral immunity, IgA and IgG significantly (p <0,001) increased, and the concentration of IgE significantly (p<0,001) decreased. Cell-mediated immunity - BTR with PHA and T-lymphocyte populations significantly (p<0,001) increased, and approached the group of healthy people.

Summary

1. In industrial workers with cardiovascular diseases and accompanied recurrent herpetic stomatitis, the course of the underlying disease is more unfavorable than in workers without a burdened status.
2. Normalization of immunological parameters after treatment with an immunomodulator for recurrent herpetic stomatitis in workers with cardiovascular diseases correlates with the clinical course of the disease (r=78, p<0,05).
3. Workers with recurrent herpetic stomatitis have a fairly high prevalence of cardiovascular diseases.

Conclusions

We must conclude that a healthy worker is an important component of the labor resource not only in Russia, but also in the world. All patients who were examined before receiving immunotherapy felt fatigue, weakness, fatigue and work was given to them with difficulty. The courses of immunomodulator in this group of patients improved their health, which was shown by the clinical picture of CGS: periods of illness were reduced, and patients with severe CGS showed high recovery results (94%).

After the therapy, the workers began to feel more comfortable, fell ill less often, had a stable remission (p <0,001), and the indicators of their immunological status improved. Clinical studies have shown the effectiveness of the use of an immunomodulatory in the treatment of CGS in workers of industrial enterprises, burdened with cardiovascular diseases[5]. The days of disability for workers of these enterprises have decreased based on the therapists' advice which means that losses for disability have decreased, and the health of workers has improved. The use of the immunomodulatory showed a positive result of the treatment of CGS in industrial workers with cardiovascular diseases.

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