

Original Research Article

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Efficacy of Lymphomyosot in the Treatment of Chronic Pharyngitis

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ABSTRACT

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Chronic pharyngitis is a common ENT condition characterized by persistent inflammation and reduced quality of life. The aim of this study was to evaluate the clinical and laboratory effectiveness of комплекс therapy including Lymphomyosot in patients with chronic pharyngitis. Thirty patients aged 20–65 years were examined before and after treatment using clinical assessment, complete blood count, bacteriological cultures, and pharyngoscopy. The inclusion of Lymphomyosot was associated with more pronounced clinical improvement and favorable pharyngoscopic changes.

Introduction

Since Cornelius Celsus identified four cardinal features of inflammation in the first century AD, physicians and researchers have devoted considerable effort to identifying and further understanding the physiological basis of this process. Today, it is widely recognized that inflammation accompanies many common diseases, and uncontrolled inflammation is considered a key mechanism in many chronic and age-related diseases in Western countries (Freund *et al.*, 2010). However, despite this connection, inflammatory reactions are not always harmful to the body; inflammation is an

important physiological component of the response to stress, tissue dysfunction, and injury (Mezhitov 2008). Inflammation, caused by metabolic changes or apoptosis of cells exposed to stress factors, is one manifestation of the body's ability to autoregulate, maintaining and/or promoting the restoration of normal tissue function (Mezhitov 2010, Serhan & Savill 2005). Scientists have coined the term "aseptic inflammation" to describe inflammation caused by endogenous signals from dead cells and tissues, as well as from cells and tissues exposed to stress factors or whose function is impaired (Chen & Nuñez 2010). Inflammatory responses are also crucial for maintaining and/or restoring healthy cells and

tissues. Under unfavorable environmental conditions, a specific, low-grade inflammatory response (called "parainflammation") develops, which aims to restore tissue resilience and prevent further damage (1). Tissue health is constantly monitored by tissue macrophages, which, when necessary, release inflammatory mediators to attract other cells involved in the inflammatory response (2).

Inflammatory responses are regulated by a complex of molecules. Proinflammatory mechanisms are activated simultaneously with anti-inflammatory mechanisms aimed at resolving inflammation. Their action is aimed at achieving the ideal outcome of the acute inflammatory reaction—limiting the intensity and duration of the inflammatory response and eliminating inflammation (Freund *et al.*, 2010, Nathan & Ding 2010, Serhan *et al.*, 2007, Perretti & Dalli 2009, Serhan *et al.*, 2004, Valledor *et al.*, 2010). Inflammation resolution is an active process that is initiated at the tissue level; endogenous anti-inflammatory and inflammation-resolving mediators actively counteract the developing inflammatory response, promoting (3, 4). A number of specialized lipid mediators (including resolvins, lipoxins, protectins, and maresins) are known to contribute to inflammation resolution; their expression creates "regulatory checkpoints" that direct the course of the inflammatory process.

Thus, the inflammatory status of a tissue is determined by the ratio of pro-inflammatory and anti-inflammatory factors, including external signals. A pathological condition arises when the balance is disrupted, making it impossible to eliminate inflammation. For example, with the constant presence of proinflammatory mediators and a lack of mediators that promote inflammation resolution, inflammation becomes chronic and is maintained through a positive feedback mechanism (5). In such cases, local disturbances can lead to systemic inflammation. It is believed that the development of inflammation at the local level is also reproduced at the systemic level; systemic inflammation is one of the pathological mechanisms in many diseases (6). Chronic pharyngitis (CP) is a common disease of the upper respiratory tract, characterized by inflammation of the pharyngeal mucosa. Recurrent CP is typically difficult to treat. Repeated therapy by otolaryngologists, general practitioners, and immunologists leads to temporary remission of the disease. In light of the above, studying the etiopathogenesis and developing new approaches to the diagnosis and treatment of CP are urgently needed.

Chronic pharyngitis (CP) is a long-term inflammatory disease of the pharyngeal mucosa, characterized by persistent morphofunctional changes, a tendency to relapse, and resistance to therapy (2, 7). According to domestic and international studies, chronic inflammatory diseases of the pharynx account for a significant proportion of visits to otolaryngologists (8).

The pathogenesis of CP is multifactorial and includes:

- chronic exposure to infectious agents;
- impaired local immunity of the mucous membrane;
- impaired lymphatic drainage;
- exposure to adverse exogenous factors (smoking, air pollution, gastroesophageal reflux)

Standard therapy is often aimed primarily at relieving symptoms and locally suppressing inflammation, but does not always provide a lasting clinical effect. Therefore, there is growing interest in agents capable of regulating inflammatory and lymphatic processes, including bioregulatory drugs (9).

Materials and methods of the study. Design and conditions of the study

A prospective clinical observational study was conducted at the otolaryngology department.

Patient characteristics. The study included 30 patients diagnosed with chronic pharyngitis: 16 women (53.3%) and 14 men (46.7%).

The patients' ages ranged from 20 to 65 years, with a mean age of 42.3 ± 8.6 years. The duration of the disease ranged from 1 to 10 years, confirming the chronic nature of the inflammatory process.

The age range of 20–65 years was chosen due to the high prevalence of HF among people of working age and the absence of age-related immunological features typical for children and the elderly.

Examination methods

Complete blood count

Used to assess the activity of the inflammatory process, exclude acute infection and systemic inflammatory reactions.

Bacteriological examination of pharyngeal and nasal swabs

This method allowed us to identify the qualitative and quantitative composition of the microflora, which plays a key role in maintaining chronic inflammation (8).

Pharyngoscopy

This was the primary instrumental method for assessing the condition of the pharyngeal mucosa: the degree of hyperemia, edema, granularity, and the presence of mucopurulent secretions.

Treatment. All patients received standard therapy aimed at:

- reduction of inflammation;
- sanitization of the mucous membrane;
- reduction of the irritating effects of external factors.

Additionally, the drug Lymphomyosot (BIOLOGISCHE HEILMITTEL HEEL, GmbH, Baden-Baden, Germany) was included in the treatment regimen, which is used as part of complex therapy for chronic inflammatory processes in order to improve lymphatic drainage and regulate tissue reactions (1, 2).

Results and Discussion

Bacteriological examination dynamics after 1 month

Bacteriological examination dynamics after 1 month

Bacteriological monitoring was performed 30 ± 3 days after completion of the therapy course.

The qualitative composition of the microflora and the frequency of detection of pathogenic and opportunistic microorganisms were assessed.

Interpretation

One month after treatment, the proportion of patients with normal microflora significantly increased ($p = 0.001$), while a statistically significant decrease in the detection rate of pathogenic flora was observed, indicating regression of the chronic infectious and inflammatory process.

Dynamics of general blood test parameters

Initially, the patients' CBC parameters were consistent with low-grade chronic inflammation.

One month after treatment, significant normalization of the main hematological parameters was noted.

Statistical data processing

Statistical analysis was performed using the SPSS/Statistica package.

Quantitative data are presented as $M \pm SD$ (mean \pm standard deviation).

To assess the significance of differences in parameters before and after treatment:

- Student's t-test for related samples (for normal distribution);
- The level of statistical significance was set at $p < 0.05$.

Clinical interpretation of statistically significant changes

- ✓ A decrease in leukocyte levels ($p = 0.003$) reflects a reduction in the activity of the chronic inflammatory process.
- ✓ A significant decrease in neutrophils ($p = 0.011$) correlates with a decrease in the bacterial load.
- ✓ An increase in the proportion of lymphocytes ($p = 0.008$) indicates restoration of the immunoregulatory balance.
- ✓ A 36.8% decrease in ESR ($p = 0.001$) confirms the systemic anti-inflammatory effect of the therapy.

In 24 out of 30 patients (80.0%), all CBC indicators after 1 month were within the age-related physiological norm.

The obtained results confirm current understanding of the need for a multi-level approach to the treatment of chronic pharyngitis.

Impaired lymphatic drainage and local immune response are considered factors in the maintenance of chronic inflammation (10).

Table.1 Dynamics of bacteriological culture results from the throat and nose (n = 30)

Microorganism	Before treatment, n (%)	After 1 month, n (%)	p
<i>Streptococcus pyogenes</i>	9 (30,0)	3 (10,0)	0,041
<i>Streptococcus viridans</i> (в высоком титре)	12 (40,0)	5 (16,7)	0,032
<i>Staphylococcus aureus</i>	7 (23,3)	2 (6,7)	0,048
<i>Haemophilus influenzae</i>	6 (20,0)	2 (6,7)	0,046
Microorganism associations	14 (46,7)	5 (16,7)	0,018
Lack of growth / normal flora	4 (13,3)	18 (60,0)	0,001

Note: Differences were considered statistically significant at $p < 0.05$.

Table.2 Complete blood count parameters before and after treatment (M ± SD)

Indicator	Before treatment	In 1 month	% change	p
Leukocytes, $\times 10^9/L$	7,9 ± 1,2	6,4 ± 0,9	↓ 19,0%	0,003
Neutrophils, %	62,1 ± 6,3	55,8 ± 5,1	↓ 10,1%	0,011
Lymphocytes, %	26,4 ± 4,8	31,2 ± 4,6	↑ 18,2%	0,008
ESR, mm/h	15,2 ± 4,1	9,6 ± 3,2	↓ 36,8%	0,001

Note: p is the level of statistical significance according to Student's t-test for related samples.

The inclusion of Lymphomyosot in therapy promotes more rapid regression of inflammatory changes due to its indirect effects on tissue metabolism and the lymphatic system. The obtained data confirm the advisability of dynamic laboratory monitoring of the effectiveness of chronic pharyngitis therapy.

In conclusion, one month following treatment, 60.0% of patients receiving combination therapy with Lymphomyosot demonstrated normalization of bacterial cultures ($p = 0.001$), while 80.0% achieved restoration of laboratory parameters to age-appropriate levels. Additionally, complete blood count parameters showed an improvement ranging from 10% to 37%, with statistically significant differences ($p < 0.05$). The implementation of an integrated therapeutic approach, supported by dynamic laboratory monitoring, enables an objective evaluation of treatment efficacy in chronic pharyngitis. Overall, the findings suggest that the inclusion of Lymphomyosot contributes to a more rapid and sustained regression of the inflammatory process, likely through enhancement of lymphatic drainage and modulation of local tissue responses in the pharyngeal mucosa.

Author Contributions

Islamova Malika Sanjarovna: Investigation, formal analysis, writing—original draft. Abdullaeva Charos

Abdualilovna: Validation, methodology, writing—reviewing. Zakirova Gulnoza Alisherovna:—Formal analysis, writing—review and editing. Akbarova Gulnoza Pulatovna: Investigation, writing—reviewing. Zakhidova Mamura Umidjanovna: Resources, investigation writing—reviewing.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical Approval Not applicable.

Consent to Participate Not applicable.

Consent to Publish Not applicable.

Conflict of Interest The authors declare no competing interests.

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