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Clinical Evaluation of the Effectiveness of the Combined Use of Phytotherapy and Sulfide Mineral Waters to Optimize the Basic Treatment of Chronic Gingivitis

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Abstract

Biopsies of 50 patients aged 26 to 67 years with diagnoses of chronic catarrhal gingivitis, chronic atrophic gingivitis, chronic hypertrophic gingivitis, and chronic ulcerative gingivitis were examined. The effectiveness of supplementing the basic treatment with phytoadattogens, "Mildronate", "Melaxen" and "Coronatera", separately and in combination, was determined. The clinical severity of chronic gingivitis was determined using generally accepted periodontal indices. The most positive clinical results were revealed with the combined use of sulfide waters, Milaxene, and phytococtail, together with the main treatment. It has been established that drug treatment in combination with phytotherapy contributes to the improvement of the immunobiological condition of patients, the prolonging effect of the drugs used, and the absence of allergic reactions. Consequently, the treatment of chronic gingivitis by the proposed methods, according to the effectiveness criteria, allows them to be recommended for optimizing the basic treatment.

Disciplinary: Medicine, Pharmacy.

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1 Introduction

Recently, along with traditional methods of treatment, biotherapy, a method of treatment by activating the body's natural defense mechanisms, has been gaining stronger and stronger positions [1-4]. Based on the accumulated knowledge about the influence of medicines and thermal waters on the key links of the etiology and pathogenesis of the disease, traditional medicine has played an important role in the development and introduction of new, harmless, and effective methods of treatment, in particular phytotherapy [5-8].

After many millennia of study and use, medicinal wild plants, with the right dosage, have become, as a rule, clinically effective and in-demand methods of treating diseases. Unfortunately, scientific medicine over time has become increasingly less likely to resort to the use of natural herbal remedies. However, current trends are forcing many people in our society to abandon medications, which often become too inaccessible and expensive. Interest in herbal medicine, as the most tried, affordable, and effective folk method of treatment, has increased significantly in recent years [9-12].

Currently, in a difficult social and economic situation, patients are looking for inexpensive, but effective medicines and treatment methods [13,14].

Active substances contained in medicinal plants, for example, alkaloids, are effective in urgent therapy, especially in cases where a rapid positive effect of their effects is needed. However, with prolonged use, these same medications can become ineffective and even dangerous, since addiction is quickly developed to them [15,16].

With frequent use, for example, beta-adrenergic receptor agonists for the relief of bronchial asthma attacks become ineffective or even ineffective, often leading to the development of asthmatic syndrome [17-19]. At the same time, herbal preparations from the herb ephedra can provide a clinical effect but are subject to the correct calculation of the dose and duration of use of the drug [20,21].

The purpose of this research was to study the results obtained from the separate and complex use of sulfide mineral waters of the sanatorium "Tamisk" and the Redant deposit "Redant-4R" of the Republic of North Ossetia-Alania (Russia), as well as the effects of pharmacological preparations Mildronate and Melaxen separately and in combination with phytotherapy eleutherococcus, phytolith, "Coronater" and phytococtail "FK-RS" for optimization of conventional treatment of chronic gingivitis.

2 Method

Histologically, before and after treatment, gum biopsies were examined in 50 patients of both sexes (24 men and 26 women) aged 29 to 67 years (Figure 1) with a diagnosis of chronic catarrhal gingivitis (20 patients), chronic atrophic gingivitis (12 patients), chronic hypertrophic gingivitis (8 patients), chronic ulcerative gingivitis (10 patients). According to age, the patients were divided into three groups. The first group consisted of patients aged 29 to 38 years, the second from 39 to 48 years, and the third from 49 years and older. The control group was formed

from 11 healthy volunteers of the same age (5 men, 6 women). The clinical severity of chronic gingivitis was determined using generally accepted periodontal indices.

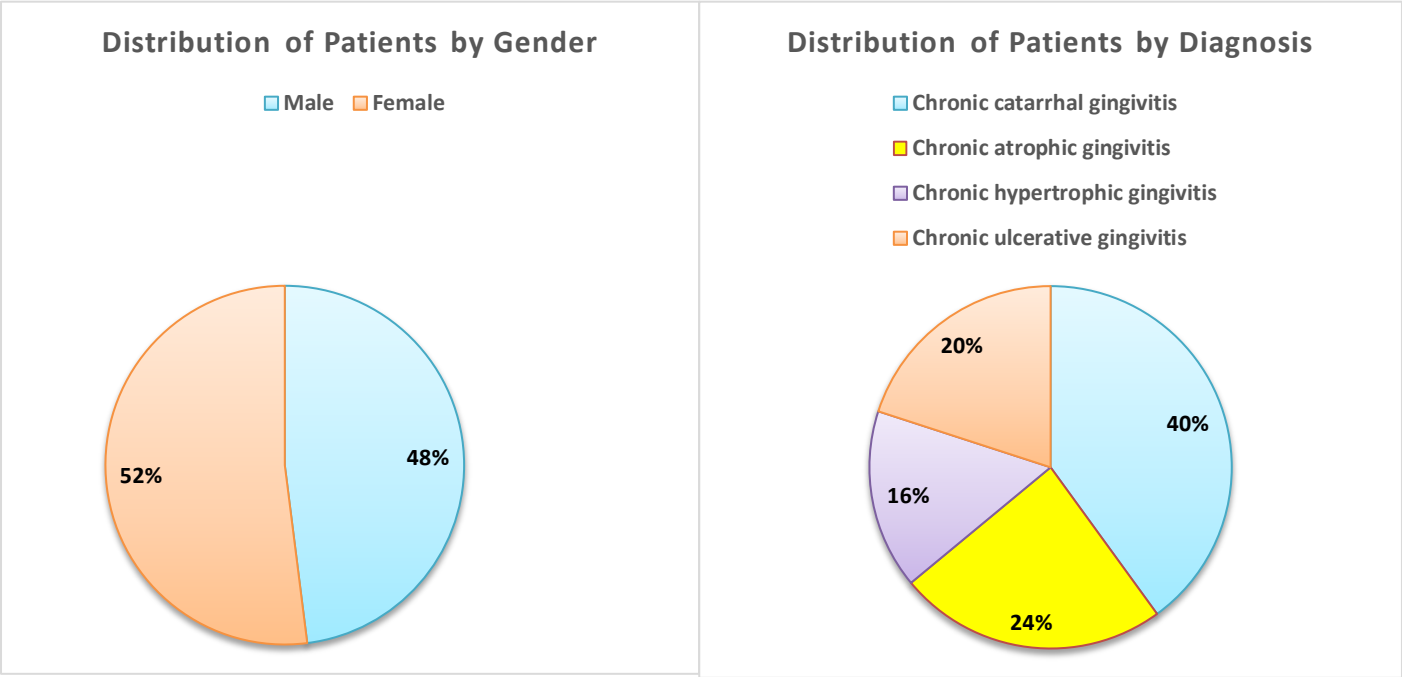

Figure 1: Distribution of patients by groups

For histological examination, samples of the gum mucosa 3 x 3.3 x 3.5 mm were taken, excised when teeth or their roots were removed for strictly medical reasons. The material was fixed in a 10% formalin solution and after histological wiring was poured into paraffin. Sections 5-6 microns thick were stained with hematoxylin and eosin, toluidine blue, and congo-red were used to detect amyloid [22].

Along with the basic methods of treatment, sulfide waters of the sanatorium "Tamisk" and "Redant-4R" were additionally used. Depending on the age and the absence of an allergic reaction to sulfur compounds, sulfide water was taken orally 2 times a day (in the morning on an empty stomach, half an hour before breakfast and lunch) in a dosage of 100-150 ml at room temperature. With ingestion of partially diluted sulfide mineral water, multiple oral sanitation was performed during the day (3-4 times) at a single dose of 150-200 ml, the course of treatment was 2 weeks, in advanced cases – 3 weeks.

In terms of phytotherapy, the phytoadaptogens Eleutherococcus extract and phytolith were used separately, in combination, and in combination with sulfide waters for the first time. The patients underwent a general clinical examination, which included: echocardiography, assessment of tolerance to light physical activity, and indicators of rheological properties of blood. The study of the mental sphere included self-assessment of well-being, activity, mood, and the Lusher test [23].

An immunological study was conducted on all age groups of patients. The T-system was studied using the method of spontaneous rosette formation, the reaction of blast transformation of lymphocytes with phytohemagglutinin. The total number of T-lymphocytes and their

subpopulations of T-helpers and T-suppressors were calculated with the determination of their ratio (immunoregulatory index) [24].

The state of the B-system was assessed by the absolute and percentage number of B-lymphocytes determined by the method of complementary rosette formation and by the content of serum immunoglobulins of classes lgA, lgG, lgM. The nonspecific protection of the phagocytic activity of neutrophils was judged by the nitrosamine tetrazolium recovery test. To influence the immunological status, an extract of Eleutherococcus prickly was used. The drug was prescribed in a dose of 20 drops (1 ml) once a day.

All patients received basic complex therapy. According to the type of phytoadaptogen used, the patients were divided into three groups, comparable in terms of the main indicators of their general condition. The first, control group received a herbal cocktail. Patients of the second group received Eleutherococcus extract; the third group received phytolith. Phytotherapy was carried out for three to four weeks.

In the complex treatment of chronic gingivitis, we included the pharmacological preparation 3 - (2,2,2 - trimethylhydrazinium) propionate – Mildronate, unique in its properties and breadth of application, which, by its chemical structure, is an azoanalog of γ-butyrobetaine, a natural metabolite in the chain of carnitine biosynthesis. By contributing to the expansion of the module of the circulatory system, Mildronate reduces the plasma impregnation of the vessel walls, reducing the output of plasma proteins into the tissue spaces, thereby restoring the drainage circulatory systems of the oral cavity. The drug was used in the form of intravenous injections of 10% solution of 10 ml 1 time/day for 2 weeks and after a month break - in capsules of 0.25 grams 2 times/day for 1 month.

For more effective treatment of chronic gingivitis with sulfide waters, "Melaxen" and "FK-RS" phytococtail were additionally used. Taking into account the main indicators of the general condition and the nature of the treatment, the patients were also divided into three groups. The first group (17 patients) received sulfide waters with "Melaxen", the second (16 patients) received sulfide waters with "FK–RS" phytococtail, the third group (17 patients) was treated with sulfide waters, "Melaxen" and "FK-RS" phytococtail.

Melaxen (manufacturer: Unifarm, Inc., USA) is a chemical analog of the biogenic amine melatonin (epiphysis hormone). It has immunostimulating, adaptogenic, and pronounced antioxidant properties. When ingested, it is rapidly and completely absorbed, and freely passes his thematic barriers, including the blood-brain barrier. It is prescribed 1 tablet 30 to 40 minutes before bedtime once a day.

In combination with sulfide waters, a phytococtail "FK-RS" was also used for immune correction – a mixture of alcoholic extracts of licorice, high-grade elecampane, Rhodiola Rosea, Eleutherococcus prickly. Phytococtail "FK-RS" has an antioxidant and immunomodulatory effect, has a tonic effect on the central nervous system and the functions of the body as a whole, improves blood circulation, and increases endurance during physical and nervous exertion [25]. The drug was

prescribed for 3 weeks, 3 times a day, 15-20 drops per 0.5 cups of water, rosehip infusion, or juice. One group of patients received "Coronater" as monotherapy for 8-10 pellets (pills) 2 times a day before meals for four weeks.

The obtained data were processed by the method of variational analysis using the Student's "t" criterion. Processing, calculations, and plotting were performed on a computer using computer programs Statistica 5.1 and Microsoft Excel.

3 Result and Discussion

The established tradition of treatment with medicinal herbs, going back from the depths of centuries, remains in demand at the present time on the example of the successful use of phytolith, Eleutherococcus, "Coronatera", phytococtail "FK-RS" in the treatment of chronic gingivitis.

Clinical evaluation of the use of sulfide mineral waters of the springs of the sanatorium "Tamisk" and "Redant-4R" RSO-Alania with phytotherapy Mildronate, "Melaxen" and "Coroner", used separately and in combination to optimize the generally accepted treatment of chronic gingivitis, according to the effectiveness of the effect on the body of patients gave differently, but positive results.

The most effective clinical results were obtained from the complex use of sulfide waters, Melaxene, and phytococtail FK-RS (efficiency-50%); Eleutherococcus extract and phytolith in combination with sulfide mineral water Redant-4P (efficiency-45%); Mildronate (40.1%); Coronaters – (40%) and sulfide waters of the springs of the sanatorium "Tamisk" and "Redant-4R", used in the form of monotherapy, the effectiveness of which was 25.3%.

Ancient Chinese herbal medicine does not lose its relevance today. So, for the treatment of diseases of the cardiovascular system and dental pathology, the phytocardioprotector "Coronatera" is used. A drug of plant origin, manufactured by a pharmaceutical factory in Tianjin, China, the form of release is pellets (pills). The key active principle of the "Coronatera" is Ligusticum Sichuan. Ligusticum root helps to reduce the total peripheral vascular resistance and causes a long-term and stable hypotensive effect due to antianginal, anti-ischemic, and membrane-stabilizing effects [26].

4 Conclusion

The fundamental strategy of restorative medicine is not only to preserve a person's physical health but also to adapt to negative factors of psychosomatic and social genesis [27]. This multidisciplinary strategy should be followed by biomedical science for the early detection, prevention, and treatment of psychosomatic pathological desynchronosis - powerful key pathogenetic mechanisms of acute and chronic organ pathology, including diseases of the dental system [28].

In this context, phytotherapy has a number of significant advantages in comparison with medical methods of treatment of chronic gingivitis. A significant duration of effective effect on the body, whereas with drug therapy, the therapeutic effect is short-lived and ends after the drug is excreted.

The absence of hypersensitivity reactions and the formation of endogenous immune complexes characteristic of medicines. Biopotentiating, the physiological mechanism of action in contrast to pharmacological drugs with a receptor mechanism of action. As an integral system, the body itself chooses possible ways to implement the control effect induced by phytopreparations, the biocomponents of which have the possibility of multi-level structural and functional effects.

Immunomodulation and normalization of homeostasis, the effect of medications are unidirectional, causing stimulation or suppression.

5 Availability of Data And Material

Data can be made available by contacting the corresponding author.

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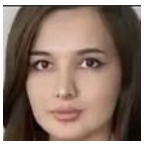

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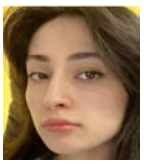

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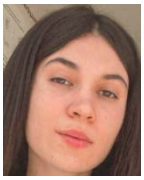

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