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Prevention of Periodontal Diseases

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Abstract
The widespread prevalence of periodontal diseases worldwide, the severity of their course and the negative impact on human health emphasize the importance of the problem of prevention and treatment of these diseases. Phytopreparations are traditionally used to accelerate the healing process after surgery and local treatment of diseases of the oral mucosa and periodontal. It has been proven that medicinal plants and medicinal products based on them are often able to replace synthetic drugs. And at the same time, the harm to human health has been significantly reduced, which makes it promising to search for new medicinal plant raw materials and develop medicines based on it that can be used in the treatment of periodontal diseases.

Keywords: dental diseases, factors, periodontal diseases, chemical properties, analysis.

Introduction

The problem of prevention and treatment of periodontal diseases occupies one of the leading places in modern dentistry. The significance of this problem is determined by the widespread prevalence of periodontal diseases worldwide, the severity of their course, and the negative impact on human health.

The prevalence of periodontal diseases reaches 98% in 90% of the adult population, more or less pronounced clinical signs of gingivitis are detected in industrialized countries, 50% of the population have symptoms of moderate periodontitis, and 3% of the population suffer from severe periodontitis. Recently, severe periodontitis has been observed more often, the number of people with aggressive forms of periodontitis has increased. Due to the fact that the treatment of developed forms of periodontitis requires considerable time spent by specialists, increasing as the process becomes heavier, the full provision of patients with appropriate medical care (including medication) turns out to be a problem that cannot be solved in any country in the world [3]. In this regard, the scientific

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significance of a certain solution to this problem is obvious.

In turn, phytopreparations are traditionally used to accelerate the healing process after surgery and local treatment of diseases of the oral mucosa and periodontal [2]. All phytopreparations used in dentistry conditionally, according to published data, can be divided into 2 groups: 1st - decoctions and infusions, extracts (water-alcohol and oil), tinctures, juices; 2nd -phytopastes, phytoparaffins, phytovestions, phytomasy. Preparations of the 1st group are intended for rinsing, instillation, applications, mainly at home. Their disadvantages include: a short shelf life (from a couple of hours to several days), sometimes the complexity and duration of their preparation, a short period of exposure to periodontal disease. Group 2 preparations are used for applications and lubricants, more often on an outpatient basis. They are usually prepared by the doctor himself or specially trained junior medical staff.

There are very few targeted dosage forms of factory origin on the world and domestic markets. More often they are classified as biologically active additives or medical products. The range of currently used herbal medicines[3,4,5].

the origin appears to be insufficient and is saturated with either domestic ("Chlorophyllipt", "Rotokan", "Calendula Tincture", "Eucalyptus Tincture", etc.), or imported expensive drugs ("Maraslavin", "Dentinox", "Stomatophyte", "Kalgel", "Kamistad", "Elugel", etc.), which do not contain the optimal composition of biologically active compounds that directly affect the pathogenetic links of target diseases.

their therapeutic effect is anti-inflammatory, analgesic, antimicrobial, etc. The product has been proposed to be used for the treatment of moderate periodontitis [7]. Combined antimicrobial phytopreparations for dental practice in the form of tincture and gel based on (RF Patent for invention No. 2428171 dated 09/10/2011 "The composition of a medicinal phytosubstantiation with antimicrobial and anti-inflammatory properties "Dentos"; Application No. 2009143215, priority of the invention 25.11.2009). The following types of vegetable raw materials are included in the prescription of the drug "Dentos": eucalyptus leaves (Eucaliptus viminalis Labill.), Echinacea purpurea grass (Echinacea purpurea (L.) Moench.), calendula flowers (Calendula officinalis L.), oak bark (Quercus robur L.), clove oil (Caryophyllus aromaticus L.).

The idea of creating new targeted drugs using innovative technologies based on the rational use of the complex pharmacological action of biologically active compounds of plant origin on various links of pathogenesis and clinical manifestations of inflammatory periodontal diseases, in our opinion, is quite relevant.

The purpose of the work is to analyze the problem of modern prevention and therapy of periodontal diseases.

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Materials and methods of research

The study was carried out by means of content analysis of literary data with elements of structural analysis. The object was data on the current state of periodontal disease, methods of prevention and pharmacotherapy.

Research results and their discussion

As is known, the periodontal performs a number of important functions: barrier, trophic, plastic, shock-absorbing function of reflex regulation of masticatory pressure. With inflammation of periodontal tissues, a violation of these functions occurs, the degree of which increases with the duration of the course of inflammation, especially when the destruction of the bone of the alveolar processes joins the inflammatory destruction of soft tissues, causing the mobility of teeth,

a significant lesion of the functional activity of the chewing apparatus - up to

tooth loss. It is characteristic that as the local inflammatory reaction becomes heavier and its generalization simultaneously increases its detrimental effect on the state of the general protective mechanisms of the body and a number of organs and systems - i.e. a vicious circle is formed, significantly complicating the solution of therapeutic tasks [3].

According to the modern point of view, the main cause of gingivitis and periodontitis is a microbial infection. Moreover, pathological changes in the periodontium can occur even with a certain sharp increase in the number of ordinary microorganisms, but especially with the appearance of so-called

periodontopathogenic microbes in their composition, however, it should be borne in mind that the realization of the pathogenic effects of microbial accumulations occurs only under the condition of a sharp decrease in local and general protection mechanisms. [8,9,10].

In periodontal diseases, several types of bacteria are most often identified among the microorganisms of the oral cavity: from gram-negative anaerobes, these are bacteroids: Porphyromonas gingivalis, Porphyromonas melaninogenica; anaerobospirils, spirochaetes, fusobacteria and gram-positive anaerobic and microaerophilic microorganisms of the actiiomycetes groups (A. naeslundii, A. viscosus, A. israelii) and streptococci. The most typical microorganisms of dental plaques in periodontal lesions are Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Prevotella intermedia, Veillonella parvula, [11,12].Fusobacterium nucleatum and Peptostreptococcus micros. The main periodontal pathogenic role is played by anaerobic microorganisms:

Actinobacillus actinomycetemcomitans,

Porphyrimonas gingivalis, Prevotella intermedia, etc. The peculiarity of the action of these anaerobes is that they secrete extremely active endotoxins and enzymes that damage cells and intercellular

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structures of all periodontal tissues, including bone.

Since microorganisms are always present in the root region, their suppression by bactericidal components of saliva occurs constantly. However, up to a certain level, the symptoms of inflammation are not determined by clinical methods. At the same time, the gum tissues have a normal healthy appearance. After the number of microbes exceeds a certain number, or if others appear in their composition, hundreds of medicinal plants and even more of their collections are used in dentistry for various diseases. Extensive material has been accumulated in the literature on the effects of plants and preparations from them on the clinical course, local and general immunity, microflora, metabolism, and the function of periodontal tissues [4]. Medicinal plants containing essential oils have come to our attention.

In ancient times, people used essential oil plants for diseases of the teeth and gums. In Southeast Asia, India, China - cloves, Indians in America - basil, in Ancient Russia for this purpose prepared balms of conifers (fir, cedar and pine), which strengthened and treated teeth, gums, oral mucosa [1]. Resin mastic (mastic) has been used in dentistry in the Middle East since ancient times, it is still used today for stomatitis, gingivitis, dental fillings, elimination of bad breath. The Arabs used the resin of the Finnish tree to treat teeth and strengthen gums.

Today, essential oils of a number of plants are still used for various dental diseases, for example, for gingivitis -fir, calamus, oregano, cedar, etc.; for stomatitis - roses, sage, chamomile, eucalyptus, etc. Wax applications with essential oils are actively used. So, periodontitis therapy using wax application already on the 3rd-6th day gives a change in the clinical picture: inflammation disappears, bleeding gums stops. With stomatitis, including ulcerative, there was a beneficial effect of rose, orange, sage, lavender waxes on the oral mucosa and prosthetic field tissue. Sage essential oil is effective in the treatment of root pulpitis - the acute inflammatory process fades in the pulp, its transition to the chronic stage stops. In case of gum inflammation, a decoction of juniper cones is also used in the form of rinses [5, 6].

It is also known that the following essential oils are effective for periodontitis oils: orange, lemon balm, clove, monarda, myrrh, bergamot, lavender, thyme, lemon, patchouli, mint. For example, the essential composition "For loyalty to Argo" used for this purpose contains juniper essential oil and, in addition, essential oils of basil, lavender, frankincense, mint (manufacturer - Pentalis LLC, Novosibirsk, Russia).

At the same time, the question arises - how to explain the biological activity of a number of essential oil plants? If essential oils, then why does the decoction often "work"? Or do flavonoids and a complex of co-extractive compounds act as a whole? In any case, a set of dosage forms based on these plants or their biologically active compounds is clearly needed. During the development of such, answers will arise to the questions that have arisen.

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Conclusion

Since 2005, Belgorod State University has been implementing a number of research projects within the framework of the scientific direction "Development of methodological approaches to the analysis of natural and synthetic biologically active compounds in objects of various origin". The study of pharmacological aspects of the use of these biologically active compounds" aimed at the creation of innovative targeted drugs, the development of new technological methods for processing pharmaceutical substances using the methodology of mechanochemistry, the development of a complex of pharmacological studies, including preclinical. As a result of many years of research, a separate one has emerged from this direction - "Pharmaceutical Remake", which aims to introduce into the official formulation of dosage forms based on biologically active compounds previously known in official and folk medicine medicinal plants [10]. This path of pharmaceutical development provides developers with almost unlimited opportunities, looks quite rational and low-cost, because there is no need to engage in.

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