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Research Article

RETROSPECTIVE ESTIMATION OF EFFECTIVENESS OF TOOTH PASTE ON THE BASIS OF ENZYMES IN PATIENTS WITH XEROSTOMIA

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Abstract:

In recent years, the concept of personified, or predicative (preventive) medicine has been discussed. According to the ICD-10, xerostomia refers to diseases of the digestive organs. Due to the development of xerostomia, a cariogenic situation is created in the oral cavity, hygiene of the oral cavity is impaired, self-cleaning of the oral cavity is reduced. Using the example of EnzycaM toothpaste which contains lactoperoxidase, amyloglucosidase, glucose oxidase (lactoperoxidase system or LPO); extract of red algae; sodium fluoride, it is possible to evaluate the significance of the components for preventing the dry mouth symptom.

Key words: *xerostomia, preventive medicine, toothpaste, lactoperoxidase system.*

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INTRODUCTION:

In recent years, the concept of personified or predicative (preventive) medicine has been discussed. Clinicians note the importance of not only functional, as a result of the action of organs and systems, but also individual characteristics of the patient, which have a pronounced effect on the condition of the oral cavity (1). It is noted that the medical staff of dental institutions is in need of postgraduate education, including because of the lack of individual approach and translational diagnostics skills (2).

According to the ICD-10, xerostomia refers to diseases of the digestive organs. At the same time, some authors consider dry mouth to be a symptom of a number of diseases, rather than an independent disease (3). Due to the development of xerostomia, a cariogenic situation is created in the oral cavity, hygiene of the oral cavity is impaired, self-cleaning of the oral cavity is reduced. (4). When studying the state of the oral cavity of patients living in zones of

radioactive contamination, radio-induced damage to the salivary glands was noted. The violations of local factors of oral protection during radiation exposure can not but affect the resistance of hard tooth tissues to the development of caries (5).

In people with drug dependence, along with severe changes in the body as a whole, there are significant changes in the dental status. This is largely due to the total lack of desire to lead a healthy lifestyle and to comply basic hygiene standards, including proper oral care and regular visits to the dentist (6).

MATERIALS AND METHODS:

This work was done at Sechenov University with supported by the "Russian Academic Excellence Project 5-100".

Xerostomia increases the risk of inflammation of the oral mucosa (SAD) with the occurrence of gingivitis, glossitis, stomatitis (Fig .1).

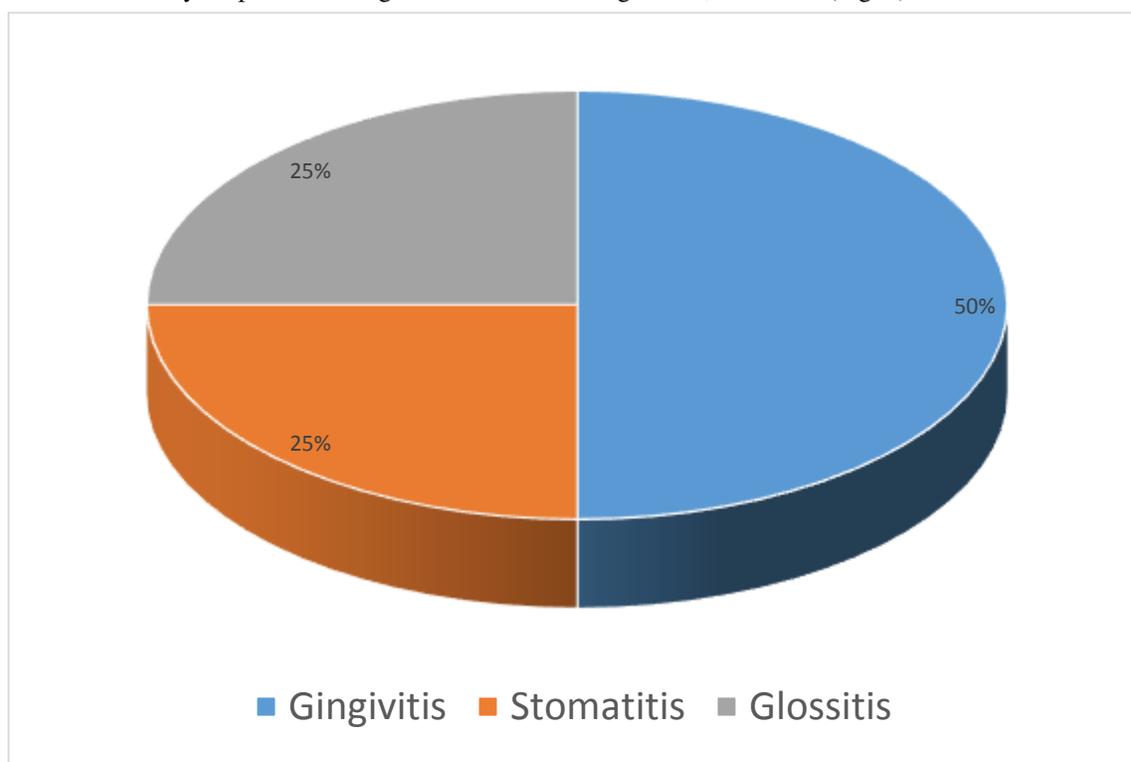


Fig.1 Complications of xerostomy

Therefore, the treatment of xerostomia, including the use of enzyme systems, should be aimed at maintaining the oral cavity in the wet state, restoring the biological properties of saliva, preventing caries, gingivitis, periodontitis, infectious diseases of SADD, and improving the quality of life of the patient (Fig .2).



Fig 2: Patient D., gingivitis on the background of xerostomia.

It is known that the lactoperoxidase system (LPO) has a pronounced antibacterial activity against both gram-positive and gram-negative bacteria. It was shown that the growth of colonies *Staphylococcus aureus*, *Streptococcus*, *E. coli*, *Pseudomonasaeruginosa*, *Burkholderiacepacia* and *Haemophilusinfluenza* was inhibited by the LPO system. According to Abaturova A.E. (2009), the functioning of the LPO system can be accompanied by a bactericidal effect, which is due to the production of activated oxygen-containing metabolites that cause irreversible oxidation of bacterial membranes proteins. The LPO system also provides antifungal (Dovydenko AB, Sampiev AT, 2009) and antiviral protection. In the studies of A.Dovydenko. (2008) demonstrated a concomitant reduction in peroxidase and α -amylase against a background of mild to moderate xerostomia (7-9).

As Baranov AA has shown. (2000), the action of the LPO system is directed to the inhibition of substances produced by *Streptococcus mutans*, which correlates with the results of the study by A.Dovydenko. (2010), where it says about an improvement of the conditions for the growth of useful microflora of the oral cavity, and also noted anti-inflammatory (10).

RESULTS AND DISCUSSION:

Using the example of EnzycalM toothpaste which contains lactoperoxidase, amyloglucosidase, glucose oxidase (lactoperoxidase system or LPO); extract of red algae; sodium fluoride, it is possible to evaluate the significance of the components for preventing the dry mouth symptom.

Thus, red algae contain polyunsaturated fatty acids, polysaccharides, amino acids, alginic acid, vitamins

and their precursors (A, C, D, B1, B2, B3, B6, B12, E, R, PP), enzymes, phytohormones, minerals (K, Na, Ca, Mg, I, Cl, S, Si), and also have anti-inflammatory, immunostimulating, antiradical and preventive antitumor effects.

The action of the LPO is aimed at inhibiting substances produced by *Streptococcus mutans*, improving the conditions for the growth of useful microflora of the oral cavity, and also anti-inflammatory action.

Vasiliev Yu.L., Kolomyichenko M.E. (2013) in their study prove that the toothpaste containing the lactoperoxidase system has a pronounced anti-inflammatory and antifungicidal effect, which is especially important against the background of increased saliva viscosity and general dryness of the oral cavity in patients suffering from xerostomia. In the same study, it was also noted that patients noted a decrease in the viscosity of saliva and the absence of an irritant effect of toothpaste on the oral mucosa.

CONCLUSIONS:

1. Xerostomia increases the risk of inflammation of the oral mucosa (SAD) with the occurrence of gingivitis, glossitis, and stomatitis.
2. Toothpaste containing lactoperoxidase system has a pronounced anti-inflammatory and antifungicidal effect.
3. Patients note a decrease in the viscosity of saliva and the absence of irritating action of toothpaste on the oral mucosa.

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