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Treatment of Patients Suffering from Glossalgia Accompanied by Xerostomia

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Abstract. Glossalgia is considered to be a pluricausal disease accompanied by paresthesia and tongue sensitivity disorder by the segmental type, combined with changes in salivation, taste and bulbar phenomena. Patients suffer from burning sensation, pin sensation, dry sore throat, and numbness of the tongue (as if the tongue is “peppered”, “burned”, etc.). Depression of salivary glands function is observed in patients suffering from paraesthesiae in the tongue frequently. These phenomena may be explained by the disorder of nerve and reflex pathways that ensure regulation of the secretory process and neurotransmission from the tongue surface. The treatment of patients suffering from glossalgia accompanied by xerostomia is complex and includes active cooperation of dentist, neurologist, endocrinologist and gastroenterologist. However, despite the variety of suggested methods and ways of this pathology treatment, all of them have an insufficient degree of efficiency. Therefore, the search of more efficient and perspective methods remains up to date.

The objective of the research was to increase the efficiency of glossalgia treatment by affecting the secretory apparatus of major and minor salivary glands. 17 female patients at the age of 37-62 having severe xerostomia with glossalgia were examined and treated. The method of glossalgia accompanied by xerostomia treatment approved by the authors consisted of bougienage of parotid and submandibular salivary glands ducts, successive alternating administration of chlorhexidine solution and rose seed oil into glands twice a week during one month, electrophoresis of nivalin for major salivary glands (10 sessions every other day), prescription of “No-Spa” in the first 7 days from the initiation of treatment. It was objectively proved that the immediate results after the termination of treatment were characterized by increasing of general secretion, elimination of the tongue paresthesia in most patients. Thus, we consider the stimulation of secretory activity of salivary glands in patients suffering from glossalgia to be a necessary component of complex treatment of this category of patients.

Keywords: *glossalgia; xerostomia; treatment; glossalgia, accompanied by xerostomia.*

The problem of diagnostics and treatment of different types of burning mouth syndrome has still not lost its relevance, first of all due to the constant increase in the number of patients suffering from various neurological disorders on the side of mucous membrane of the mouth. Poor data received during examination, frequent lack of any data or inconsistency between subjective sensations and objective data may contribute to inadequate attitude towards patients with chronic pain and paraesthesiae in the tongue, that is why they have to visit dentists (therapeutics, restorative clinicians, surgeons), neurologists again and again and then return to dentists without feeling relief [2].

According to the data taken from scientific publications, from 50% to 70% of population of different countries of the world suffer from some or other dental neurogenic states [8]. Taking into account that the indicated diseases mostly concern women of employable age, the social aspect of this problem becomes rather obvious. According to the data found in literature, 20% – 25% of patients who visited dentists because of paresthesia of the mucous membrane of mouth in fact suffered from glossalgia. Extension of glossalgia among patients with chronic orofacial pain syndromes ranges from 14% to 26% [4]. Earlier in the descriptions of this pathological process such terms as “glossodynia”, “burning mouth syndrome”, and “orodynia” were used. Glossalgia is considered to be a pluricausal disease as it is found in patients having gastrointestinal diseases, peripheral vascular diseases, and along with pathology of autonomic nervous system. It is possible to agree with an opinion of a number of authors who believe that the change of internal glands functions leads to endocrine disorders and causes certain changes in mouth cavity [1]. It is based on the fact that the main symptoms of glossalgia are the phenomena of dry mouth along with a sensation of pain. These phenomena may be explained by the disorder of nerve and reflex pathways that ensure regulation of the secretory process and neurotransmission from the

tongue surface. In addition, according to scientific researches a disturbance of a hemomicrocirculation of the tongue occurs in case of glossodynia. Determination of this factor as a principle one among other causes leading to the progression of glossodynia is a characteristic feature of a new approach to the diagnostics of hemodynamic disorders in the context of this disease. Therefore, the most efficient methods are modern Doppler methods which allow registering the movement of blood and measuring hemodynamic parameters in small and peripherally located arteries of the tongue [3].

Depression of major and minor salivary glands function of various degrees is observed in patients suffering from dry mouth symptoms, namely from insignificant hyosecretion to a total absence of secretion accompanied by difficulty of speech, taste disorder, chewing food disorders, and swallowing problems. In such a case, major complaints are burning sensation, pin sensation, dry sore throat, and numbness of the tongue (as if the tongue is “peppered”, “burned”, etc.). All of these symptoms are characteristic for glossalgia. Due to lack of common viewpoint on the cause of appearance of such pathology the treatment of patients suffering from glossalgia is complex and includes active cooperation of dentist, neurologist, endocrinologist and gastroenterologist. In the course of glossalgia treatment it is appropriate to apply psychotherapy, hypnotherapy, electrical sleep, acupuncture, laser reflex therapy, balneotherapy, various physiotherapeutic procedures [7]. Drug treatment includes prescription of anti-depressants, sedatives, neuroleptic and ataractic agents as well as vasoactive agents, hyper-salivants, and immunocorrectors. In some authors' opinion the particular role should be given to ultrasonotherapy, in other words to a treatment with a current oscillating at ultrasonic frequency [5]. Besides, different kinds of keratoplastic agents (e. g. wild rose oil) and drugs intensifying saliva flow (in case of hyper dry mouth) may be used in glossalgia treatment. Pilocarpine (5 mg once a day, subglossally), vitamin A, and potassium iodide are used to reduce xerostomia in order to stimulate functions of salivary glands. Bromhexine may be used to reduce the viscosity of saliva. Yu. M. Maksymovskiy (1981) founded out that infusion of Farfara leaves infusion and thennopsis stimulates saliva secretion and reduces its viscosity to 28.4%. General condition in case of xerostomia can be also improved by frequent drinking, mouth rinsing with liquids that substitute the saliva, for example, salenum – a water-soluble flax-seed extract. Along with drug treatment (in the absence of contraindication) manual therapy and physiotherapy are used, namely half-body massage, endonasal electrophoresis with novocaine and bromide, ganglerone electrophoresis on the cervical sympathetic ganglion area and heparin electrophoresis on the tongue area. Laser therapy gives a health-promoting effect as it plays the role of a biological stimulant and has an analgesic effect. Hirudotherapy is also successfully used for glossalgia treatment. Hirudotherapy is an application of medicinal leeches salivary secretions of which contain hirudin that has, among other, analgesic properties. Hyperbaric oxygenation therapy and injection of oxygen into the side surfaces of the tongue with the help of syringe are also recommended.

The objective of the research was to increase the efficiency of glossalgia treatment by affecting secretory apparatus of major and minor salivary glands. Analysis of existing sources of literature indicated that despite the variety of suggested methods and ways of glossalgia treatment accompanied by xerostomia, the search for more efficient and perspective methods remains up to date. The basis of the research involves the task to develop a way of treatment of glossalgia affected by xerostomia by means of searching the agent having an expressed reparative effect on glandular epithelium, high antioxidant properties, which will give the possibility to considerably increase the level of the treatment efficiency of such patients.

Materials and methods of the research

17 female patients at the age of 37-62 having severe xerostomia with phenomena of glossalgia were observed. General sialometry (according to standard practice), examination of cellular composition of parotid glands secretion in the dynamics of observation were performed to define the volume of secretion. Digital scale, namely Visual analogue scale system, was used to assess the degree of pain sensation in the tongue.

Therapeutic complex of xerostomia included bougienage of ducts of parotid glands and submandibular salivary glands, successive alternating administration of chlorhexidine solution and rose seed oil into glands twice a week during one month [6], electrophoresis of nivalin for major salivary glands (10 sessions every other day), prescription of “No-Spa” in the first 7 days from the commencement of treatment.

Results of the research

Leading symptoms of glossalgia affected by xerostomia included *complaints about* dry mouth, fissures in the area of angulus oris, burning, lancinating and sometimes throbbing pain in the area of side surfaces and on the tip of

tongue. During examination dry lips with small fissures were noted, some patients had angular chilitis. Buccal mucosa and mucous membrane of tongue were poorly damped, smooth and shiny. The primary analysis of the general secretion detected that 0.7 ± 0.2 ml of oral fluid effused per 10 minutes on average. Cellular composition of parotid glands secretion was characterized by the presence of a considerable number of squamous columnar epithelium cells, scarce number of goblet cells and elements of inflammatory kind. Pain reaction ranged from 6 to 10 points and was 8.2 ± 0.3 points on average.

Analysis of the general secretion performed after the termination of treatment (immediate results) showed its increase to 1.4 ± 0.3 ml per 10 minutes. The absence of cells of inflammatory kind and goblet cells was noted during the cytological examination of parotid glands secretion. Scarce number of cells of columnar and pavement epithelium were found. Pain sensation in the tongue disappeared in 12 patients and ranged about 3.2 ± 0.8 points in 5 patients. As can be seen from the above, the method of treatment of glossalgia accompanied by xerostomia approved by the author provides the increase of treatment efficiency, namely reduction or disappearance of dry mouth, normalization of cellular composition of salivary glands secretion, elimination of the tongue paresthesia.

Conclusions

In the case of chronic xerostomia tongue receptors become sensitive to numerous irritative agents. This manifests itself in pain in the tongue. Therefore, dry mouth contributes to the formation of glossalgia or modifies its clinical aspects. That explains the need of stimulation of secretory activity of salivary glands in patients suffering from glossalgia.

The prospects for further research

Thus, the question remains: Is violation of the secretory function of salivary glands or sensitivity disorders of tongue initial? Therefore, further research on this topic continues to be indispensable.

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